TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT VOLUME 3 APPENDICES

Rule 10(6)(d)

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List of Appendices

Appendix 1A – Network Rail's Environment and Social Minimum Requirements for Projects – PDF Page 4

Appendix 5A – Heritage Statements – PDF Page 61

Appendix 5B – Heritage Desk-Based Assessment – PDF Page 817

Appendix 6A – Ecology Technical Appendix – PDF Page 1032

Appendix 6B – Habitats Regulations Assessment – PDF Page 1227

Appendix 6C – Bat Survey Methodology – PDF Page 1267

Appendix 7A – Landscape and Visual Technical Appendix – PDF Page 1285

Appendix 8A – Arboricultural Technical Appendix – PDF Page 1473

Appendix 9A – Noise and Vibration Technical Appendix – PDF Page 1559

Appendix 9B – Baseline Noise and Vibration Survey Report – PDF Page 1587

Appendix 10A – Traffic and Transport Technical Appendix – PDF Page 1611

Appendix 10B – Transport Statement – PDF Page 1682

Appendix 10C – Framework Construction Worker Travel Plan – PDF Page 1802

Appendix 11A – Geoenvironment Technical Appendix – PDF Page 1828

Appendix 12A – Water Framework Directive Assessment – PDF Page 2335

Appendix 12B – Flood Risk Assessment – PDF Page 2446

Appendix 12C – Surface Water Assessment – PDF Page 2546

Appendix 13A – Air Quality Technical Appendix PDF Page 2596

For those reading online, specific appendices can be navigated to via the bookmarks menu.

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THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT - VOLUME 3 - APPENDIX 1A NETWORK RAIL'S ENVIRONMENT AND SOCIAL MINIMUM REQUIREMENTS FOR PROJECTS

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Ref:	**NR/L2/ENV/015**
Issue:	9
Date:	05 June 2021
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Level 2

Business process

Environment and Social Minimum Requirements for Projects – Design and Construction

Approvals

Content approved by:

FStainthorpe

.....

Francesca Stainthorpe,
Technical Lead

Content approved by:

.....

Rossa Donovan,
Principal Specialist - Environment & Sustainability

Content approved by:

.....

Jo Lewington,
Standard and Control Document Owner

Approved for publication by:

.....

John Winnifrith
Standards and Controls Management

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User information

This Network Rail standard contains colour-coding according to the following Red–Amber–Green classification.

Red requirements – *no variations permitted*

- Red requirements are to be complied with and achieved at all times.
- Red requirements are presented in a red box.
- Red requirements are monitored for compliance.
- Non-compliances will be investigated and corrective actions enforced.

Amber requirements – *variations permitted subject to approved risk analysis and mitigation*

- Amber requirements are to be complied with unless an approved variation is in place.
- Amber requirements are presented with an amber sidebar.
- Amber requirements are monitored for compliance.
- Variations can only be approved through the national variations process.
- Non-approved variations will be investigated and corrective actions enforced.

Green guidance – *to be used unless alternative solutions are followed*

- Guidance should be followed unless an alternative solution produces a better result.
- Guidance is presented with a dotted green sidebar.
- Guidance is not monitored for compliance.
- Alternative solutions should be documented to demonstrate effective control.

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Compliance

This Network Rail standard/control document is mandatory and shall be complied with by Network Rail Limited and its contractors if applicable from 04 September 2021.

Where it is considered not reasonably practicable to comply with the requirements in this standard/control document, permission to comply with a specified alternative should be sought in accordance with the Network Rail standards and controls process, or with the Railway Group Standards Code if applicable.

If this standard/control document contains requirements that are designed to demonstrate compliance with legislation they shall be complied with irrespective of a project's PACE/GRIP stage. In all other circumstances, projects that have formally completed GRIP Stage 3 (Option Selection) may continue to comply with any relevant Network Rail standards/control documents that were current when GRIP Stage 3 was completed.

NOTE 1: *Legislation includes Technical Specifications for Interoperability (TSIs).*

NOTE 2: *The relationship of this standard/control document with legislation and/or external standards is described in the purpose of this standard.*

Disclaimer

In issuing this standard/control document for its stated purpose, Network Rail Limited makes no warranties, expressed or implied, that compliance with all or any standards/control documents it issues is sufficient on its own to provide safety or compliance with legislation. Users are reminded of their own duties under legislation.

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Issue record

Issue	Date	Comments
1	August 1999	Original Document
2	April 2000	Revised RT/LS/S/015
3	June 2000	Revised to harmonise clauses with MITTE3
4	October 2002	Revised to apply to all works and design contracts,
5	April 2004	Company Reorganisation
6	December 2011	Revised to apply to service contracts
7	June 2018	Revised to include social impacts and other widespread edits. Service contracts removed.
8	March 2019	Revised to apply to GRIP projects only and exclude Route Business Maintenance teams.
9	June 2021	Post Implementation Review

Reference documentation

NR/L1/ENV/100	*Network Rail Environment and Social Performance Policy*
NR/L2/INI/CP0070	*Principal Contractor Licensing Scheme*
NR/L2/MTC/006	*Maintenance and Contents of the National Hazard Directory.*
NR/L2/TRK/5201	*Management of Lineside Vegetation*
NR/L3/MTC/MG0194	*Management of Third Party Complaints*
NR/L3/OPS/045/4.04	*Incidents*
NR/L3/INV/3001	*Reporting and Investigation Manual*
NR/L1/ELP/27000	*Policy Requirements for Electrical Power Assets*
NR/L2/INF/02202	*Records management of health and safety files*
NR/L3/ENV/305	*How to Change Utility Supplies*
NR/L3/OPS/045/5.10	*Management of Environmental Arrangements*
NR/L3/ENV/044	*Used Ballast and Excavation Waste Handling*
NR/L3/OPS/045/5.04	*Management of Station Works*
NR/L2/ENV/121	*Managing Environmental and Social Impacts of Noise and Vibration*
NR/L2/ENV/120	*Waste Management*
NR/L2/ENV/123	*Prevention of Pollution to Land and Water*
NR/L3/OHS/0046	*The Reporting, Investigation and Recording of Safety and Sustainable Development Events and Close Calls within Infrastructure Projects*
NR/L2/MTC/089	*Asset Management Plan Forms*
NR/L2/ENV/122/01	*Management of biodiversity*
NR/L3/TRK/003/TEF3069	*Pesticide application record form*
NR/L2/SCO/306	*Disposal of redundant assets*
R/L2/SIG/11201/Mod A2-23	*Recovery of redundant assets [Issue 1]*
NR/L2/CIV/003/F004	*Architectural and Layout Acceptance form*
NR/L2/OPS/250	*Network Rail National Emergency Plan*
NR/L3/OPS/045/4.14	*Control of Environmental Incident Procedures*
NR/L2/INI/P3M/101	*Governance for Railway Investment Projects (GRIP)*
NR/L2/P3M/201	*Project Acceleration in a Controlled Environment (PACE)*

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Legislation

This standard/control document has been reviewed to confirm it complies with relevant environmental and social legislation at the time of publication. Details of relevant legislation are available on Network Rail's Legal Register.

Compliance with this standard/control document does not, on its own, provide compliance with relevant legislation.

Contents

1 Purpose 6

2 Scope 6

3 Definitions 7

4 Environment and Social Management Processes 13

5 General Requirements – all projects/works 14

6 Environment Requirements 20

7 Emergency works and urgent reactive works 29

8 Social Performance Requirements 30

9 Incident management 35

10 External benchmarking 37

Ref:	**NR/L2/ENV/015**
Issue:	9
Date:	05 June 2021
Compliance date:	04 September 2021

1 Purpose

This standard sets out Network Rail's minimum requirements for the management of environment and social risks and opportunities during design and/or construction activities.

The implementation of this standard delivers a range of benefits to Network Rail including:

a) improved business cost-efficiency from sustainable practices, such as designing for whole-life energy efficiency, waste minimisation, and capital carbon value engineering;

b) increased social value created by maximising opportunities for inclusive design, considerate construction and socio-economic growth;

c) reduced risk of legal and regulatory non-compliance and negative reputational exposure by delivering good practice standards of environmental and social performance; and

d) alignment with the Network Rail Environmental Sustainability Strategy.

2 Scope

This standard is mandatory for all construction and design works carried out by Network Rail and its contractors as part of a PACE managed project.

This standard applies to but is not limited to:

a) Designers/Contractors contracted to Network Rail for the provision of design and/or construction services;

b) Network Rail business units where they act as a design or contractor entity according to Construction (Design and Management) Regulations definitions, e.g. Network Rail Design Delivery and Works Delivery engaged in construction and design works; and

c) any non-construction works that comply with NR/L2/OHS/0044 – Planning & Managing Construction work.

This standard excludes any works associated with maintenance activities.

The requirements of this standard apply to all land areas impacted by project activities, including the primary development site(s) and, without limitation, any associated temporary work sites, compounds, haul roads, access routes.

Where a joint venture or alliance is established, this standard should be recommended as a minimum when defining contract requirements for those organisations accountable for design or construction within the alliance.

3 Definitions

As low as reasonably practicable (ALARP)

Reasonably practicable involves weighing the risk / benefit against the effort, time and money needed to control it. Any requirements within this standard should be applied to ALARP using a whole-life cost approach for their consideration.

Asset

Any item, entity, or property owned by Network Rail and regarded as having actual or potential value or function to the operation of the rail network, to other Network Rail business activities, or to other stakeholders.

Biodiversity

The variety and variability among all forms of life.

NOTE 1: *This includes terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part.*

Best Practicable Means (BPM)

Measures taken to reduce the impacts of noise and vibration caused by works.

NOTE 2: *BPM is defined in Section 72 of the Control of Pollution Act as 'reasonably practicable for the local conditions and circumstances, using measures including good design, good practice installation, maintenance, manner and periods of operation of plant and machinery, acoustic structures and the financial implications of each.'*

Building Research Establishment Environmental Assessment Method (BREEAM)

An international scheme that provides third-party certification for the assessment of sustainability performance for projects, infrastructure and buildings.

Capital Carbon

Includes all carbon dioxide and other greenhouse gas emissions associated with the creation, construction, refurbishment and end-of- life decommissioning and treatment of an asset.

NOTE 3: *The term capital carbon has emerged because all these activities are typically funded through capital expenditure (CapEx).*

NOTE 4: *The related term 'embodied carbon' is part of capital carbon but only applies to the carbon dioxide and other greenhouse gas emissions during the manufacture of specific materials and products.*

Civil Engineering Environmental Quality Assessment & Awards Scheme (CEEQUAL)

A sustainability assessment for engineering, infrastructure, landscaping and public realm projects.

Circular Economy

A circular economy is a sustainable alternative to the traditional linear economy of make, use and dispose. The aim of a circular economy is to extract fewer virgin resources from the planet and to keep existing resources in use for as long as possible. Resources, products and materials should be re-used, repaired and regenerated in order to extend their useful lifespan and extract their maximum environmental, social and financial value. This approach reduces embodied carbon, water and social impacts and keeps waste to a minimum.

Construction

The carrying out of any building, civil engineering or engineering construction work that includes:

a) the construction, alteration, conversion, fitting out, commissioning, renovation, repair, upkeep, redecoration or other maintenance (including cleaning which involves the use of water or an abrasive at high pressure, or the use of corrosive or toxic substances), de-commissioning, demolition or dismantling of a structure;

b) the preparation for an intended structure, including site clearance, exploration, investigation (but not site survey) and excavation (but not pre-construction archaeological investigations), and the clearance or preparation of the site or structure for use or occupation at its conclusion;

c) the assembly on site of prefabricated elements to form a structure or the disassembly on site of the prefabricated elements which, immediately before such disassembly formed structure;

d) the removal of a structure, or of any product or waste resulting from demolition or dismantling of a structure, or from disassembly of prefabricated elements which immediately before such disassembly formed structure;

e) the installation, commissioning, maintenance, repair, or removal of mechanical, electrical, gas, compressed air, hydraulic, telecommunication, computer or similar services which are normally fixed within or to a structure,

Construction does not include the exploration for, or extraction of, mineral resources, or preparatory activities carried out at a place where such exploration or extraction is carried out.

Contaminated Land

Land that has legally been defined as 'contaminated land' where substances are causing or has the potential to cause significant harm to people, property or protected species, significant pollution of surface waters (e.g. lakes and rivers) or groundwater, air pollution, and/or harm to people as a result of radioactivity. Land can become contaminated with:

- hazardous and/or non-hazardous materials from human activity (e.g. previous land uses, fuel spillages, fly tipping);
- invasive non-native species;
- naturally occurring hazardous substances like radon gas.

Contractor

Any person or organisation, including a non-domestic client, who carries out, manages or controls works (as defined above).

NOTE 5: *This can include a Network Rail business function that is contracted to complete work on behalf of another Network Rail business function.*

Design

Design includes any production of drawings, design details, specifications and bills of quantities (including specification of articles or substances) relating to a structure, and calculations prepared for the purpose of design.

Designer

Any person or organisation, including a client, contractor or other person, who:

- prepares or modifies a design
- arranges for, or instructs, any person under their control to do so,

relating to a structure, or a product or mechanical or electrical system intended for a particular structure. A person is deemed to prepare a design where a design is prepared by a person under their control.

NOTE 6: *This can include a Network Rail business function that is contracted to complete work on behalf of another Network Rail business function.*

Emergency Works

Works that must be undertaken immediately, without delay and with involvement from emergency services. The event is unexpected and serious, such that it presents a significant risk to human life, health and/or property, or the natural environment, and involves the need for immediate action to manage the risk.

Employer's Representative

Any role within Network Rail responsible for managing and delivering the contracted project or works activity at a given stage in the project/works life-cycle. This could be, without limitation, the Contract Manager, Development Manager, Project Manager, or Asset Manager.

Environmental Product Declaration (EPD)

An independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products.

NOTE 7: *The International EPD System is a global programme for environmental declarations based on ISO 14025 and EN 15804.*

Forest Products

Any material derived from forestry, including timber, composite timber products, paper, card, etc.

Health & Safety File (HSF)

A file prepared to satisfy regulation 12(5) of the Construction (Design and Management) Regulations. The purpose of the HSF is to confirm that, at the end of a project, the client has information that anyone carrying out subsequent construction work on the same site or structure would need to be aware of in order to plan and carry out work safely and without risk to health.

Indicators

Indications of performance and/ or the likelihood of meeting targets. The most significant of these, for a business, are key performance indicators.

Non-construction works

Works outside the scope of construction works might include non-intrusive surveys and inspections carried out as part of the pre-construction phase, vegetation clearance that is not associated with the construction phase, and structures examinations.

Potable Water

Water that is safe to drink.

Preliminary Ecological Appraisal (PEA)

A rapid assessment of the habitats and ecological features, present or potentially present, within a site and within the wider zone of influence of a project or work site. A PEA normally comprises a desktop study and a site walkover survey such as an Extended Phase 1 Habitat Survey. The PEA will determine the need for further Phase 2 surveys. PEAs need to be conducted in accordance with the most current edition of Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal.

Preliminary Risk Assessment (Contaminated Land)

The Preliminary Risk Assessment (Phase 1 desktop study) is the first stage of the contaminated land assessment process. This involves analysing historical and environmental information for the site and within a 250 m radius around the site as detailed in the Environment Agency's Land Contamination Risk Management (LCRM) guidance. A risk assessment report with conceptual site modelling will be undertaken. If this demonstrates no risk from contamination, the planning will be released, subject to local authority agreement.

Safety Central

Safety Central is a Network Rail managed website to promote best practice health, safety and sustainability within the rail industry. Network Rail environment and social guidance notes can be found on this website: https://safety.networkrail.co.uk/.

SKA Rating

SKA rating is an environmental assessment method, benchmark and standard for non-domestic fitouts, led and owned by the Royal Institute of Chartered Surveyors (RICS).

Social Performance

The extent to which Network Rail's operations, activities and decisions impact people- including passengers, employees, suppliers, communities or other groups affected by Network Rail's physical and socio-economic presence.

Social Value

Defined by Social Value UK as "the quantification of the relative importance that people place on the changes they experience in their lives. Some, but not all of this value is captured in market prices." The term 'social value' is used sometimes interchangeably with the term 'social performance.'

Structure

a) Any building, timber, masonry, metal or reinforced concrete structure, railway line or siding, tramway line, dock, harbour, inland navigation, tunnel, shaft, bridge, viaduct, waterworks, reservoir, pipe or pipeline, cable, aqueduct, sewer, sewage works, gasholder, road, airfield, sea defence works, river works, drainage works, earthworks, lagoon, dam, wall, caisson, mast, tower, pylon, underground tank, earth retaining structure or structure designed to preserve or alter any natural feature, and fixed plant; or similar,

b) Any formwork, falsework, scaffold or other structure designed or used to provide support or means of access during construction work.

Supplier

The term used within Network Rail contracting to refer to a Designer and/or contractor.

Traction Energy

The energy used to move trains.

Urgent Reactive works / Non-emergency unplanned works

Works that were not planned but must be undertaken urgently when a rail asset has failed due to a sudden and unforeseen event, fault or defect. There is not involvement from emergency services, but the work is deemed urgent in order to restore the rail network to a safe operating condition.

Weather Resilience and Climate Change Adaptation

Weather resilience is the ability of assets, networks and systems to anticipate, absorb, adapt to, and/or recover from disruptive weather events.

Climate change adaptation is action taken to improve the resilience of assets, networks and systems to future weather conditions, avoiding, minimising or mitigating the impact of more severe or frequent adverse and extreme weather events and gradual or erratic changes in weather patterns due to climate change.

Whole-life carbon

The sum of greenhouse gas emissions from all stages in the life cycle of an asset, including embodied carbon emissions of materials and products; capital carbon emissions from construction activities, major maintenance/ refurbishment/ replacement and end of life decommissioning and treatment; and operational carbon emissions from utilities consumption, minor servicing and maintenance.

4 Environment and Social Management Processes

4.1 Environment and Social Appraisal (ESA)

The ESA shall be completed at the start of a project and is a mandatory PACE product. The ESA is a live document and shall be updated at each PACE milestone or when significant changes to the project occur.

The ESA shall be reviewed and approved by the Network Rail Project Manager who shall confirm the ESA is complete and accurate.

The Employer's Representative shall confirm the Designer/Contractor has access to the most up-to-date project-specific ESA to understand the environmental and social impacts associated with the project.

NOTE 1: *The ESA is a Network Rail tool owned by the Employer's Representative that enables Network Rail to collate pre-construction information on environmental and social risks and opportunities. Consequently, it is not appropriate for construction Designer/Contractor to complete the ESA. The ESA can be carried out by another competent party (with access to the relevant information sources) on behalf of the Project Manager, as long as the review and acceptance is carried out internally.*

4.2 Environment and Social Management Plans (ESMP)

The Designer/Contractor shall produce an ESMP. The ESMP shall address all risks and opportunities identified by the ESA, applicable to the design or construction of the project, plus any other risks and opportunities identified by the Designer/Contractor.

The Network Rail ESMP template shall be mandatory for all works and shall include the documented requirements of this standard.

NOTE 2: *An ESMP template and guidance is available on the Environment and Sustainable Development page on Safety Central.*

NOTE 3: *Alliance and contracts for repeating design and works (e.g. track and signalling) may develop overarching ESMPs containing generic environmental management processes that comply with this standard. Project specific risks and opportunities shall be addressed in shorter site specific ESMPs.*

The ESMP shall include an environment and social risk assessment. The risk assessment shall identify the operational specific risks and opportunities associated with the project using data from the ESA, populated at the start of the project and updated as required.

Works on site shall not commence until the ESMP has been formally accepted in writing by the Network Rail Employer’s Representative.

For works where the contract mobilisation period is less than 28 days, the Designer/Contractor shall submit the ESMP documentation to the Employer’s Representative 14 days before on-site works commence or at a date agreed with the Employer's Representative.

Design ESMPs shall be submitted at a date agreed with the Employer's Representative.

For all other works, the ESMP shall be submitted in writing to the Employer’s Representative at least 28 days before on-site works commence. If the ESMP is not accepted by the Employer’s Representative, the Designer/Contractor shall resubmit

an updated ESMP within 10 days of receiving comments. The ESMP shall be resubmitted until accepted by the Employer's Representative.

The Project Manager shall complete the EN3 Review and Acceptance form.

NOTE 4: *Formal acceptance of the ESMP is through completion of this form.*

NOTE 5: *EN3 Review and Acceptance form is a PACE product within the PACE Product Index.*

5 General Requirements – all projects/works

5.1 Network Rail policies and strategies

The Designer/Contractor shall comply with all Network Rail policy, strategy and standards.

5.2 Roles and responsibilities

The Network Rail Project Manager shall allocate accountabilities and responsibilities for environment and social performance to named persons within the project team.

The Designer/Contractor shall notify and agree with the Employer's Representative any intended changes in managers with responsibilities for environment and social performance at least 28 days before they occur.

NOTE 1: *Appendix E of the Principal Contractor Licensing Scheme NR/L2/INI/CP0070 identifies environmental resourcing & competency requirements.*

5.3 Competence

A competence framework shall be used to understand and support organisational capability so that all staff have sufficient knowledge, skills, competence and experience to carry out the particular tasks and activities for which they are responsible.

The Designer/Contractor shall have appropriate environmental resources to comply with this Standard.

The Principal Contractor shall have appropriate environmental resources to satisfy the requirements set out in appendix E of NR/L2/INI/CP0070 and provide evidence, if requested, that the criteria have been met by those persons working on the project.

The Designer/Contractor shall follow legislative requirements at every stage of the project delivery.

5.4 Sub-contracting

Compliance with this standard shall be a requirement at tender stage and throughout the procurement and management of any sub-contractors.

Sub-contracting shall not absolve the Designer/Contractor from their accountability to Network Rail to meet the requirements of this standard.

5.5 Permits, Licences and Consents (PLCs)

The Designer/Contractor shall establish and/or maintain a PLCs register. The register shall contain details of:

a) all environment and/or social PLCs required by the design or construction phase of the project, as appropriate, along with conditions; and

b) allocated responsibility and accountability for discharging those conditions.

The Designer/Contractor shall comply with all PLCs as required.

The Designer/Contractor shall maintain a time-bound programme for applying for new or modified PLCs in line with the works programme and provide copies of any new or modified PLCs to the Employer's Representative within 7 days of receipt.

When instructed by the Employer's Representative, the Designer/Contractor shall become holder of any PLCs for the duration of the contract.

When instructed by the Employer's Representative, the Designer/Contractor shall transfer PLCs to Network Rail, or any agreed nominated person(s).

NOTE 2: *Each project develops a Land and Consents Strategy and Land and Consents Commitment Register to identify potential consents requirements. These documents can be made available on request.*

5.6 Objectives, targets and performance indicators

The Designer/Contractor shall progress any environmental and/or social commitments (e.g. target numbers of apprentices, carbon reduction targets) made earlier in the procurement and contracting process associated with the project, including any framework level targets.

If not already agreed prior to contract award the Designer/Contractor shall:

a) agree with the Employer's Representative, within 28 days of contract award, any project-specific environment and/or social objectives and targets and key performance indicators that will apply to the project or works. Targets shall meet the Employer's targets as a minimum where they have been set;

b) incorporate all targets into the ESMP;

NOTE 3: *The full list of national environment and social KPIs is available on the Environment and Sustainable Development page of Safety Central.*

c) collect and monitor the agreed national and local KPIs required by Network Rail and report these in accordance with the timescales outlined in the contract, and using the reporting platform approved by the contracting Network Rail business unit;

d) where specified by Network Rail use a prescribed tool to gather the raw data from which KPIs are derived; and

e) make available, upon request, data sources used to collate and verify reported KPIs.

5.7 Life Cycle Costing (LCC) and Option Selection

Life cycle costing shall be carried out for all works; regardless of size, complexity or type. Project decisions shall be based on the life-cycle of the asset, including environmental and social impacts, to deliver more efficient, more reliable and more sustainable long-term solutions rather than implementing a quicker, lower cost option.

Sponsors shall request for the LCC to be undertaken and for the impact of the project to be understood, at least qualitatively:

a) LCC test shall be carried out by the Sponsor and Project Manager at the strategic development phase.

b) LCC comparison shall be carried out by the PM, RAM, Engineers, CPM and/or Analyst at the project selection phase.

NOTE 4: *LCC analysis may be requested by the Sponsor or PM at the project development phase.*

NOTE 5: *The LCC handbook provides guidance on how life cycle costing is applied within Network Rail available at https://alpcat.hub.networkrail.co.uk/Pages/LCC-User-Guide.aspx*

Alongside Capital Cost (Capex) and Operational Cost (Opex), the Option Selection process shall include considerations in terms of:

a) environmental and social sustainability;

b) design life;

c) constructability;

d) maintenance requirements and maintainability;

e) construction and operations health & safety;

f) accessibility;

g) consents requirements;

h) decommissioning; and

i) end-of-life.

The Designer shall assess the environmental and social risks and opportunities associated with design options and include findings and recommendations in the Option Selection Report.

A workshop/ review shall be undertaken to identify and assess design options, either as a standalone activity or as part of another workshop (e.g. LCC Comparison).

This principle shall also be applied by the Contractor during the delivery phase when selecting Products, Materials and Construction Methodologies.

NOTE 6: *Environmental Life Cycle Appraisal methodologies includes Life Cycle Assessment (LCA), Environmental Product Declaration (EPD) and Best Practicable Environmental Option (BPEO).*

5.8 Communication

5.8.1 Stakeholder Management Plan

The Designer/Contractor shall identify a list of stakeholders and appropriate methods of engagement and communication and document this in the ESMP. The Designer/Contractor shall use the information in the existing Network Rail Stakeholder & Customer Management Plan to complete the ESMP.

NOTE 7: *The list of stakeholders should include, but is not limited to, lineside neighbours, local authorities, parish councils, schools, local businesses and passengers.*

5.8.2 Internal communication

The Designer/Contractor shall communicate the project specific ESMP and associated controls to directly employed and subcontracted personnel.

The Designer/Contractor shall provide additional ongoing briefings and communication of specific environment and social requirements to direct and subcontracted employees, according to their roles and responsibilities.

The Designer/Contractor shall maintain records of all briefings and communication activities.

The Designer/Contractor shall incorporate environment and social risks and opportunities and controls into instructional documents/ operational control procedures and document these within the ESMP.

The Designer/Contractor shall make available to interested parties the Environment and Social Performance Policies and project-specific environment or social performance data.

NOTE 8: *This includes but is not limited to, site inductions, the safe work pack (SWP) process, method statements, toolbox talks and task briefing documents.*

The Designer/Contractor shall nominate a person with responsibility for maintaining internal communication and for communicating any changes in policy, procedure or legislation, including changes to the materials on display.

5.8.3 External communication

The Designer/Contractor shall nominate a person with responsibility for community relations on site for:

a) briefing all staff about acceptable conduct;

b) overseeing the delivery of notification letters; and

c) providing the Network Rail community relations representatives any information they require in relation to the works.

The Designer/Contractor shall inform Network Rail local community relations representative(s) where work is within 200 metres of residential properties, schools, hospitals or business premises and might cause disruption or disturbance and/or impact Network Rail's reputation or may impact passenger or freight services. Communications shall address the potential significant environmental and social impacts on stakeholders as identified within the relevant risk assessments.

For noisier works, this distance will be increased to 500m.

NOTE 9: *Noisier works will be defined as the output of the Noise and Vibration Risk Assessment. Typical works might include but not be limited to piling, demolition works and tamping.*

NOTE 10: *Key stakeholders are identified in the Stakeholder Management Plan*.

NOTE 11: *The standard Communicating with the public - NR/L3/MTC/PL0215 contains information on how far in advance the public should be notified.*

The Designer/Contractor shall maintain a record of discussions held with statutory authorities.

In the event of an unplanned approach from a statutory authority, the Designer/Contractor shall inform the Employer's Representative and supply a record of the discussion.

5.8.4 Communication between Network Rail and suppliers

The Designer/Contractor shall organise a progress meeting with the Employer's Representative every 28 days, or at an interval otherwise agreed. The meeting shall include:

a) updates on risk and opportunities assessment;

b) risk controls and mitigations;

c) delivery of opportunities;

d) ESMPs;

e) Incident Response Plan (IRP) issues;

f) progress against targets;

g) KPI performance; and

h) audit/assurance monitoring findings.

NOTE 12: *This could be included in the Project and Progress Review meetings, or any other meetings where appropriate.*

5.9 Monitoring and assurance

The Network Rail Project Manager shall put in place a schedule of internal environment and social inspections.

The Designer/Contractor shall apply internal monitoring activities, such as inspections or audits, to check compliance with key environment or social controls from the ESMP.

The Designer/Contractor shall develop checklists to guide inspections and/or audits and include a schedule of inspections and audits within the ESMP.

The Designer/Contractor shall provide copies of inspections and audits, findings and action plans to the Employer's Representative within 28 days and at progress meetings.

5.10 Records, documents and knowledge transfer

Where duties transfer from one Designer/Contractor to another during the project life-cycle, the Designer/Contractor who is handing over shall, before completion of their contract, provide the Employer's Representative with an up to date ESMP. The Employer's Representative shall pass this on to the succeeding Designer/Contractor.

For each environment and social heading that the ESA confirmed as being applicable to the project the Designer/Contractor shall, before completion of their contract, provide the Employer's Representative with:

a) final copies of surveys;

b) risk assessments;

c) reports;

d) ESMPs;

e) records - including consents, permissions, licences and monitoring records;

f) best practice controls and mitigation measures;

g) a summary of environmental incidents, responses and lessons learnt; and

h) other relevant information for inclusion in the Health and Safety File/Operation & Maintenance (O&M) manuals.

The Project Manager or a delegated representative shall confirm that any relevant information is submitted in accordance with NR/L2/MTC/089 and complete NR/L2/MTC/089 Asset Management Plan Forms at project hand-over.

NOTE 13: *NR/L2/MTC/089 should be used to detail any ongoing environmental management works that are needed post hand-over. For example, any maintenance or monitoring required as part of biodiversity commitments, any maintenance requirements for habitats that have been created, or requirements contained within any licences, permits or consents.*

Before completion of the contract, the Designer/Contractor shall input environment and/social risks, features or survey data into the Network Rail National Hazard Directory in accordance with NR/L2/MTC/006.

5.11 Environment and Social data sources

5.11.1 General

The Network Rail representative shall interrogate internal and external environmental and social data sources from the start of the project to identify records of environment and/or social risks, features or surveys that might inform and/or constrain the project/works.

NOTE 14: *Readily accessible external data sources can be found in the Desktop study section of the ESA. Other external data sources such as those held by local authorities might need to be accessed.*

NOTE 15: *Internal data sources include GeoRINM Viewer (GRV), and the National Hazard Directory are available on the National Hazards website - http://www.nationalhazards.co.uk.*

NOTE 16: *The National Hazard Directory is a database for hazards on Network Rail's controlled infrastructure which can also record information on environment and social risks and/or features that might impact future works.*

5.11.2 Using data from external records

The Designer/Contractor shall verify the validity of external data sources and previous records used to support risk and/or opportunity identification.

NOTE 17: *The absence of previous environment or social records for the work site(s) does not mean that environment or social risks and constraints are not present.*

5.12 Health and Safety File

Before completion of works, the Designer/Contractor shall submit to the Employer's Representative environmental information that would be needed to manage health and safety risks during future work on the same site or structure into a Health and Safety File (HSF). HSF data management shall be in accordance with NR/L2/INF/02202.

NOTE 18: *Examples of environmental information includes contaminated land, flood risk, and emissions to air.*

5.13 Tax allowances and rebates

The Designer/Contractor shall investigate opportunities for tax allowances, rebates and incentives for sustainable design outcomes. Where tax allowance schemes have been applied, in accordance with HMRC conditions, these shall be documented in the ESMP.

6 Environment Requirements

6.1 Biodiversity

All works shall follow the process outlined in NR/L2/ENV/122/01.

In addition, for any works with a construction value over £20,000 or a footprint greater than 1500m^2 which will impact biodiversity, the Designer/Contractor shall undertake biodiversity metric calculations.

The Designer/Contractor shall use information from the Preliminary Ecological Appraisal (PEA) and other surveys to complete the biodiversity section of the ESMP.

Biodiversity metric calculations, PEA/ survey findings, protected species licences, assents and other ecology consents shall be provided by the Designer/Contractor to Network Rail in the format requested within 7 days of receipt.

6.2 Contaminated land

The Designer/Contractor shall conduct an Initial Hazard Review to determine whether the site could contain contamination associated with the current and previous activities on site and in the local vicinity. The Initial Hazard Review shall determine whether a Preliminary Risk Assessment (PRA) is required.

NOTE 1: *Dependant on the information already known about the site, it may be deemed appropriate to move straight to conducting a PRA.*

NOTE 2: *Further information on how to undertake an Initial Hazard Review and PRA is available in the Contaminated land guidance note available on Safety Central.*

Where the Initial Hazard Review cannot rule out potential contamination, the Designer/Contractor shall conduct a PRA including a conceptual site model and evaluate the risks associated with the pollution linkages. This shall be carried out by a Competent Person ahead of intrusive activities such as ground investigation.

NOTE 3: *The Contaminated land guidance note available on Safety Central has more detailed information on competent persons, including information on the Land Contamination Risk Management guidance which should be followed in all site assessments. (https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm)*

Where the PRA identifies potential unacceptable risks to receptors, the Designer/Contractor shall conduct a Generic Quantitative Risk Assessment (GQRA).

If significant risks have been identified, the Designer/Contractor shall conduct an Options Appraisal and undertake remediation and verification to prevent, minimise, remedy or mitigate the effects of the unacceptable risk.

The Designer/Contractor shall use the information from the relevant assessments to complete the Contaminated Land section of the ESMP. The Designer/Contractor shall collate and provide information on contaminated land management to the Asset Manager on completion of the works and include in the Health & Safety File.

For projects affecting the track bed, the Designer/Contractor shall comply with NR/L3/ENV/044.

6.3 Emissions to air

The Designer/Contractor shall assess potential sources of harmful or nuisance pollutants (including dust) that may arise both during the construction and operation of the asset.

The Designer shall design in opportunities to reduce emissions to air to ALARP during the construction and operational use of the asset.

During construction works, the Contractor shall confirm that emissions to air are reduced to ALARP, taking into account construction plant and Non-Road Mobile Machinery.

The Designer/Contractor shall use the information from the relevant assessment to complete the Emission to Air section of the ESMP.

The Designer/Contractor shall collate and provide information on emissions to air to the Asset Manager on completion of the works and include in the Health & Safety File.

6.4 Energy and carbon

6.4.1 Managing Carbon in Infrastructure (PAS 2080)

The Network Rail Project Manager shall put arrangements in place to achieve collaboration between all value chain participants to investigate and drive carbon reduction opportunities across the asset life-cycle. The collaboration arrangements and carbon reduction proposals shall be documented in the carbon section of the ESMP.

The Designer shall promote well-reasoned proposals to encourage the client / asset owner / manager to adopt low carbon solutions across the asset life-cycle. Low carbon solution decision outcomes shall be documented in the energy and carbon section of the ESMP.

NOTE 4: *Publicly Available Specification (PAS) 2080:2016* Carbon Management in Infrastructure *was commissioned by the Green Construction Board. It establishes a framework for all parties involved in the infrastructure value chain to work collaboratively towards a common carbon reduction goal. Network Rail is undertaking work to align more closely with the guiding principles of PAS 2080.*

6.4.2 Whole life carbon

Throughout the planning, development, design and delivery of projects, decisions shall take into account the consequential impacts on aggregated carbon emissions across the modular stages of the asset life cycle, with the goal of reducing whole life carbon emissions.

NOTE 5: *The principle of whole life carbon management applies to all projects; regardless of size, complexity or type.*

For any works over £1 million comprising civil, mechanical or electrical engineering activities, the Designer/Contractor shall use the Rail Carbon Tool to identify and record opportunities for reduction of whole life carbon emissions.

The Rail Carbon Tool shall be used from project development and option selection through design and delivery, taking into account design options, material use, construction methods and transport/ logistics.

NOTE 6: *Complex componentry asset systems like signalling and telecoms can be excluded but this is limited to the systems. Any associated engineering works are unlikely to be excluded e.g. high volumes of copper, aluminium or concrete.*

The Designer/Contractor shall use the information from the carbon assessment to influence decisions on low carbon design, low carbon materials and carbon efficient construction methods/logistics and complete the whole life carbon section of the ESMP.

During construction activities, the Contractor shall use renewable energy power and energy efficient technologies to reduce emissions where the technology exists. This shall apply to all equipment used on site, including welfare facilities, lighting, and plant equipment (e.g. battery power, solar power, LED technology). Diesel or fossil-fuel use shall be avoided wherever technology equivalent alternatives exist.

NOTE 7: *The Rail Carbon Tool is available on the RSSB website or via the Capital Carbon page of Safety Central. Training on the Rail Carbon Tool is available via Oracle for NR employees or the RSSB website for the supply chain.*

6.4.3 Energy and operational carbon

The Designer/Contractor shall generate estimates for in-use operational energy (regulated and unregulated) and associated carbon emissions, excluding traction energy. This shall be done using an industry approved energy assessment methodology such as the Chartered Institute of Building Services Engineers (CIBSE) TM54.

The Designer shall propose options for energy efficiency and carbon reduction and use the information from the energy estimate to influence design decisions and complete the Energy and Operational Carbon section of the ESMP. Where practicable the design shall make use of any thermal storage, heat recovery, free cooling, renewable energy or natural lighting to minimise utility services.

For leased buildings, the Designer/Contractor shall undertake energy performance certification requirements and meet at least an Energy Performance Certificate (EPC) rating of C for all new buildings and a minimum rating of E for modified buildings using industry approved assessment methods.

The Designer/Contractor shall only make temporary or permanent connections following the connections and disconnections process as stipulated in NR/L3/ENV/305, with prior agreement in writing from the Employer's Representative. Each connection shall be sub-metered.

The Contractor shall establish, agree and track a commissioning assurance plan to verify that new services operate correctly and are within designed energy parameters.

The Contractor shall procure and install fixed services in accordance with the design specification and provide the Employer’s Representative with a commissioning plan to verify that key services are operating within predicted energy performance limits.

The Contractor shall procure and install fixed services in accordance with the design specification and provide the Employer's Representative with a commissioning plan to verify that key services are operating within predicted energy performance limits.

NOTE 8: *Network Rail guidance is published on the Energy and Carbon page of Safety Central.*

6.5 Circular Economy

6.5.1 Circular Economy Principles & Resource Efficiency

The Designer/Contractor shall incorporate the principles of circular economy to extend the service and future re-use of natural resources.

NOTE 9: *This could include designing with core construction materials that contain high proportions of recycled constituents and/or designing structures or features that can themselves be readily re-purposed, re-used or recycled at the end of the asset service life.*

The Designer shall conduct a Resource Efficiency Assessment/Workshop to identify opportunities for promoting resource efficiency, including designing out waste, reducing carbon and water use.

The Resource Efficiency Assessment/Workshop shall be reviewed, documented and refined during design and shall include:

a) optimising material use (including water) through engineering design including low carbon solutions;

b) reuse of materials (waste, water and surplus materials and equipment), including assessing the opportunity to use mechanisms such as, but not limited to:

   1) CL:AIRE 'Definition of Waste: Development Industry' Code of Practice for excavated materials;

   2) WRAP quality protocol for aggregates from inert waste;

   3) Environment Agency, Scottish Environment Protection Agency and/or Natural Resources Wales registered waste exemptions; and

   4) Consideration of opportunities to reuse materials via the Network Rail SurPlus app.

c) specification of reused, recycled and recyclable materials; and

d) assessment of end-of-life options for materials and components to assist with deconstruction to minimise disposal and maximise reuse.

NOTE 10: *The Resource Efficiency Assessment/ workshop could be incorporated into other design reviews, meetings, assessments or workshops such as the safe by design, value engineering, and HAZID. Guidance for undertaking a Resource Efficiency Assessment/ workshop is available on Safety Central.*

NOTE 11: *SurPlus is available to download from the Network Rail App Catalogue.*

NOTE 12: *Circular Economy principles will also be met by following many of the sections of this Standard, including Life Cycle Costing, Managing Carbon in Infrastructure, Whole life carbon, responsible sourcing of materials, timber and concrete/aggregate, Low Environmental Impact products and by implementing the waste hierarchy.*

6.5.2 Materials

6.5.2.1 Responsible sourcing

The Designer/Contractor shall identify opportunities for materials with low environmental and social impact in line with Network Rail's Environmental Sustainability Strategy when designing and procuring materials for works.

NOTE 13: *The Network Rail Environmental Sustainability Strategy is available on Safety Central.*

6.5.2.2 Low environmental impact products

The Designer/Contractor shall assess the range of products and materials proposed for use in the construction and fit-out of the project and identify those with negative environmental or social impacts during production, transport, installation, use, decommissioning and deconstruction.

NOTE 14*: Consideration could be given to harmful constituents such as the content of VOCs in paints, adhesives, resin-bond panel products, or the global warming potential of refrigerants in building heating, ventilation and air conditioning (HVAC) services.*

NOTE 15: *Assessment of products/ materials should also include information available from EPDs or Safety Data Sheets.*

The Designer/Contractor shall use the information from the assessment to influence design decisions, review cost-effective alternatives and incorporate these within the Materials section of the ESMP.

NOTE 16: *A practical example would be the life-cycle assessment of alternative refrigerant products in building HVAC services, and the comparison of alternative HVAC strategies (centralised versus decentralised).*

6.5.2.3 Responsibly sourced timber

All timber and timber derived products sourced by Network Rail and its Suppliers/Contractors shall be from legal and sustainable sources which are credibly certified by a third party and hold full documented chain of custody.

NOTE 17: *This is set out in Network Rail's Responsible Timber Sourcing Policy, which is available on Safety Central. Network Rail undertakes assurance activities on an annual basis to assess compliance against this policy.*

Timber species listed in Appendix I of the Convention on International Trade in Endangered Species (www.cites.org) shall not be specified or supplied. In addition, any species listed as endangered or critically endangered under the IUCN Red List shall not be specified or supplied.

The Designer/Contractor shall complete the Responsibly Sourced Timber section of the ESMP to outline the process for assuring that Network Rail's certification and chain of custody requirements are being met.

NOTE 18: *Chain of custody is demonstrated when delivery notes and invoices clearly state which consignment items are covered by the timber merchant's certification licence code(s).*

The Designer/Contractor shall define a project team member with accountability and authority for forest product procurement performance.

Where required by the Employer's Representative, the Designer/Contractor shall collate and submit itemised timber consignment data.

6.5.2.4 Concrete and aggregates

The Designer/Contractor shall assess the use of responsibly sourced concrete and/or aggregates in line with industry good practice.

A whole-life carbon approach shall be used to select the most sustainable material.

The Designer/Contractor shall use the information to complete the Materials section of the ESMP.

NOTE 19: *Responsibly sourced concrete and/or aggregates include:*

a) Materials able to demonstrate independent responsible sourcing certification under a recognised scheme, such as BES 6001; or

b) Secondary post-consumer recycled materials, with evidence to verify the supplier, product origins and previous use.

NOTE 20: *Network Rail Supply Chain Operations (SCO) sells most common types of recycled aggregate products that comes directly from spent railway ballast. For internal customers this can be ordered via the NROL procurement system. External customers can also order recycled aggregate by making an enquiry via the Network Rail Railway Recycling website (www.railwayrecycling.co.uk) or by directly contacting recycledaggregatesqueries@networkrail.co.uk.*

6.5.2.5 Herbicides

Herbicides shall only be applied in accordance with the product label and shall take into account the requirements of the Herbicide Agreement on Safety Central.

A person with BASIS certification shall:

a) specify the method of application of the chosen herbicide for the type of vegetation to be treated;

b) select the herbicide and dosage rates before work commences.

NOTE 21: *Prior to selecting a chemical application, alternative non-chemical management methods should be considered.*

NOTE 22: *Competency is satisfied by holding NPTC PA1 'Safe use of pesticides' and NPTC PA6 'Handheld Application.'*

The extent of the areas to be sprayed and any restrictions on use shall be provided to the operator in advance of the works.

Consideration shall be given to potential seepage to watercourses.

Complete NR/L3/TRK/003/TEF3069 when applying chemicals.

6.5.3 Waste

6.5.3.1 Waste Management

The Designer/Contractor shall comply with NR/L2/ENV/120.

The Designer/Contractor shall prepare a Site Waste Management Plan (SWMP) within the ESMP.

The design SWMP shall identify how the design can contribute to waste reduction, in order to inform the option selection and detailed design stages.

The construction SWMP shall identify how waste will be avoided and minimised through the construction stage of the project. It shall include forecasts of quantities

and types of waste expected to be reused, recycled, recovered and disposed of. It shall be updated through the project with actual quantities and types of wastes in these categories.

The Designer/Contractor shall apply the waste hierarchy and document within the SWMP the types, quantities and proportions of waste expected to be reduced, reused, recycled, recovered or disposed. A final version shall be provided with the project actual waste data including quantities, types and the chosen waste management option.

The Designer/Contractor shall comply with Network Rail waste targets as set by the Employer's Representative.

The Designer/Contractor shall collate and report waste data in accordance with the Employer's requirements.

For the design of stations, occupied buildings or depots, assess the waste types and estimated quantities expected monthly during the operation.

Buildings shall be designed with space for the safe movement, segregation and storage of operational wastes awaiting removal or re-use. The design shall also provide arrangements for cleaning waste storage areas and incorporate pollution controls.

The Contractor shall leave all work sites clear of waste on completion of the project.

***NOTE 23**: NR/L2/SCO/306 and NR/L2/SIG/11201/Mod A2-23 provide further information on redundant assets.*

***NOTE 24:** NR/L3/ENV/044 provides further information on planning and handling track excavation waste at the pre-works design stage and through delivery stages.*

6.5.3.2 Polychlorinated bi-phenols (PCBs)

The Employer's Representative shall identify potential PCB contaminated equipment and assets. Equipment and assets shall be tested, registered and disposed of in accordance with legal requirements.

***NOTE 25:** Network Rail maintains a PCB register containing details of known E&P assets containing PCBs.*

***NOTE 26:** A PCB checklist is available on Safety Central.*

6.6 Noise and Vibration

The Designer/Contractor shall comply with NR/L2/ENV/121.

The Designer/Contractor shall conduct a Noise and Vibration Risk Assessment (NVRA) and document this within the ESMP.

***NOTE 27:** Further information on the Noise and Vibration process and a NVRA template is available within NR/L2/ENV/121.*

The Designer/Contractor shall design and implement measures to control noise and vibration emissions using BPM to levels ALARP. This shall be documented within the ESMP.

The Contractor shall agree an appropriate noise and vibration monitoring programme with the Employer's Representative and, where appropriate, the relevant local authority.

The Designer/Contractor shall also take into account potential disturbance of sensitive ecological receptors by noise, vibration or light.

The Contractor shall seek Local Authority consent under Section 61 of the Control of Pollution Act before commencing works, unless agreement from the Employer's Representative confirms that construction noise will be managed without need of consent.

Consideration shall be given to where site access compounds are located.

6.7 Dust, odour and lighting

The Designer/Contractor shall design to control dust, intrusive lighting emissions and odour emissions from fixed or temporary plant and site construction activities. These design considerations shall be reduced to levels ALARP and documented within the ESMP.

The Contractor shall take into account the impacts of traffic - this shall be used to inform the Traffic Management Plan.

NOTE 28: *Network Rail guidance is published on the Noise, Nuisance and Disturbance page of Safety Central.*

6.8 Pollution of land / water

The Designer/Contractor shall not rely on temporary or permanent connections to any water supply or drainage infrastructure until agreement has been received from the Employer's Representative.

Where surface water and/or foul discharges are subject to regulatory environmental permits the designed interception/attenuation features shall satisfy the regulator or statutory undertaker's water quality and flow rate permit conditions.

The Designer/Contractor shall assess risks and pollution pathways for harmful materials that will be stored, handled, used during construction or transported, and shall put in place measures to reduce those risks to ALARP. The information from this risk assessment shall be used to influence design decisions and complete the Pollution of Land/ water section of the ESMP.

NOTE 29: *Environmental permits may be required for discharges to local water courses, abstraction or impoundment licenses, or permits to discharge liquid effluent to foul drains.*

NOTE 30: *Network Rail guidance is published on the Pollution of Land/Water page of Safety Central.*

6.9 Sustainable travel

Where the development involves provision of public parking facilities, the Designer/Contractor shall take into account the provision of facilities and infrastructure to support users of alternatively fuelled low-carbon vehicles.

Where the development involves design of new, extended or refurbished occupied buildings, the Designer/Contractor shall include facilities to promote low carbon modes of travel for building occupants.

The Sustainable Travel Hierarchy shall be considered for travel to and from site, and low emission vehicles shall be considered for use on site.

6.10 Water

The Designer/Contractor shall not rely on any permanent connections to existing water supply or drainage infrastructure without agreement in writing from the Employer's Representative and the relevant regulator/statutory undertaker.

The Designer/Contractor shall identify water reduction initiatives and reduce construction and operational water consumption to ALARP, including specifying water efficient plant and equipment.

[England only] The Designer shall comply with HM Government Building Regulations Approved Document G as a minimum for the design of water services in buildings.

The Designer/Contractor shall assess the scope and business case for reducing dependence on potable water for low grade non-potable uses, including any substantial water consuming processes.

NOTE 31: *Consideration should be given to rainwater harvesting and greywater recycling.*

Where the design proposes abstraction of ground water as a supplementary operational water source, the Designer shall assess the impact on any existing abstraction or impoundment licenses or requirements for new licences. The Designer shall coordinate the time, information and resources to successfully complete applications for new or modified abstraction licenses.

The Contractor shall procure and install fixed water/drainage services in accordance with the design specification and provide the Employer's Representative with a commissioning plan to verify that key services are operating within permitted performance limits.

NOTE 32: *Identify opportunities to use harvested water, grey water recycling, abstraction, tanker delivery and mains supply, both for construction activities and welfare use.*

6.11 Weather Resilience and Climate Change Adaptation (WRCCA)

The Designer shall assess the impacts of adverse and extreme weather and future climate change on the project/ works (assets and location) and use the findings to influence design decisions and health and safety plans.

The Designer shall produce a Weather and Climate Change Impact Assessment report which summarises the findings of the following activities:

a) identify the potential for weather events to impact assets and the area surrounding the project including direct/indirect impacts on rail infrastructure, neighbouring communities and/or the local environment;

NOTE 33: *This should include, but not be limited to; flooding (river, coastal, surface and groundwater), high and low temperatures, wind, lightning, adhesion, landslip/subsidence, and precipitation patterns (rain, snow hail). This should also include a high-level review of historic weather event impact occurrences at or adjacent to the location of the project.*

b) identify the potential for the project to change the capability of associated assets (drainage, earthworks, structures etc.) to deal with current and future weather events;

c) assess the impacts of future climate change on the levels of weather risk identified;

d) identify options for avoiding/reducing risk; and

e) use cost benefit and whole-life cost analysis methods to fully account for:

1) the operational, safety and asset degradation impacts of current weather and future climate change; and

2) the benefits of avoided costs realised through resilience intervention when assessing and selecting solutions for detailed design and delivery.

NOTE 34: *Network Rail guidance on how to undertake a climate change impact assessment (NR/GN/ESD11) and which climate change projections to consider (NR/GN/ESD23) is published on the Weather Resilience and Climate Change Adaptation page of Safety Central. The finalised Weather and Climate Change Impact Assessment Report should be reviewed and approved by the Project Manager prior to design approval.*

The Designer shall confirm the design includes resilience measures that could be used to avoid/reduce the weather and climate change impacts identified in the Weather and Climate Change Impact Assessment Report to ALARP over the project design life.

Where any new information becomes available during any project phase or design changes are made that raises the weather and climate change risk profile of the selected option to an unacceptable level, the option shall be reviewed, and the design amended by the Designer to return the risk to ALARP. The new information, any changes to the risk or design and any residual risk shall be recorded in the Weather and Climate Change Impact Assessment Report and managed within the ESMP.

The Designer/Contractor shall provide technical support to the Employer's Representative during engagement with environmental regulators and/or local authorities.

NOTE 35: *This is particularly relevant when considering collaborative opportunities to resolve mutual weather event and climate change risks for railway infrastructure and local communities (e.g. increasing size of culverts to support community flood alleviation projects).*

The Contractor shall assess the risk of flooding and sedimentation from all sources for temporary construction facilities such as warehouses, stockpiles, maintenance depots, site offices etc. and locate them outside flood plains or areas prone to other sources of flooding or sedimentation; or use appropriate protection measures to minimise the risk.

The Contractor shall include adverse and extreme weather risk (e.g. extreme heat, strong winds, lightning, heavy rainfall, flooding and snow) in health and safety risk control procedures.

NOTE 36: *The Network Rail Weather Service (www.nrws.co.uk) can be used to forecast adverse and extreme weather conditions in order to facilitate work planning.*

7 Emergency works and urgent reactive works

During emergency and urgent reactive works, implement measures to minimise environmental and social risks.

NOTE 1*: Following emergency and urgent reactive works, Network Rail standards and legal requirements shall be adhered to.*

8 Social Performance Requirements

8.1 Approach to Social Performance

The Designer/Contractor should consider conducting a workshop to plan their approach to social performance management.

NOTE 1: *As with other workshops as required by this standard, this can be incorporated into other existing workshops/ meetings and does not need to be stand-alone.*

The Designer/Contractor shall integrate their approach to social performance management into their ESMP and shall include:

a) social performance risks and opportunities;

b) objectives and any associated targets;

c) social performance metrics, indicators and any key performance indicators (KPIs) that will be used, how they will be collected and reported, and the frequency of reporting;

d) planning for risk management or mitigation and opportunity optimisation;

e) how workers will be trained and supported to apply the approach.

8.2 Being a caring neighbour

The Designer/Contractor shall manage the project, and their workers, so that risk of disruption and disturbance to passengers, lineside neighbours and local communities is managed or mitigated to ALARP.

The Designer/Contractor shall participate in any stakeholder consultation organised by the Employer's Representative.

The Designer shall assess the social impact of visually prominent structures and agree appropriate design responses.

Where work is taking place within 200 metres of residential properties, business premises or community rail activity (or up to 500m for noisier or more disruptive works as defined in the Noise and Vibration Risk Assessment), the Designer/Contractor shall inform the Network Rail local community relations representative.

NOTE 2: *Further information on the Noise and Vibration process and a NVRA template is available within NR/L2/ENV/121.*

The Designer/Contractor shall comply with Network Rail's requirements for notification, available on Safety Central, and agree the works notification process with the Regional Community Relations team.

The Designer/Contractor shall nominate a person with responsibility for community relations on site for:

a) briefing all staff about acceptable conduct;

b) overseeing the delivery of notification letters;

c) providing the Network Rail community relations representatives with any information they require in relation to the works.

Consideration shall be given to worker behaviour and the Contractor shall participate in any worker behaviour training if requested by the Employer's Representative.

The Designer/Contractor shall resolve enquiries and complaints from the general public on site where possible; direct all other enquiries and complaints to Network Rail's 24-hour helpline service (03457 11 41 41).

The Designer/Contractor shall comply with NR/L3/MTC/MG0194.

If requiring access to third party land, the Designer/Contractor shall contact the Network Rail Property Services team to confirm that either:

a) rights of access already exist to allow legal access to or occupation of third party land; and/or

b) arrange for negotiations to take place with the landowner for access/occupation requirements.

Where access is required to third party land, the Designer/Contractor shall approach Property Services at least 6 weeks prior to requiring use of third party land.

The Designer/Contractor shall not enter into any financial agreements or compensation without first agreeing these arrangements with Network Rail Community Relations.

NOTE 3: *Network Rail guidance is published on the Being a Caring Neighbour page of Safety Central.*

8.3 Connecting communities with the environment

The Designer shall take into account the social impact of any visually prominent structures that will replace trees and/or other vegetation. Agree design responses with the Employer's Representative.

The Designer shall take into account the safety implications of removing lineside vegetation, such as improved access for trespassers. Design responses shall be agreed with the Employer's Representative.

Any changes to design responses shall be included within the Connecting Communities with the Environment section of the ESMP.

NOTE 4: *Network Rail guidance is published on the Connecting Communities with the Environment page of Safety Central.*

8.4 Creating engaged employees and positive industry partnerships

The Designer/Contractor shall read and comply with Network Rail's behaviours and Code of Business Ethics, available on Safety Central.

NOTE 5: *The Code of Business Ethics aims to create a culture of openness, accountability, honesty, integrity and leadership across Network Rail's workforce and supply chain.*

The Designer/Contractor shall report any concerns, suspicions or knowledge of wrongdoing in Network Rail using Speak Out.

NOTE 6: *Speak Out is Network Rail's reporting service for such issues. Contact details and further information can be found on Safety Central.*

The Designer/Contractor shall implement an approach to managing risk of modern slavery that is aligned to Network Rail's anti-slavery and human trafficking policy, available on the Network Rail website.

The Designer/Contractor shall complete training in how to manage or mitigate modern slavery risk if requested by the Employer's Representative.

The Designer/Contractor shall promote workforce equality, diversity and inclusion, and address discrimination, in a manner aligned with Network Rail's "Everyone Matters" diversity and inclusion strategy.

The Designer/Contractor shall complete any equality, diversity and inclusion training if requested by the Employer's Representative.

The Designer/Contractor shall support the physical and mental health and wellbeing of their workers e.g. through fatigue management.

NOTE 7: *Network Rail guidance is published on the Creating Engaged Employees page of Safety Central.*

8.5 Inspiring tomorrow's workforce

The Designer/Contractor shall conduct an Employment and Skills Assessment to identify the opportunities for school engagement, entry-level employment and skills programmes as part of the works. The assessment shall review opportunities for:

a) early engagement (e.g. school visits);

b) work experience;

c) work placements;

d) traineeships;

e) returnships;

f) level 2, 3 and 4 apprenticeships and other entry-level roles;

g) graduate recruitment; and

h) development of skills of current workers.

The Designer/Contractor shall use the information from the Employment and Skills Assessment to complete the Inspiring Tomorrow's Workforce section of the ESMP.

The Designer/Contractor shall comply with any Section 106 requirements set by the planning authority.

NOTE 8: *Network Rail guidance is published on the Inspiring Tomorrow's Workforce page of Safety Central.*

NOTE 9: *An Employment and Skills Assessment template is available on Safety Central.*

8.6 Keeping communities safe

The Designer shall assess the risk of trespass created as a result of railway works.

The Designer shall use the assessment to influence design decisions and complete the Keeping Communities Safe section of the ESMP.

The Contractor shall check that all access points to the operational railway are secured when leaving the site, secure all plant/assets, and remove all redundant and/or unused plant/assets on completion of work.

Before starting work, contact the Suicide Prevention Team to understand if it is an area of concern (SuicidePrevention@raildeliverygroup.com). If it is, staff shall complete the rail industry suicide prevention module and be issued with the Suicide Prevention Handbook and TACTICS card both available as part of the rail industry Learning Tool.

NOTE 10: *To access the Learning Tool videos and suicide prevention materials, register for a free account on the RSP website using an industry email address (www.railsuicideprevention.co.uk). Once registered, a variety of materials are available including signposting to support if needed. Downloading the Save a Life app is also recommended available through the NR app catalogue.*

NOTE 11: *Network Rail guidance is published on the Keeping Communities Safe page of Safety Central.*

8.7 Making rail a great experience

The Designer/Contractor shall identify opportunities to improve the passenger experience as a result of station or lineside enhancement and complete the Making Rail a Great Experience section of the ESMP.

NOTE 12: *Network Rail guidance is published on the Making Rail a Great Experience page of Safety Central.*

NOTE 13*: Network Rail has established an independent Design Advisory Panel (DAP) to review the design impacts of projects on passengers, communities and the environment. The DAP can work with project teams to assure that high quality design is developed, and that projects meet the Network Rail Principles of Good Design. Guidance on the Design Advice Project is available - NR/GN/CIV/100/01.*

8.8 Making travel accessible and inclusive

The Employer's Representative shall complete a Diversity Impact Assessment (DIA) for any project work that has a potential to impact on people (e.g. passengers, employees, or lineside neighbours) throughout the duration of the project.

This shall include temporary works, temporary conditions (e.g. temporary use of car parking facilities at stations), permanent works and any staging works; and any work carried out at Network Rail managed stations or at franchised stations (e.g. lift replacements).

The Designer/Contractor shall collaborate with the Employer's Representative to inform the DIA.

NOTE 14: *DIA templates (including those for temporary works) are available on the Access and Inclusion SharePoint site.*

DIAs shall be reviewed at each PACE milestone.

The Designer/Contractor shall address, in their DIA(s), the impact of design and/or works on all protected characteristics. The Designer/Contractor shall use the DIA to influence design decisions towards achieving accessible and inclusive travel for all and complete the Making Travel Accessible section of the ESMP.

NOTE 15: *Protected characteristics include age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation.*

The Contractor shall confirm that any alternative routes put in place for construction activities do not negatively impact accessibility or use of the infrastructure for the duration of the work.

The Designer/Contractor shall engage with Network Rail's Built Environment Advisory Panel (BEAP) or any other inclusive design and construction initiative if requested by the Employer's Representative.

The Designer/Contractor shall participate in any equality, diversity and inclusion training if requested by the Employer's Representative.

NOTE 16: *Network Rail guidance is published on the Making Travel Accessible page of Safety Central.*

8.9 Respecting cultural heritage and rail history

The Designer/Contractor shall complete a heritage assessment as part of the Respecting Cultural Heritage and Rail History section of the ESMP, prepared in consultation with local and statutory authorities.

The Contractor shall carry out works so that there is no disturbance to:

a) scheduled monuments;

b) archaeological sites and deposits; and

c) buildings of historical and architectural interest (both statutorily listed buildings and important non-listed above ground features and structural elements).

NOTE 17: *Unauthorised works could result in criminal prosecution of the contractor.*

The Contractor shall allow the local planning authority and any nominated employee and/or archaeologist appointed by the Employer's Representative access to the site to monitor the archaeological evaluation and mitigation work as required.

In the event of unexpected archaeological finds such as remains or artefacts, the Contractor shall immediately suspend work until further instruction and inform the Employer's Representative.

For architecturally significant schemes that require planning consent/ listed building consent or are within a conservation area, the Designer shall request architectural layout acceptance by submitting NR/L2/CIV/003/F004.

NOTE 18: *Further guidance on heritage is available in the Guidance Note Heritage, Care and Development - NR/GN/CIV/100/05, and on the Respecting Cultural Heritage and Rail History page of Safety Central.*

NOTE 19: *Network Rail has established an independent Design Advisory Panel (DAP) to review schemes with a heritage impact. Guidance on the Design Advice Project is available - NR/GN/CIV/100/01.*

8.10 Supporting Britain's economic development

The Designer/Contractor shall utilise procurement processes that enable qualified and experienced suppliers or sub-contractors from these business groups to compete freely and fairly for contracts:

a) Small and Medium Enterprises (SMEs);

b) local businesses; and

NOTE 20: *'Local' in this context means suppliers that will serve contract delivery from an operational base up to 25 miles from the works.*

c) voluntary, community and social enterprises (VCSEs) and mutuals.

Where possible, the Designer/Contractor should provide at least two of the above business groups (SME, local, VCSE, mutuals) with opportunities to compete for any available contracts, throughout the duration of the project and record this in the ESMP.

Where possible, the Designer/Contractor should advertise job opportunities locally (in the same local authority area as the works) for example through Job Centres and local employment support and brokerage services. These should be recorded in the ESMP.

The Designer/Contractor should, where possible, pay workers at least the relevant Real Living Wage (as defined by the Living Wage Foundation) when they are delivering Network Rail contracts and record this in the ESMP.

NOTE 21: *Network Rail is an accredited Living Wage employer.*

NOTE 22: *Network Rail guidance is published on the Supporting Britain's Economic Development page of Safety Central.*

9 Incident management

9.1 Incident response

9.1.1 Incident Response Plan (IRP)

All Contractors shall produce an Incident Response Plan (IRP) within the ESMP, which shall be tested before finalising.

The IRP shall include:

a) operational control procedures to reduce the risk of potential incidents identified in the ESA and ESMP;

b) procedures to be followed in the event of an incident including control and mitigation measures, reporting lines, investigation and closeout;

c) procedures to be followed in the event of unexpected finds such as protected species, invasive species, contaminated land, pests and diseases of trees, or archaeological finds;

d) the responsibilities in the event of an incident;

e) the people to contact in the event of an incident including:

1) the Contractor's nominated responsible person;

2) relevant incident reporting procedure;

3) regulatory bodies including the Environment Agency and/or Scottish Environment Protection Agency, Natural Resources Wales, Natural England, Nature Scot, Marine Management Organisation, Marine Scotland and/or Local Authority;

4) Employer's Representative;

f) the IRP shall provide for a rapid response to any incident arising from the works in accordance with relevant legislation;

g) the IRP shall be briefed, communicated and available to site personnel. It shall also be available to additional personnel and organisations upon request;

***NOTE 1**: Control measures shall be communicated through inductions, the work package plan process/method statements, task briefing sheets, toolbox talks etc.*

h) reporting of environment and social incidents shall be in line with NR/L3/INV/3001, NR/L3/OHS/0046; and NR/L3/OPS/045/4.04;

i) notify the Employer's Representative about Category 1 (major, serious, persistent and/or extensive impact) or Category 2 (significant impact) environment and/or social incidents at the earliest reasonable opportunity after the occurrence, and confirm the report in writing with preliminary findings within 12 hours;

***NOTE 2:** Network Rail guidance on categorisation of environment incidents is published on the Environment page of Safety Central.*

***NOTE 3:** For Category 1 and 2 incidents, earliest opportunity would include contacting the Employer's Representative out of normal working hours.*

j) notify the Employer's Representative about Category 3 (minor or minimal impact) or Category 4 (negligible impact) environment and/or social incidents at the earliest reasonable opportunity after the occurrence, and confirm the report in writing with preliminary findings within 48 hours;

***NOTE 4:** For Category 3 and 4 incidents, earliest reasonable opportunity would be during normal working hours.*

k) complete a Network Rail Preliminary Report and Investigation Form (Level1) [Form NR2072P] for Category 1, 2 and 3 incidents.

***NOTE 5:** The NR2072P will collate basic information about the incident until such time as a more detailed investigation and report has been completed.*

9.1.2 External reporting

Where harm has been caused to the environment, or a situation created that poses a risk of harm to the environment, the incident shall be reported to Environment Agency, Scottish Environment Protection Agency, Natural Resources Wales, Natural England, Nature Scot and/or and Local Authority.

External contractors shall liaise with the Employer's Representative to agree communications with the relevant regulator.

Any incident reference numbers provided by the regulator shall be recorded and notified to the Employer's Representative.

***NOTE 6:** Network Rail guidance on when and how incidents are to be reported is published on Environment page of Safety Central.*

9.2 Incident investigation

The Designer/Contractor shall:

a) investigate environment and social incidents in line with NR/L3/INV/3001 and NR/L3/OHS/0046, to identify root cause(s) and specify actions to prevent recurrence;

b) co-operate with any Network Rail or third-party investigation process and assist in the investigation, giving full access to all materials and information; and

c) support Network Rail in establishing the costs of the incident including, without limitation:

1) direct costs; and

2) indirect costs.

10 External benchmarking

10.1 Benchmarking environmental performance

An environmental performance assessment (design stage pre assessment) shall be undertaken prior to the selection of a single option for new construction and major refurbishment for operational property buildings.

NOTE 1: *BREEAM and CEEQUAL are independent environmental assessment tools recommended by Government for benchmarking environmental performance.*

NOTE 2: *It is anticipated that the expected environmental performance is remitted by sponsors at the outset of a project so opportunities to embed measures to mitigate negative environmental impacts are realised.*

NOTE 3: *Major refurbishments is defined as where the area of the building fabric being refurbished is greater than 50% of the surface of the individual element or 25% of the total building element.*

NOTE 4: *This would not be applicable for CEEQUAL Construction (only) or CEEQUAL Design & Construction if the scope of the assessment does not include single option selection.*

10.2 Operational Property enhancement - Refurbishment and fit-out

The Designer/Contractor shall meet RICS SKA environmental assessment method rating of ‘Silver’ as a minimum, and ‘Gold’ as an aspiration. Alternatively, the BREEAM Refurbishment & Fit-out environmental assessment scheme shall be used. Network Rail schemes shall achieve a ‘Very Good’ rating as a minimum requirement or ‘Excellent’ as an aspiration.

NOTE 5: *The clause applies to refurbishments and fit-outs where the area of the building fabric is greater than 50% of the surface of the individual element or 25% of the total building element.*

NOTE 6: *Design Guidelines can be found in NR/GN/CIV/400/05 – Workplace DNA*

10.3 Operational Property enhancement - new construction

Where the Project Sponsor/Third-party funder has remitted an independently assured environmental certification scheme such as BREEAM, the Designer/Contractor shall aim to achieve a ‘Very Good’ rating (as a minimum requirement unless specified otherwise) and ‘Excellent’ as an aspiration, where achievable in the context of minimising the whole life cost of Network Rail assets.

Where formal independent sustainability assessment is not required (e.g. non-critical line side buildings), the principles of BREEAM or another standard methodology such as Passivhaus shall be applied.

Ref:	**NR/L2/ENV/015**
Issue:	9
Date:	05 June 2021
Compliance date:	04 September 2021

10.4 Considerate Construction Practices

Where requested by the Employer's Representative, the Contractor shall achieve a Considerate Constructors Scheme (CCS) score of at least 35, with an aspiration and resource plan to score above 40.

10.5 External recognition (awards)

Where requested by the Employer's Representative, the Designer/Contractor shall seek recognition for sustainability achievements by entering external awards schemes in collaboration with Network Rail.

NOTE 7: *External award schemes could include Green Apple Awards, CIRIA Big Biodiversity Challenge, UK Rail Industry Awards, Rail Partnership Awards, Construction news Awards, and National Recycling Awards.*

Standard and control document briefing note

Ref: NR/L2/ENV/015	**Issue**: 9
Title: Environment and Social Minimum Requirements for Projects - Design and Construction	
Publication date: 05 June 2021	**Compliance Date:** 04 September 2021
Standard/Control Document Owner: Chief Environment & Sustainability Officer	
Technical lead/contact for briefings: Francesca Stainthorpe, Environmental Management Systems Manager, TA	**Tel:** 07701 069704

Purpose:
This standard sets out Network Rail's minimum requirements for the management of environment and social risks and opportunities during design and/or construction activities.

The implementation of this standard delivers a range of benefits to Network Rail including:

a) improved business cost-efficiency from sustainable practices, such as designing for whole-life energy efficiency, waste minimisation, and capital carbon value engineering;

b) increased social value created by maximising opportunities for inclusive design, considerate construction and socio-economic growth;

c) reduced risk of legal and regulatory non-compliance and negative reputational exposure by delivering good practice standards of environmental and social performance; and

d) alignment with the Network Rail Environmental Sustainability Strategy.

Scope:
This standard is mandatory for all construction and design works carried out by Network Rail and its contractors as part of a PACE managed project.

This standard applies to but is not limited to:

a) Designers/Contractors contracted to Network Rail for the provision of design and/or construction services;

b) Network Rail business units where they act as a design or contractor entity according to Construction (Design and Management) Regulations definitions, e.g. Network Rail Design Delivery and Works Delivery engaged in construction and design works; and

c) any non-construction works that comply with NR/L2/OHS/0044 – Planning & Managing Construction work.

This standard excludes any works associated with maintenance activities.

The requirements of this standard apply to all land areas impacted by project activities, including the primary development site(s) and, without limitation, any associated temporary work sites, compounds, haul roads, access routes.

Where a joint venture or alliance is established, this standard should be recommended as a minimum when defining contract requirements for those organisations accountable for design or construction within the alliance.

Overview of change

This standard has been updated as part of the Post-Implementation Review of the standard. The updates have been made in response to comments from stakeholders received during implementation of the standard. A detailed summary of the changes is available in the document attached to this briefing note.

Detail of change

Section(s)/clause(s)	Summary of changes
Please see attached 'Summary of ESR changes'.	

Reasons for change

In 2019, Environment and Social Minimum Requirements for Projects - Design and Construction [Issue 8]- went through a significant review and update process resulting in a number of new requirements for projects. Compliance with Issue 8 of the standard was by 31 December 2019 and this post-implementation review seeks to provide additional clarification and guidance where needed as raised by stakeholders. This review also seeks to align the standard with existing business process and strategy, and with updated legal requirements.

Affected documents:

Reference	*Impact*
NR/L2/ENV/015 ISSUE 8	Superseded

Briefing requirements:

Will Briefing Management System be used to deliver the briefing to posts listed below? No

Technical briefings are given to those who have specific responsibilities within this standard/control document.

Awareness briefings are given to those who might be affected by the content but have no specific responsibilities within the standard/control document.

Details of the briefing arrangements are included in the associated briefing programme.

All posts identified for briefing must be as described in OrgPlus.

Roles are directly briefed and do not cascade briefings.

Briefing *(A-Awareness/ T-Technical)*	**Post**	**Function**	**Responsible for cascade briefing? Y/N**
T	Environment Manager	Route Services	N
T	Environment Manager (IP)	Regions	N
T	Environmental Manager	Technical Authority	N
T	Environment Specialist	Regions	N
T	Environment Specialist	Route Services	N
T	Principal Environment & Social Value Manager	Regions	N
T	Social Value Manager	Regions	N
T	Consents Manager	Regions	N
T	Ecologist	Regions	N
T	Maintenance Workforce Safety & Environment Coach	Route Services	N
T	Head of Environment & Sustainability	Regions	N
T	Chief Environment & Sustainability Officer	Technical Authority	N
T	Environmental Strategy Manager	Technical Authority	N
T	Environmental Management System Manager [Ops]	Technical Authority	N
T	Social Performance Manager	Technical Authority	N
T	Sustainability Strategy Manager (QHSE)	Technical Authority	N
T	Biodiversity Strategy Manager	Technical Authority	N
T	Climate Change Adaptation Manager	Technical Authority	N
T	Weather Resilience & Climate Change Adaptn Strategy Manager	Technical Authority	N
T	Energy & Carbon Strategy Manager	Technical Authority	N
T	Senior Engineer (QHSE) [Energy & Carbon]	Technical Authority	N
T	Assistant Engineer (QHSE) [Energy] [Energy & Carbon]	Technical Authority	N
T	Senior Analyst (QHSE)	Technical Authority	N
T	Technical Capability Manager	Technical Authority (Sustainability)	N
T	HSEA Specialist	Regions	N
T	Workforce Health, Safety & Environment Advisor	Regions	N
T	Workforce Health, Safety & Environment Advisor (HO)	Regions	N
T	Workforce Health, Safety & Environment Advisor (WD)	Regions	N
T	Infrastructure Maintenance Workforce HSE Advisor	Regions	N
T	Infrastructure Maintenance Workforce HSE Advisor [West]	Regions	N
T	Head of Safety & Sustainable Development	Regions	N
T	Head of Safety & Sustainable Development	Route Services	N
T	Head of Health & Safety	Route Services	N
T	Safety Health & Environment Specialist [Assurance]	Route Services	N
T	Safety Health & Environment Specialist [Environment]	Route Services	N
T	Safety Health & Environment Specialist [Improvement]	Route Services	N
T	Safety Health & Environment Specialist [Risk & Assurance]	Route Services	N
T	Safety Health & Environment Specialist [Risk Improvement]	Route Services	N
T	Head of Safety & Sustainable Development	Property	N
T	Scheme Project Manager	Regions	N
T	Scheme Project Manager	Route Services	N
T	Project Management Assistant	Regions	N

T	Project Management Assistant	Route Services	N
T	Project Manager	Regions	N
T	Project Manager	Route Services	N

Briefing *(A-Awareness/ T-Technical)*	**Role**	**Function**
A	Various* (*to include as a minimum the below roles)	Determined by Regions
A	Programme Manager	Regions
A	Health and Safety Manager - Capital Delivery	Regions
A	Project Planner	Route Services, Regions
A	Project Engineer	Route Services, Regions
A	Project Development Manager	Route Services, Regions
A	Community Relations Manager	Route Services, Regions, Technical Authority
A	Community Relations Executive	Route Services, Regions, Technical Authority
A	Architect	Technical Authority, Regions
A	Commercial Manager	Regions
A	Procurement Manager	Regions
T	Safety Health & Environment Manager	Route Services
T	Head of Sustainability	Route Services, Regions, Technical Authority, Property
T	Sponsor	Regions
T	Regional Engineer [Discipline]	Regions
T	Senior Development Manager	Regions
T	Lead Development Manager	Regions

NOTE: *Contractors are responsible for arranging and undertaking their own Technical and Awareness Briefings in accordance with their own processes and procedures.*

Summary of key changes to NR/L2/ENV/015
Environment and Social Minimum Requirements for Projects – Design and Construction

Purpose of this document:

This document has been prepared to assist stakeholders and users of NR/L2/ENV/015 understand the key changes made to the standard as part of the Post-Implementation Review (June 2021 - Issue 9).

This document summarises the key changes that have been made in simple terms. It is not intended to be read in isolation, and the reader should refer to the standard to understand all of the changes in further detail and within context.

General document information:

- **Amended:** Issue number changed from 8 to 9
- **Amended:** Compliance date amended: 04th September 2021
- **Amended:** Technical lead and approval signatures updated

Reference Documentation:

- **Added:** The following documents have been added to the reference documentation list:
  - NR/L3/ENV/044: Used Ballast and Excavation Waste Handling
  - NR/L2/ENV/121: Managing Environmental and Social Impacts of Noise and Vibration
  - NR/L2/ENV/120: Waste Management
  - NR/L2/ENV/123: Prevention of Pollution to Land and Water
  - NR/L3/OHS/0046: The Reporting, Investigation and Recording of Safety and Sustainable Development Events and Close Calls within Infrastructure Projects
  - NR/L2/MTC/089: Asset Management Plan Forms
  - NR/L2/ENV/122/01: Management of Biodiversity
  - NR/L3/TRK/003/TEF3069: Pesticide application record form
  - NR/L2/SCO/306: Disposal of redundant assets
  - NR/L2/SIG/11201/Mod A2-23: Recovery of redundant assets [Issue 1]
  - NR/L2/CIV/003/F004: Architectural and Layout Acceptance form
  - NR/L2/OPS/250: Network Rail National Emergency Plan
  - NR/L3/OPS/045/4.14: Control of Emergency Incident Procedures
  - NR/L3/MTC/MG0197: Power Supply Outage Management
  - NR/L2/P3M/201: Project Acceleration in a Controlled Environment (PACE)
- **Removed:** Standards that have been withdrawn/ superseeded have been removed (NR/L3/INV3001/RIM101, NR/L3/INV/3001/RIM101, NR/L3/INV/3001/RIM113).

Legislation:

- **Amended:** The wording has changed from listing what legislation the standard complies with to state that the standard 'Complies with relevant environmental and social legislation at the time of publication.'

- **Removed:** The examples of legislation that the standard complies with have been removed
- **Added:** A reference to Network Rail's Legal Register has been added.

Contents:

- **Added:** A new section has been added titled 'Emergency works and urgent reactive works.'

Purpose:

- **Added:** Reference to the Network Rail Environmental Sustainability Strategy.

Scope:

- **Amended:** The scope has been updated to PACE managed projects from GRIP (references to GRIP have been updated throughout the standard to align to PACE).
- **Added:** NR/L2/OHS/0044 - Planning & Managing Construction work has been added as an example when the standard applies.
- **Amended:** Wording amended that the standard excludes 'works associated with maintenance activities' from 'works carried out for/on behalf of Regional maintenance teams.'

Definitions:

- **Amended:** Definitions have been removed that are not referenced in the text (e.g. Controlled Waters), and other definitions have been added that are referenced in the text (e.g. Circular Economy, non-construction works).

Section 4 - Environmental and Social Management Processes

4.1 Environment and Social Appraisal (ESA)

- **Amended:** Text added to state that the ESA shall be completed at the start of the project and is a mandatory PACE product to be updated at each PACE milestone or when significant changes to the project occur.
- **Amended:** Section updated to make reference to PACE from GRIP.
- **Added:** Text to confirm that it is the Project Manager's (PM) responsibility for ensuring the ESA is complete and accurate.
- **Added:** Text added - Employer's Representative to ensure the Designer/Contractor has access to the ESA.
- **Amended:** Note has been updated with further guidance on the use of the ESA.

4.2 Environmental and Social Management Plans (ESMP)

- **Added:** A note has been added to cover over-arching ESMP's for alliance and contractors for repeating works.
- **Added:** Clarification added that environment and social risk assessment shall be populated at the start of the project.
- **Added:** Design ESMPs to be submitted at a date agreed by Employer's Representative.
- **Amended:** Previous note has been updated from a green to an amber requirement that formal acceptance of the ESMP is through the completion of EN3 Review and Acceptance Form completed by the PM.
- **Added:** Note added that EN3 is a PACE product within the PACE Product Index.

Section 5 - General Requirements – all projects/works

- **Amended:** Section re-ordered, and new section added (Network Rail policies and strategies)

5.1 Network Rail policies and strategies

- **Added:** 5.1 is a new section
- **Added:** Requirement added - Designer/Contractor to comply with NR policy, strategy and standards.

5.2 Roles and Responsibilities

- **Added:** Note added to reference Appendix E of the Principal Contractor Licensing Scheme NR/L2/INI/CO0070.

5.3 Competence

- **Added:** Requirement to use a competence framework**.**

5.4 Sub-contracting

- No changes.

5.5 Permits, Licenses and Consents (PLCs)

- **Added:** Note added to reference Land and Consents Strategy and Commitments Register.

5.6 Objectives, targets and performance indicators

- **Added:** Requirement for Designer/Contractor to progress social performance commitments made in the procurement and contracting process.
- **Amended:** Text updated to reference 'national and local' KPIs.

5.7 Life Cycle Costing (LCC) and Option Selection

- **Amended:** Title updated from 'Whole-life cost analysis' to 'Life Cycle Costing (LCC) and Option Selection.'
- **Added:** Further details as to when LCC should be undertaken, and by who. This includes LCC test at strategic development phase and LCC comparison at the project selection phase.
- **Added:** Note added to reference the LCC handbook, and that the sponsor may request LCC analysis at project development phase.
- **Added:** Requirement that the Option Selection process includes environmental and social considerations.
- **Added:** Requirement to undertake a Workshop/ review to identify and assess design options.
- **Added:** Requirement added that contractors should apply these principles during the delivery phase.
- **Amended:** Note updated to provide further information on Environmental Life Cycle Appraisal methodologies.

5.8 Communication

5.8.1 Stakeholder Management Plan

- **Added:** 5.8.1 is a new section.

- **Amended:** Requirement for Designer/Contractor to identify a list of stakeholders and appropriate methods of engagement (previously requirement under 7.1 Being a Caring Neighbour).
- **Added:** A note has been added providing guidance on possible stakeholders.

5.8.2 Internal Communication

- **Amended:** Environment and Social Performance Policies shall be made available to interested parties (this requirement was previously to display on notice boards in fixed and temporary locations)
- **Added:** Requirement for Designer/Contractor to maintain records of all briefings and communication activities.

5.8.3 External Communication

- **Added:** 5.8.3 is a new section
- **Amended:** The previous section 5.7.3 of Issue 8 of ESR 'Communication with Statutory Authorities and Non-Governmental Organisations' has been incorporated into this section.
- **Amended:** The distance that the Designer/Contractor must inform local community relations representative(s) has been updated from 150metres to 200metres. For noisier works, this distance has been updated to 500m.
- **Added:** A note has been added that noisier works will be defined as the output of the Noise and Vibration Risk Assessment.

5.8.4 Communication between Network Rail and Suppliers

- **Amended:** A discussion of Opportunities have been added to progress meetings between the Employer's Representative and the Designer/Contractor.

5.9 Monitoring and Assurance

- **Added:** A requirement has been added that the NR PM shall put in place a schedule of environment and social inspections.
- **Amended:** A timeframe of 28 days has been added to the Designer/Contractor providing copies of inspections and audits to the Employer's Representative.

5.10 Records, documents and knowledge transfer

- **Amended:** The list of what a Designer/Contractor must provide the Employer's Representative with has been updated to include 'Records – including consents, permissions, licences and monitoring records.'
- **Amended:** This list has also been updated to include responses and lessons learnt for environmental incidents.
- **Added:** A requirement for the PM or delegated representative to complete Asset Management Plan Forms at hand-over has been added. A note has been added to support this.
- **Amended:** Content from 'Updating the Hazard Directory Section 5.10.3' in Issue 8 has been moved to this section.

5.11 Environment and Social data Sources

- **Added**: 5.11 is a new section heading that incorporates the information from the 'National Hazard Directory' in Issue 8 of ESR.
- **Added**: 3 notes have been added on guidance for accessing external and internal data sources, and further information on The National Hazard Directory.

5.11.2 Using data from External records

- **Added:** Requirement added that the Designer/Contractor must verify the validity of external data sources.
- **Added:** Note added that the absence of previous environmental or social records does not mean constraints are not present.

5.12 Health and Safety File

- **Added:** Clarification that environmental information shall be submitted to the Employer's Representative.

5.13 Tax allowances and rebates

- **Amended:** Reference to Enhanced Capital Allowance schemes has been removed.

Section 6 Environmental Requirements

6.1 Biodiversity

- **Added:** Requirement that works follow the processes outlined in NR/L2/ENV/122/01- Management of Biodiversity standard.
- **Amended:** Reference to 'Biodiversity Calculator' has been altered to a reference to 'biodiversity metric calculations'.
- **Added:** Requirement for all ecology related outputs to be provided to NR in the format requested within 7 days of receipt (by Designer/Contractor).

6.2 Contaminated Land

- **Added:** Requirement for Designer/Contractor to conduct an Initial Hazard Review to determine whether a Preliminary Risk Assessment is required.
- **Added**: Details of PRA requirements – including conceptual site model and pollution linkages.
- **Added**: A note has been added referring to the Contaminated land guidance note available on Safety Central.
- **Added:** A note has been added to signpost guidance on Land Contamination Risk Management which should be followed in site assessments.
- **Added**: A requirement to conduct a Generic Quantitative Risk Assessment if required.
- **Added:** Requirement for Optional Appraisal and remediation and verification considering significant risks to be undertaken if required.
- **Added**: A requirement to comply with NR/L3/ENV/044 – Used Ballast and Excavation Waste Handling.

6.3 Emissions to Air

- **Added**: Requirement that the contractor shall confirm emissions to air are reduced to ALARP during construction (including a consideration of Non-Road Mobile Machinery).

- **Added**: Requirement for Designer/Contractor to provide information on emissions to air to Asset Manager on completion of the works and include in the Health & Safety File.

6.4 Energy and Carbon

6.4.1 Managing Carbon in Infrastructure (PAS 2080)

- **Amended:** Wording updated for NR PM to achieve collaboration between all value chain participants.

6.4.2 Whole Life Carbon

- **Amended:** Whole life Carbon has been renamed – previously 'Capital Carbon.'
- **Added:** Requirement added for consequential impacts on aggregated carbon emissions on modular stages of asset life cycle (through entire project life span) to be considered to reduce whole life carbon emissions.
- **Added:** Note added to clarify that the principle of whole life carbon management applies to all projects.
- **Amended:** Clarification provided for what works should use the Rail Carbon Tool (to include civil, mechanical or electrical engineering) and what should be considered.
- **Added:** Note added to provide further detail on exceptions for using the Rail Carbon Tool - including complex componentry asset systems (e.g. signalling and telecoms).
- **Added**: Requirement for the contractor to utilise renewable energy power and energy efficient technologies during construction activities.
- **Added:** Note added regarding training on the Rail Carbon Tool.

6.4.3 Energy and operational carbon

- **Added:** Requirement for Designer to propose options for energy efficiency.
- **Added:** Requirement for design to utilise thermal storage, heat recovery, free cooling, renewable energy or natural lighting where practicable.
- **Added:** Requirement for Energy Performance Certificate (EPC) rating of C or above for all new buildings and E for modified buildings for leased buildings.
- **Added:** Reference to the requirements regarding connections and disconnections process as stipulated in NR/L3/ENV/305.
- **Added:** Reference that new connections shall be sub-metered.

6.5 Circular Economy

- **Added**: 6.5 is a new section and includes sub-sections of Materials and Waste.

6.5.1 Circular Economy Principles & Resource Efficiency

- **Added:** 6.5.1 is a new sub-section.
- **Added**: Requirement that the Designer/Contractor shall incorporate the principles of circular economy.
- **Amended:** The previous requirement to conduct a Resource Efficiency Assessment/ Workshop (previously in the waste section) has been moved to this section.
- **Amended:** The scope of the Resource Efficiency Assessment/ Workshop has been widened to also include carbon and water use.

- **Amended:** The requirements of the Resource Efficiency Assessment/ Workshop have been updated to include a review of opportunities to reuse materials.
- **Added**: A note has been added that the Resource Efficiency Assessment/ Workshop could be incorporated into other design reviews, meetings or assessments.
- **Added**: A note that SURPLUS can be downloaded from the NR App Catalogue has been added.
- **Added**: A note has been added that Circular Economy Principles will be met by following other sections of the standard (e.g. Life Cycle Costing).

6.5.2 Materials – responsible sourcing

- **Added:** 6.5.2.1 is a new sub- section.
- **Added:** Requirement for Designer/Contractor to identify opportunities for materials with low environmental and social impact aligned with NR's Environmental Sustainability Strategy; in design and procuring materials for works.
- **Added:** Note referencing NR's Environmental Sustainability Strategy on Safety Central.

6.5.2.2 Low environmental impact products

- **Amended:** Requirement to identify materials with negative environmental or social impacts during production, transport, installation, use, decommissioning, and deconstruction.
- **Added:** Note added for assessment of products/ materials to include information from EPDs or Safety Data Sheets.

6.5.2.3 Responsibly sourced timber

- **Amended:** Requirement for all timber and timber derived products sourced by NR and supply chain to be from legal and sustainable sources which are credibly certified by a third party and hold full documented chain of custody (this updates from the previous requirements for FSC or PEFC certified timber).
- **Added:** Note added referring to NR's Responsible Timber Sourcing Policy on Safety Central.
- **Amended:** Collation and submission of timber consignment data at the request of the Employer's Representative (previously the requirement was to submit timber consignment data quarterly).

6.5.2.4 Concrete and aggregates

- **Amended:** Removal of requirement for works in excess of 50 tonnes to identify the type and quantity of concrete and aggregate to the used.
- **Added:** Requirement for concrete/aggregates to be responsibly sourced.
- **Added:** Requirement to utilise a whole-life carbon approach in material selection.
- **Added:** Note referencing how to procure NR SCO's recycled aggregate products.

6.5.2.5 Herbicides

- **Amended:** Reference to 'Herbicide' Agreement on Safety Central (previously Pesticide Agreement).
- **Added:** Requirement to consider seepage to watercourses.
- **Added:** Requirement for person with BASIS certification to specify treatment methodology.
- **Added:** Note added to consider non-chemical methodologies in first instance.
-

- **Added:** Requirement for competent person to select herbicide type and dosage rates prior to work commencing.
- **Added:** Note added as to what constitutes competency: NPTC PA1 and NPTC PA6.
- **Added:** Requirement for advance provision of proposed locations of application to operator
- **Added:** Requirement to complete NR/L3/TRK/003/TEF3069 – Pesticide Application Record Form.

6.5.3.1 Waste Management

- **Added:** A requirement to comply with the waste standard - Waste NR/L2/ENV/120.
- **Amended:** Clarification is provided for design and construction Site Waste Management Plans (SWMPs) and what to include – including a requirement for it to be updated throughout the project.
- **Amended:** The Resource Efficiency Workshop has been moved to the Circular Economy section.
- **Added:** A note has been added to reference the Disposal of Redundant Assets Standards – NR/L2/SCO/306 and NR/L2/SIG/11201/Mod A2-23.
- **Added:** A note has been added to reference NR/L3/ENV/044 – Track Maintenance – Used Ballast and Track Excavation Waste.

6.5.3.2 Polychlorinated bi-phenols (PCBs)

- **Added**: 6.5.3.2 is a new sub-section.
- **Added:** Requirement for the Employer's Representative to identify PCB contaminated equipment and assets.
- **Added:** Requirement for equipment and assets to be tested, registered, and disposed of in accordance with legal requirements.
- **Added:** Note added that NR maintains a PCB register of known E&P assets.
- **Added:** Note added that a PCB Checklist is available on Safety Central.

6.6 Noise & Vibration

- **Added**: Requirement to comply with Managing Environmental & Social Impacts of Noise and Vibration - NR/L2/ENV/121.
- **Added:** Requirement to conduct a Noise and Vibration Risk Assessment as required by NR/L2/ENV/121.
- **Added:** Note that a Noise and Vibration Risk Assessment template is available on Safety Central.
- **Added:** Requirement to consider where site access compounds are located.
- **Amended:** Requirement for Contractor to implement measures to control noise and vibration using BPM to levels ALARP (previously the requirement was to design measures).

6.7 Dust, odour and lighting

- **Added:** 6.9 is a new section. The content has been merged from the previous 'Noise, nuisance, and disturbance' section.
- **Added:** Requirement for design to control intrusive lighting emissions in addition to control of dust and odour emissions from fixed plant or temporary plant and site activities.
- **Added:** Requirement for contractor to consider the impacts of traffic.

6.8 Pollution of land/water

- **Amended:** Text updated to include a requirement for Designer/Contractor to put in place measures to reduce risks/ pollution pathways to ALARP following the risk assessment (the previous requirement was to assess risks and pollution pathways only).

6.9 Sustainable travel

- **Added**: Requirement to consider the Sustainable Travel Hierarchy, and to use low emission vehicles for on-site use.

6.10 Water

- **Amended:** Requirement for Designer/Contractor to identify water reduction initiatives.

6.11 Weather Resilience and Climate Change Adaptation (WRCCA)

- **Amended:** Requirement for Designer to identify the potential for weather events to impact assets and the area surrounding the project defined as 'Weather and Climate Change Impact Assessment.'
- **Amended:** Section re-ordered to include requirements for undertaking a Weather and Climate Change Impact Assessment.
- **Added**: Note added that guidance on how to undertake a Weather and Climate Change Impact Assessment report is available on Safety Central, and that the PM is responsible for approval.

7 Emergency works and urgent reactive works

- **Added:** Section 7 is a new section.
- **Added**: Requirement to implement measures to minimise environmental and social risks during emergency and urgent reactive works.
- **Added**: Note added that following completion of emergency and urgent reactive works - usual Network Rail standards and legal requirements shall be followed.

8. Social Performance Requirements

- **Amended:** The order of section 8 has been updated.

8.1 Approach to Social Performance

- **Added:** Guidance added for Designer/Contractor to conduct a workshop on social performance to plan approach to social performance note (This is a green requirement and considered guidance/best practice).
- **Added:** A note has been added stating the social workshop can be integrated into other existing workshops and does not need to be stand-alone.
- **Added:** Requirement added that approach to social performance integrated into ESMP, and includes a list of requirements (including risks/ opportunities, objectives and targets, KPIs, how risks will be managed, and how workers will be trained).

8.2 Being a caring neighbour

- **Added:** Requirement for Designer/Contractor to manage/ mitigate risk of disturbance to passengers, lineside neighbours and local communities.
-

- **Amended:** The distance that the Designer/Contractor must inform local community relations representative(s) has been updated from 150metres to 200metres (for noisier works, this distance has been updated to 500m).
- **Added:** Note added to reference the Noise and Vibration Risk Assessment template.
- **Added:** Requirement for Designer/Contractor to participate in stakeholder consultation organised by the Employer's Representative.
- **Amended:** Requirement for consideration to be given to worker behaviour.

8.3 Connecting communities with the environment

- No changes

8.4 Creating engaged employees and positive industry partnerships

- **Amended:** Wording updated for the Designer/Contractor to implement an approach to manage risk of modern slavery that is aligned to NR's anti-slavery and human trafficking policy.
- **Added:** Requirement for Designer/Contractor to support the physical and mental health and well being of workers (e.g. through fatigue management).

8.5 Inspiring tomorrow's workforce

- **Amended:** Requirements for Employment and Skills assessment to include early engagement (e.g. school visits), Level 2,3 and 4 apprenticeships, and the development of skills of current workers.
- **Added**: Note added referring to Employment and Skills Assessment Template on Safety Central.

8.6 Keeping communities safe

- **Amended:** Requirement to contact the Suicide Prevention Team before starting work to understand if it's an area of concern.
- **Added:** In areas of concern, staff to be issued with the Suicide Prevention Handbook
- **Added:** Note added on how to access suicide prevention materials and learning tool videos.

8.7 Making rail a great experience

- **Added:** Note added stating NR has established an independent Design Advisory Panel to review design impacts of projects on passengers, communities and the environment.
- **Added:** Reference to the Design Advice Project Guidance NR/GN/CIV/100/01 added.

8.8 Making travel accessible and inclusive

- **Amended:** Heading updated to include 'and inclusive.'
- **Amended:** Requirement for a Diversity Impact Assessment (DIA) to be completed by the Employer's Representative now a red, mandatory requirement. Requirement includes a list of what the assessment must include as a minimum.
- **Added:** Requirement for the Designer/Contractor to collaborate with the Employer's Representative to inform the DIA.
- **Added**: Note added stating location of DIA templates on Access and Inclusion SharePoint site.
- **Added:** Requirement for DIA to be reviewed at every PACE milestone.

- **Added:** Note of protected characteristics added.
- **Added:** Requirement for the Designer/Contractor to engage with NR's Built Environment Advisory Panel if requested.

8.9 Respecting cultural heritage and rail history

- **Added:** Requirement for architecturally significant schemes requiring planning consent or listed building consent to request architectural layout acceptance by submitting NR/L2/CIV/003/F004.
- **Added:** Notes have been added providing guidance on the Design Advisory Panel (DAP) and guidance notes on Heritage, Care and Development.

8.10 Supporting Britain's economic development

- **Amended:** Requirement to utilise procurement processes that enable qualified and experienced suppliers or sub-contractors to compete fairly and freely (e.g. SMEs, local businesses, VCSEs).
- **Amended:** Best practice/ voluntary Requirement for Designer/Contractor to provide at least 2 business groups with opportunities for compete for contracts (note this is a green requirement and considered guidance/best practice).
- **Amended:** Best practice/ voluntary requirement for job opportunities to be posted locally e.g. in the same local authority as works.
- **Added:** Best practice/ voluntary requirement for Designer/Contractor to pay workers the Real Living Wage in delivery of NR contracts.

9 Incident Management

9.1 Incident Response

9.1.1. Incident Response Plan (IRP)

- **Amended:** Requirement added that IRP shall include procedures for responding to unexpected finds (e.g. protected species).
- **Amended:** Requirement for reporting of environment and social incidents to be in accordance with NR/L3/OHS/0046.
- **Amended:** Withdrawn standards have been removed from the list.
- **Amended:** Requirement to complete Report and Investigation Form (Level 1) updated for Category 1,2 and 3 incidents (previous no mention of categories).

9.1.2 External Reporting

- **Amended:** Reference to 'Nature Scot' from Scottish Natural Heritage.
- **Added**: Requirement for external contractors to liaise with the Employer's Representative to agree comms with the relevant regulator.

9.2 Incident Investigation

- No changes

10. External benchmarking

- New sections created within this section (detailed below).

10.1 Benchmarking environmental performance

- **Amended:** Requirement to undertake an environmental performance assessment prior to the selection of a single option (for new construction and major refurbishments for operational property buildings).
- **Added:** Notes added providing guidance on the use BREEAM and CEEQUAL and the above would not be applicable for CEEQUAL Construction (only) or CEEQUAL Design & Construction if the scope of the assessment doesn't include single option selection.
- **Added:** Note that expected environmental performance is remitted by sponsors at project outset.

10.2 Operational Property enhancement- Refurbishment and fit-out

- **Added:** 10.2 is a new sub-section.
- **Added:** Requirement that the Designer/Contractor shall meet RICS SKA rating of 'Silver' as a minimum and 'Gold' as an aspiration. Alternatively, where BREEAM is used, a rating of 'Very Good' is required and 'Excellent' is an aspiration.
- **Added**: Note added stating the clause applies to refurb and fit outs where the area of building fabric is >50% of surface of individual element or 25% of total building element.
- **Added**: Note added that design guidelines are available- NR/GN/CIV/400/05- Workplace DNA.

10.3 Operational Property enhancement- new construction

- **Added:** 10.3 is a new sub-section.
- **Added:** Requirement added that where the project sponsor/ third-party funder has remitted a certification scheme such as BREEAM, the Designer/Contractor shall achieve a 'very good' rating as minimum and 'excellent' as an aspiration.
- **Added:** Requirement that where formal sustainability assessments are not required, the principles of BREEAM or a similar methodology (e.g. Passivhaus) are applied.

10.4 Considerate Construction Practices

- **Added:** 10.4 is a new sub-section.
- **Added:** Requirement that where requested by the Employer's Representative, the contractor shall achieve a Considerate Constructors Schemes (CCS) score of at least 35, with aspiration to score above 40.

10.5 External recognition (awards)

- **Added:** 10.5 is a new sub- section.
- **Added:** Requirement for Designer/Contractor to seek recognition for sustainability achievements by entering external awards where requested by the Employer's Representative.
- **Added:** Note added - list of example award schemes e.g. Green Apple Awards.

END

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT VOLUME 3 APPENDIX 5A HERITAGE STATEMENTS

Rule 10(6)(d)

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CONTENTS

Heyrod Hall Overbridge (MVL3/7) – Heritage Statement
Springbank Lane Footbridge (MVL3/8) – Heritage Statement
Roughtown Road Overbridge (MVL3/17) – Heritage Statement
Wrights Mill Overbridge (MVL3/20) – Heritage Statement
Wright's Overbridge (MVL3/23) – Heritage Statement
Royal George Underbridge (MVL3/25) – Heritage Statement
Shaw Hall Bank Road Footway (MVL3/26) – Heritage Statement
Oldham Road Overbridge (MVL3/28) – Heritage Statement
Wickens Underbridge (MVL3/29) – Heritage Statement
Uppermill Viaduct (MVL3/31) – Heritage Statement

TRANSPORT AND WORKS ACT 1992

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THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Condition 3
1.4 Summary of proposal 1
2. LEGISLATION & POLICY CONTEXT 1
2.1 Legislation 1
2.2 National Policy 2
2.3 Local planning policy 5
3. ASSESSMENT METHODOLOGY 10
3.1 Research 10
3.2 Significance and setting 10
4. CONSULTATION 11
5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE 18
5.1 History of the W2B Transpennine Route 18
5.2 Heyrod Hall Overbridge (MVL3/7) 20
5.3 Surrounding heritage assets 28
6. PROPOSALS 29
6.1 Background of proposals 29
6.2 Design development and justification 30
6.3 Preferred option design development – Bridge Reconstruction 33
6.4 Description of proposals 40
7. IMPACT OF PROPOSALS 44
7.1 Heyrod Hall Overbridge (MVL3/7) 44
7.2 Other heritage assets 45

7.3 Mitigation 45

7.4 Public benefit 47

8. CONCLUSION 49

9. REFERENCES 52

APPENDIX A – LOCATION PLAN 54

APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION 55

APPENDIX C: HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS 58

List of Tables

Table 4-1 Consultation for Heyrod Hall Overbridge (MVL3/7) 11

Table 6-1 Optioneering for Heyrod Overbridge (MVL3/7) 32

Table 6-2 Summary of bridge deck design options 35

Table 6-3 Summary of parapet design options 37

Table 6-4 Coping stone optioneering 38

List of Inserts

Insert 1-1 Low mileage (south-west) elevation of Heyrod Hall Overbridge (MVL3/7). 4

Insert 1-2 North-east elevation of Heyrod Hall Overbridge (MVL3/7). 4

Insert 1-3 Arch soffit of Heyrod Hall Overbridge (MVL3/7) showing open joints, weathering and spalling of stonework. 5

Insert 1-4 Weathering, and open joints on Heyrod Hall Overbridge (MVL3/7). 5

Insert 5-1 Heyrod Hall Overbridge (MVL3/7) shown on an auction sale plan dated 1856, held by Tameside Archives 21

Insert 5-2 Heyrod Hall Overbridge (MVL3/7) from the historic line plans held by Network Rail 22

Insert 5-3 Heyrod Hall Overbridge (MVL3/7) north-east elevation. 23

Insert 5-4 Heyrod Hall Overbridge (MVL3/7), view south-east across the bridge towards Heyrod Hall. 23

Insert 5-5 Heyrod Hall Overbridge (MVL3/7), view across the bridge parapet looking north-east 24

Insert 5-6 Heyrod Hall Overbridge (MVL3/7), view across the bridge parapet looking south-west.....24

Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level.....30

Insert 6-2 Proposed elevation of Heyrod Hall Overbridge (MVL3/7) 41

Insert 6-3 Proposed section Heyrod Hall Overbridge (MVL3/7) 42

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four ‘express’ and two ‘semi-express’ services an hour;
- Capability to operate up to two ‘local services’ an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail’s Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancement Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the “Order Scheme”). This section of the Transpennine route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a listed building. The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade II listed Heyrod Hall Overbridge (MVL3/7) (NHLE 1449242). This bridge is located in the village of Heyrod (NGR SJ9720099786), approximately 1.6 km to the north-east of Stalybridge Station. A location plan is provided in Appendix A.

1.1.7 The Historic England list description (included in full in Appendix B) names the listed building as “Heyrod Hall Bridge.” Throughout this Heritage Statement the structure is referred to as “Heyrod Hall Overbridge” in line with Network Rail’s naming of the structure.

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF, revised 2025) specifically paragraph 207 which seeks an assessment proportionate to the asset’s importance and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail’s requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to Identify and discuss the heritage significance of the listed structure, including the contribution of setting.

- Present the design requirements of the Order Scheme at the structure.

- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure.
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance.
- Discuss any mitigation recommended in relation to the structure.
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the NPPF and the Tameside Unitary Development Plan Written Statement, 2004 (Tameside Metropolitan Borough Council, 2004).

1.3 Current Condition

1.3.1 Heyrod Hall Overbridge (MVL3/7) is a mid to late 1840s masonry overbridge, designed by Alfred Stanistreet (A.S.) Jee for the Huddersfield & Manchester Railway, comprising a single segmental arched bridge carrying a short private lane over the Huddersfield & Manchester Railway line and providing access to Heyrod Hall (Insert 1-1 and Insert 1-2).

1.3.2 A detailed condition assessment of Heyrod Hall Overbridge (MVL3/7) was undertaken in April 2023 which found the bridge to be in generally fair condition with no signs of structural failure.

1.3.3 A small number of defects were noted including:

- Open joints and areas of spalling across the parapets, upper barrel haunches and wing walls (Insert 1-3);
- Masonry fractures and displacement; and
- General weathering and some open joints (Insert 1-4).

Insert 1-1 Low mileage (south-west) elevation of Heyrod Hall Overbridge (MVL3/7).

Insert 1-2 North-east elevation of Heyrod Hall Overbridge (MVL3/7).

Insert 1-3 Arch soffit of Heyrod Hall Overbridge (MVL3/7) showing open joints, weathering and spalling of stonework.

Insert 1-4 Weathering, and open joints on Heyrod Hall Overbridge (MVL3/7).

1.4 Summary of proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the route is required. This would require alteration of a number of existing bridges, including Heyrod Hall Overbridge (MVL3/7) to accommodate Overhead Line Equipment (OLE). Following optioneering, it has been determined necessary to reconstruct Heyrod Hall Overbridge (MVL3/7) (option 3). These works would therefore enable implementation of the Order Scheme.

2. LEGISLATION & POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) ("Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

In this Act *"listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—*

a) any object or structure fixed to the building;

b) any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

1) 'Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) ' the preservation of particular features of the building, either as part of it or after severance from it;

b) the making good, after the works are completed, of any damage caused to the building by the works; [and]

c) the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.

2.1.5 It is also defined in s.17 (2) that a condition '*may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'*.

2.1.6 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.2 National Policy

2.2.1 The NPPF sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance on the Historic Environment (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective *'to protect and enhance our natural, built and historic environment'*. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16

of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' and includes guidance on assessment of significance of the heritage assets and their setting that may be affected by the proposed works and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance.'*

- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance.'*

- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

    a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

    b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should*

refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:

a) the nature of the heritage asset prevents all reasonable uses of the site; and

b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

d) the harm or loss is outweighed by the benefit of bringing the site back into use.'

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.'*

- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*

- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.'*

Planning Practice Guidance

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of

the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that 'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

Tameside Unitary Development Plan

2.3.1 The Tameside Unitary Development Plan (2004) is part of the statutory Local Plan policies for Tameside Metropolitan Borough which provides the set of planning policies which make up the current local plan.

2.3.2 The Tameside Unitary Development Plan sets out local planning policies that '*provide a framework for development and conservation over the whole of the Tameside area, to set out the main*

considerations on which planning applications in the Borough are determined, and to guide land use decisions by the Council and other agencies.'

2.3.3 Policies within the framework which are relevant to this Heritage Statement are outlined below.

Policy C Conservation and Enhancement of the Built Environment.

Policy C1 Townscape and Urban Form

In considering proposals for built development, the Council will expect the distinct settlement pattern, open space features, topography, townscape and landscape character of specific areas of the Borough to be understood, and the nature of the surrounding fabric to be respected. The relationship between buildings and their setting should be given particular attention in the design of any proposal for development.

Urban design frameworks will be produced for particular areas and corridors in the Borough, as supplementary planning guidance, setting out fundamental principles which should be followed and from which detailed design may be interpreted.

The Council will establish a strategy to secure the retention and enhancement of landmark buildings which form a distinctive element of the local skyline or townscape, and which represent a unique part of the heritage of the area. Re-use and conversion of such buildings which become redundant will be permitted, subject to other relevant policies.

Policy C5 Alternative Uses, Alterations and Additions for Listed Buildings

Whilst continuation of the use for which the building was designed is most desirable, the Council will permit alternatives uses for Listed Buildings where evidence demonstrates that the existing or original use is unlikely to support the maintenance and preservation of the building.

The Council will require that proposed new uses, or other alterations and additions to Listed Buildings, should not adversely affect the essential character of the building, should be in keeping with its architectural style and features, and should harmonise with its surroundings. The effect of the proposals on any protected species which may be using the Listed Building should also be taken into account.

Such development must be of a high standard of design. The external appearance, design and materials will be expected to match as near as possible those of the existing building and, where appropriate, new internal features should also harmonise with the existing.

Extensions and additions should be secondary in scale, design and location to the principal building and standard solutions or modern features which fail to relate to the character of the building will not be permitted

Policy C6: Setting of Listed Buildings

New development, including any proposed as a result of a new use for a Listed Building, which fails to preserve, or detracts from, the setting of a Listed Building or structure will not be permitted.

Policy C8 Demolition of Listed Buildings

The Council will not recommend the demolition of Listed Buildings, apart from in exceptional circumstances after the following considerations have been assessed:

(a) the condition of the building and the cost of repairing and maintaining it in relation to its importance and to the value derived from its continued use, and

(b) the adequacy of efforts that have been made to retain the building in its present use or to find compatible alternative uses, and

(c) *the merits of alternative proposals for the site.*

In such circumstances the Council will also need to be satisfied that an acceptable alternative form of development can go ahead on the site as soon as practical following demolition, that any use of the building by protected species has been taken into account, and that provision can be made to record the detail of the building prior to demolition.

Places for Everyone (Greater Manchester Combined Authority 2024)

2.3.4 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Tameside, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk,

Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.5 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.6 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the *'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance'* (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.7 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.8 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with

the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Heyrod Hall Overbridge (MVL3/7). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 May 2024.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England. Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest.

3.2.2 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence; and
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and Tameside Metropolitan Borough Council (TMBC) have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of the TRU.

4.1.2 Regular meetings with Historic England and TMBC have been held to discuss design development of the proposals in relation to Heyrod Hall Overbridge (MVL3/7). Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall route and design development for all listed structures within Route Section W2B.

4.1.3 The design development of the Order Scheme in relation to Heyrod Hall Overbridge (MVL3/7) was discussed during meetings with the statutory stakeholders on the dates outlined in Table 4-1.

Table 4-1 Consultation for Heyrod Hall Overbridge (MVL3/7)

Date	Stakeholder in attendance	Key agreements/items discussed
2 March 2021	• TMBC	• An overview of the optioneering for each structure within the TMBC boundary was outlined by Network Rail. • The site constraints at Heyrod Hall Overbridge (MVL3/7) were presented, and the reconstruction of the bridge identified as the preferred option (option 3). The ambition to retain as much of the existing fabric as possible was also communicated to council officers.
26 May 2021	• Historic England • Oldham Metropolitan Borough Council	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II overbridges and underbridges which are noted for their inherent significance, particularly as essential railway structures. Acknowledgement of their group value with each other was also presented as a key contributor to significance.

Date	Stakeholder in attendance	Key agreements/items discussed
	• Kirklees Council	• Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs. • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. The proposed reconstruction of MVL3/7 was presented, due to the potential level of impact this structure was flagged as red on a RAG scale. • Reassurance was provided to the council that they would be involved in the GRIP 3 design process which would be used within the detailed design development of GRIP 4. Clarification was also provided on the sustainable heritage initiatives. • Historic England stated how they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
2 February 2024	• TMBC	• This meeting was used to outline to members of the Local Planning Authority the significance of Heyrod Hall Bridge (MVL3/7), along with site specific constraints and the feasibility study of potential options. • The principle for reconstructing the bridge as the preferred option was established (option 1). • Discussion took place regarding the proposed form of the reconstructed deck, with a filler beam being the preferred option (option 3). • The options for parapet construction were presented, with a stone clad concrete core identified as the preferred option (option 3). The parapet height and form of coping stones were queried, with the rationale behind the 1.5 m parapet with triangular copers presented.

Date	Stakeholder in attendance	Key agreements/items discussed
6 February 2024	• Historic England	• Details of the challenges of the electrification of the route in relation to listed overbridges were presented. Design measures under consideration for addressing these challenges noted to include: Reduced voltage clearances - Development of scheme-specific pantograph, reducing electrical clearances to a minimum. - Site specific risk assessments of bridges due to reduced overhead wire heights. Electrical protection works - Risk-based approach to raising parapets. Where safe to do so, 1.5 m height parapets may be employed, rather than standard 1.8 m height. - This approach has been embedded in designs for W2B. • The design approach for electrification across / under existing railway bridges was noted to have agreed in principle by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage. • The approach to bridge reconstruction was outlined, with key design aspects discussed including: - Retention of existing approach walls; - Visibility of new concrete elements to be minimised through the use of masonry cladding; - Stringcourse detail incorporated into the form of the edge beam; - Reclaimed stone used to clad interior of parapet, natural stone used to clad exterior; - Coursing of cladding to tie in with existing stonework as far as reasonably practicable; and - Where reclaimed stone cannot be reused, natural stone of matching size and colour would be used. • Confirmation that the design optioneering would be undertaken in consultation with Historic England.

Date	Stakeholder in attendance	Key agreements/items discussed
5 March 2024	• Historic England	• The significance, site constraints and optioneering process for Heyrod Hall Bridge (MVL3/7) were presented to Historic England. • Network Rail's preferred option for a bridge reconstruction (option 3) was recognised by Historic England along with the constraints relating to the other presented options.
07 May 2024	• Historic England	• Agreement in principle with Historic England on the principle of reconstruction at Heyrod Hall Overbridge (MVL3/7). • A formal letter capturing Historic England's pre-application advice for this structure was requested (received 25 June 2024) (see Appendix C for full letter).
24 May 2024	• TMBC	• This meeting was used to outline to members of the Local Planning Authority (following changes in personnel) the significance of Heyrod Hall Overbridge (MVL3/7), along with site specific constraints and the feasibility study of potential options. • TMBC expressed a preference for the continuation of stone cladding on the underside of the bridge, the retention of as much material as possible, and for the scope of works to the listed structure to be minimised as much possible.
25 June 2024	• Historic England	• Pre-application advice letter from Historic England identifies that the reconstruction of MVL3/7 would result in substantial harm to the significance of the bridge (see Appendix C for full letter). • Historic England summarised that substantial harm would arise from the loss of the form of the arched bridges and through the loss of historic fabric, with additional harm identified to the group value of the bridges. • It was agreed that reclaimed stone should be focussed on the inside faces of the parapet to

Date	Stakeholder in attendance	Key agreements/items discussed
		minimise the degree to which the alteration of the bridge is experienced from the deck. • Historic England concluded that it would be for the decision taker to weigh the balance of the identified substantial harm against the public benefit of the Order Scheme.
8 July 2024	• TMBC	• Written response from TMBC on proposed alteration of listed railway bridges identifying the following requirements: - Proposed works to listed bridges should be kept to the minimum necessary to facilitate the Order Scheme and ensure their continued use and enjoyment, whilst retaining as much as practicable of their individual character and appearance. - Any replacement stonework and/or new stonework (copings, for example) should be in natural stone. - Internal elevations of the bridge should be 'clad' or constructed with natural stone. - All new stonework at bridge level should respect the colour, texture, form to the existing and follow the same coursing pattern. - Any application for listed building consent should be supported by a Heritage Statement prepared in accordance with the NPPF. • listed building consent drawings to clearly identify on plan and in a methodology / specification details of works including repair work, fencing, and the extent of reconstruction of MVL3/7 and MVL3/20.
27 August 2024	• Historic England	• This meeting was used to present the draft listed building consent drawings to Historic England and to discuss the proposals presented in the drawings. • The design team confirmed that natural stone would be used for the cladding and coping of the proposed concrete elements (other than the edge beam which needs to be visible for inspection). Efforts would be made to tie the coursing of cladding in with the

Date	Stakeholder in attendance	Key agreements/items discussed
		retained sections as best as possible, informed by point cloud data held for the existing structure. • There was discussion of potential methodology for bridge demolition and how this may impact on the level of masonry able to be salvaged.
3 September 2024	• TMBC	• Discussion around draft LBC drawings for MVL3/7 and further conversation around the use of stone cladding. The use of stone cladding was confirmed to only be used for re-cladding and/or decoration as it would be a safety risk to use stone for structural components. Similarly, it was explained that the use of stone cladding on the concrete deck would pose significant maintenance issues with the risk of stone breaking off the structure and onto the railway. • Discussion around the shape of the bridge copers with concerns from the council that they would be very tall and angular. The designs confirmed that these would not be as tall and be much softer visually and will be proportionate.
3 September 2024	• TMBC	• Discussion around draft LBC drawings for MVL3/7 which demonstrate the worst case scenario for the extent of demolition, and conversation about the use of repurposed stone from the demolition of MVL3/23. The council was in support of the use of reclaimed stone where possible and queries whether it could be used on the concrete deck in which concerns over maintenance and technical justification as to why this would not be undertaken. • The council raised concerns over the height of the copers similar to those at Ashton. However it was reassured that the design for the copers would not be as tall with a proportionate ratio to the wall height.

Date	Stakeholder in attendance	Key agreements/items discussed
17 September 2024	• Historic England	• In their pre-application advice letter Historic England confirmed demolition and reconstruction of Heyrod Hall Overbridge (MVL3/7) would result in substantial harm to the significance of the bridge (Appendix C). • Careful retention and reuse of stonework for reuse in order to reduce harm was highlighted. Where new stone is required, it was noted that this should be as close a match as possible to the original fabric. • Coursing should match existing fabric to minimise the visual impact of the works. • The use of natural stone cut copers was welcomed.
28 March 2025	• TMBC	• Consultation to go over the draft Heritage Statements. Comments raised, during this meeting and have since been actioned include: - Request for inclusion of Historic England feedback in appendix to the Heritage Statements - Request for condition surveys subject to Network Rail's approval • Request for further emphasis of public engagement in the reports
4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits.
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans.

Date	Stakeholder in attendance	Key agreements/items discussed
		• The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs under Heyrod Hall Overbridge (MVL3/7) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age (1841-1850) of railway building (Historic England 2017b). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774 km to 11,703 km) (Alan Baxter Associates 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after its authorisation (Alan Baxter Associates 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is 'indisputably significant as a major engineering achievement' (Alan Baxter Associates 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more

upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Heyrod Hall Overbridge (MVL3/7) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at over three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise (Institution of Civil Engineers: Obituaries, 1859). He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associates 2019). This was produced to characterise the overall heritage significance of the Transpennine route as a whole.

5.2 Heyrod Hall Overbridge (MVL3/7)

History

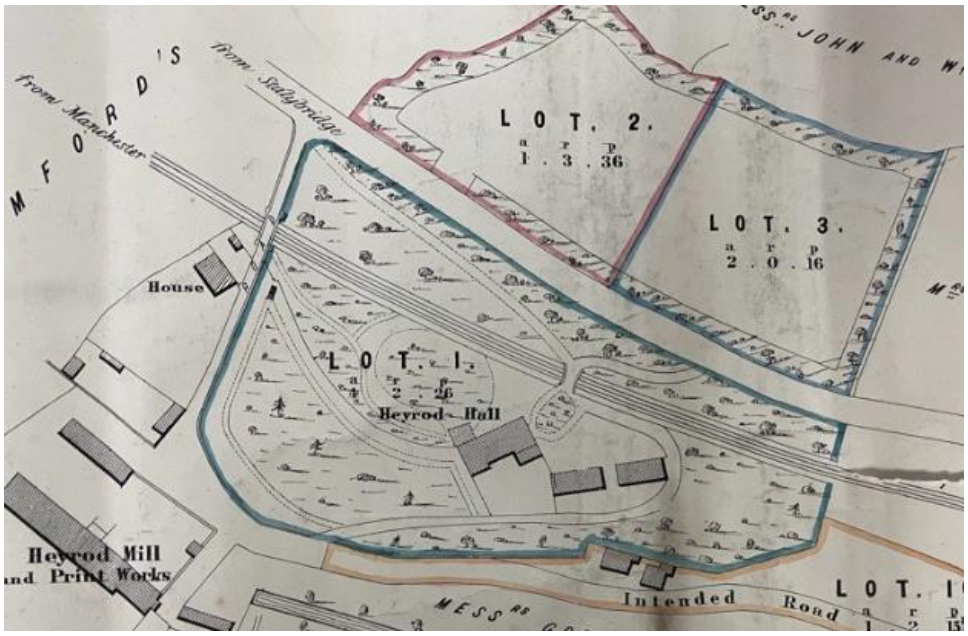
5.2.1 Heyrod Hall Overbridge (MVL3/7) was constructed between 1845 and 1849 during the Heroic Age of railway building. The single-span bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway and is situated to the east of the village of Heyrod.

5.2.2 The overbridge was constructed to allow continued access from Wakefield Road to Heyrod Hall (non-designated heritage asset see paragraph 5.3.4). The 1st edition 6-inch Ordnance survey map of 1848 reveals the railway and adjacent road to have been cut through the small parkland associated with Heyrod Hall, dividing it into three uneven parts. The Hall and associated outbuildings are shown to have been located to the east of the railway cutting. A driveway is shown to have extended from Wakefield Road across Heyrod Hall Overbridge (MVL3/7) to give access to the house. This was the only direct access for the Hall over the railway line and indicates that Heyrod Hall Overbridge was purpose-built to provide access to the Hall. The parkland is shown to have had a boundary band of trees, as well as pleasure grounds and a productive garden focussed around the house. Despite its severance from the core of the park around the Hall, the area to the west of Wakefield Road appears to have remained a parkland, defined by a boundary belt of trees. An auction plan dating from 1856 (see Insert 5-1 below) indicates this land remained as parkland, and was advertised for sale in the same plot as the hall. To the east of Heyrod Hall, industrialisation along the River Tame is apparent with the presence of Hartshead Printworks and associated reservoirs.

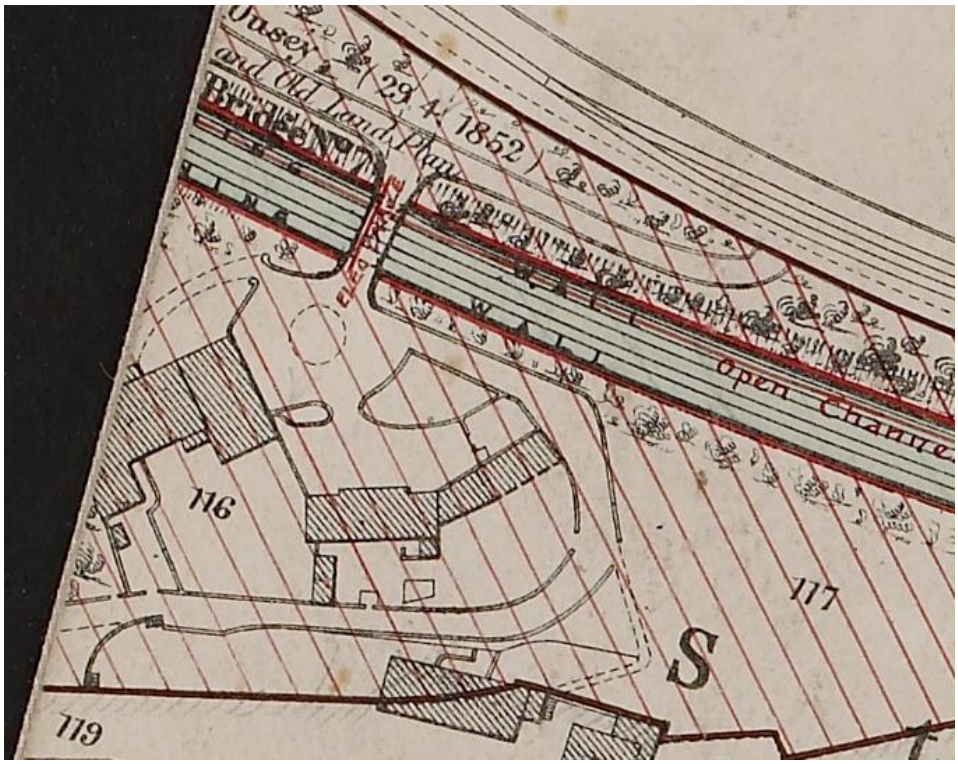
5.2.3 By the time of the 1937 6-inch Ordnance map, Heyrod Hall Overbridge (MVL3/7) continues to provide access to Heyrod Hall, however change is apparent in the wider landscape. The former parkland to the west of Wakefield Road is shown to have been developed with semi-detached housing, whilst to the north-east of

Heyrod Hall, Hartshead Power Station was established, the cooling towers for which were supplied by water from the reservoirs formerly associated with the Hartshead Printworks.

5.2.4 Heyrod Hall Overbridge (MVL3/7) remains in use today, carrying the access route to Heyrod Hall. Historic plans show that the access to the bridge was reconfigured in the mid-20th century, presumably enabling the construction of the housing along Wakefield Road. No other alterations to the bridge or access road are discernible from historic mapping.



Insert 5-1 Heyrod Hall Overbridge (MVL3/7) shown on an auction sale plan dated 1856, held by Tameside Archives



Insert 5-2 Heyrod Hall Overbridge (MVL3/7) from the historic line plans held by Network Rail

Description

5.2.5 Heyrod Hall Overbridge (MVL3/7) comprises a single segmental-arched bridge with battered abutments (Insert 5-3). The railway crossing is aligned southeast to northwest, sloping downwards towards the east due to the gradient of the local topography, and spans the two-track railway line which is set within a steep cutting. The bridge survives in its original form, with no evidence of alteration.

5.2.6 The bridge is constructed in rock-faced coursed sandstone with ashlar dressings. The bridge spans the railway by means of a segmental arch rising from an ashlar impost band. It is articulated by rusticated voussoirs with tooled faces and a projecting keystone. Above the segmental arch is a projecting carriageway band (a band which looks like a stringcourse) with low parapet over, topped with flat ashlar coping stones with pyramidal stops. The wing walls are splayed with battered abutments. The bridge deck has a gravelled surface.

5.2.7 The setting of Heyrod Hall Overbridge (MVL3/7) has changed since it was first developed. Historically, the overbridge provided access to Heyrod Hall, structures ancillary to the hall and landscaped gardens to the east, with the parkland to west. In the mid-20th century, the parkland to the west was superseded with a residential cul-de-sac,

which removed the historic integrity of its setting with Heyrod Hall. These residential houses are not considered to contribute towards the setting of Heyrod Hall Overbridge (MVL3/7). Heyrod Hall is visible from the bridge deck, however dense vegetation and distance obstructs visibility. Furthermore, the principal elevation of the hall is set at an oblique angle to the bridge, with Heyrod Hall Overbridge (MVL3/7) not comprising a prominent feature in the grounds of the hall. Nevertheless, the bridge is primarily experienced as an access route to the hall, with the historic linkage between these structures (Insert 5-4) contributing to the setting of the bridge. Views south-west and north-east from the bridge deck looking out onto the railway can be appreciated, and Heyrod Road Footbridge (MVL3/6) to the south provides a good vantage point from which to appreciate the south-west elevation of the overbridge.

Insert 5-3 Heyrod Hall Overbridge (MVL3/7) north-east elevation.

Insert 5-4 Heyrod Hall Overbridge (MVL3/7), view south-east across the bridge towards Heyrod Hall.

Insert 5-5 Heyrod Hall Overbridge (MVL3/7), view across the bridge parapet looking north-east

Insert 5-6 Heyrod Hall Overbridge (MVL3/7), view across the bridge parapet looking south-west

Significance

5.2.8 Heyrod Hall Overbridge (MVL3/7) was designated as a grade II listed building in 2017. The Historic England list entry description identifies the bridge to be of special interest for the following reasons:

- Historic interest:
    - Constructed during the Heroic Age of railway building and a little-altered example of an 1840s overbridge on what is now one of the main railway lines in northern England.

    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - The bridge is well-detailed with ashlar impost bands and string course, and piers and voussoirs with tooled margins, that lift its design above the purely functional.
- Group value:
    - With the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

5.2.9 Heyrod Hall Overbridge (MVL3/7) is of significance as a largely unaltered example of an 1840s overbridge, dating from the Heroic Age (1841–50) of railway building and the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct relationship with historic railway companies of the period, comprising the Huddersfield & Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route, give the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.10 Heyrod Hall Overbridge (MVL3/7) derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. Architectural elements such as the rusticated voussoirs and carriageway band, together with the quality of workmanship across the structure are notable features of Jee's design which elevates the structure above the purely functional. The design language used is consistent with other overbridges built along this section of the Huddersfield & Manchester Railway, contributing to the understanding of the group value of these related structures. The bridge survives in its original form, with no evidence of significant intervention or alteration, and remains in use for its original purpose, providing access to Heyrod Hall. The integrity of the structure enables understanding of Jee's original design intent and this is a strong contributing factor to its significance.

5.2.11 The setting of Heyrod Hall Overbridge (MVL3/7) makes some contribution to the significance of the structure. Its relationship with the railway is a key component of its setting given that the bridge continues to span the railway cutting, retaining a close physical and functional relationship with the railway. Views from the bridge north-east and south-west along the railway alignment evidence this relationship. Generally, there is very limited visibility of the bridge

elevations, due to its position within the cutting. However, views towards the south-west elevation are possible from the vantage point provided by Heyrod Road Footbridge (MVL3/6). Though the wider historic setting has been developed in the mid-20th century, the association of the bridge and Heyrod Hall remains intact and appreciable. To this effect, the setting of Heyrod Hall Overbridge (MVL3/7) makes a minor contribution to its overall significance.

Group value

5.2.12 As identified in the list description, Heyrod Hall Overbridge (MVL3/7) is recognised to be of group value with other listed structures by A.S. Jee on the Huddersfield & Manchester Railway[1]. These comprise:

- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wrights Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);
- Wright's Overbridge (MVL3/23) (grade II listed, NHLE 1452409);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Roadbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Uppermill Viaduct (MVL3/31) (grade II listed, NHLE 1068120);

[1] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537**)** was designed by A.S. Jee for the Huddersfield & Manchester Railway. Consent was granted for extensive change to the overbridge as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade. The overbridge will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[2].

5.2.13 Of these bridges, four are of particularly similar form to Heyrod Hall Overbridge (MVL3/7). These bridges comprise segmental arched bridges of stone construction, which are similarly detailed architecturally. These overbridges comprise:

- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wrights Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452409); and
- Wright's Overbridge (MVL3/23) (grade II listed, NHLE 1442409).

5.2.14 The group value which Heyrod Hall Overbridge (MVL3/7) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age of railway building (1841-50) more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it) as coherent features of a single historic route.

[2] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

5.2.15 Masonry railway bridges across the historic Huddersfield & Manchester Railway route have been characterised as being of local or regional interest, depending on their architectural quality, contribution to wider historical interest of the route, and their group value. It has been noted however that, as a group, they are not of substantial national interest due to their dating from a period of railway development when thousands of similar structures were erected (Alan Baxter Associates, 2019).

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated heritage assets

5.3.2 There are no designated heritage assts located within 250 m of Heyrod Hall Overbridge (MVL3/7)

Non-designated heritage assets

5.3.3 The Greater Manchester Historic Environment Record lists four non-designated heritage assets within 250m of Heyrod Hall Overbridge (MVL3/7)[3]. These comprise:

- The former site of Rushfield (9174.1.0);
- The former site of Hartshead Print Works (5802.1.0);
- The former site of Heyrod Old Hall (751.1.0); and
- Heyrod Hall (751.2.0).

5.3.4 Of these assets, Heyrod Hall Overbridge (MVL3/7) has a direct historic relationship with Heyrod Hall (751.2.0), having been constructed to provide access to the Hall over the railway cutting. Heyrod Hall (751.2.0) was rebuilt in the 19th century on the site of a historic hall (751.1.0). The record of a datestone reading 1638 mean the old hall is believed to have been built or rebuilt in the early 17th century (Butterworth, 1827, p. 129). The hall was demolished and rebuilt at the time of the construction of the railway (Walker & Tindall, 1985, p.166). The hall and estate changed ownership at this time, and notably when the railway opened in 1849 J.H Nowell of the firm Nowell and Hattersley lived at the hall. Nowell and Hattersley were contractors for the works on the railway (Leeds Intelligencer, 1849).

5.3.5 The access to the hall facilitated by the bridge still remains and contributes to the significance of both assets. The overbridge does

[3] Heyrod Hall Overbridge (MVL3/7) is recorded by the Greater Manchester Historic Environment Record as 17177.1.0.

not form a prominent architectural feature in views to or from the hall, being set at an oblique angle to the side elevation, and sunk within the railway cutting, reducing its visual prominence.

5.3.6 The former sites of Rushfield (9174.1.0) and Hartshead Print Works (5802.1.0) are now demolished which, although of historic interest, do not have any tangible relationship with Heyrod Hall Overbridge (MVL3/7) today.

5.3.7 In addition to these assets recorded on the Greater Manchester Historic Environment Record, Heyrod Road Footbridge (MVL3/6) is identified as a non-designated heritage asset within 250m of the listed building. The footbridge consists of piers of squared and coursed quarry-faced stone, the span was replaced with a steel deck in 2004. Due to the extent of this alteration, the footbridge is of limited significance. There is a historic relationship between Heyrod Road Footbridge (MVL3/6) and Heyrod Hall Overbridge (MVL3/7), the structures are both believed to have been constructed during the same phase to facilitate the opening of the railway in 1849. Heyrod Road Footbridge (MVL3/6) also offers a vantage point from which the south-west elevation of Heyrod Hall Overbridge (MVL3/7) can be viewed.

6. PROPOSALS

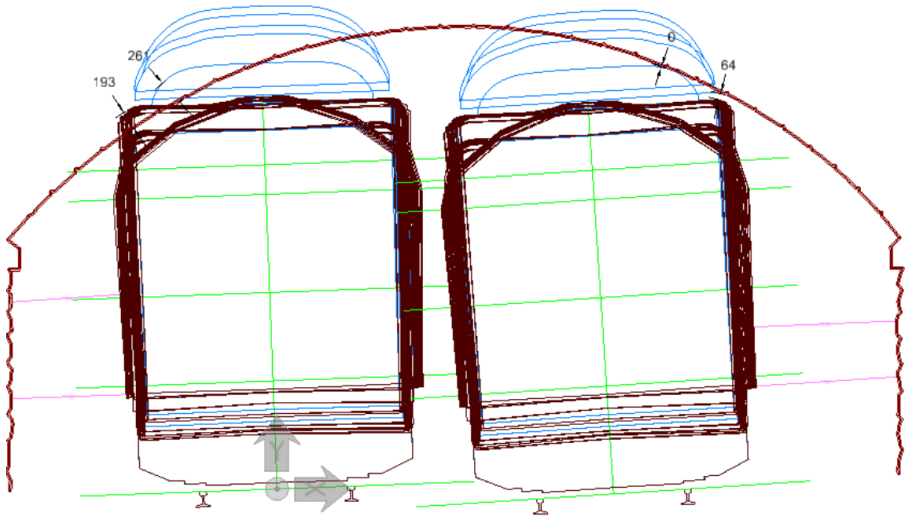
6.1 Background of proposals

6.1.1 In order to achieve the TRU Programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. This necessitates the installation of overhead lines along Route Section W2B.

6.1.2 Inadequate clearances to safely install OLE has been recognised as a challenge across much of the TRU, preventing the installation of overhead lines below some existing overbridges. To reduce the requirement for intervention into structures along the route as far as possible, a scheme-specific pantograph has been developed which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment. A number of structures along the route also do not provide adequate gauge clearance for the required freight trains on the route, the requirement for which has been considered as part of the design development process.

6.1.3 Insert 6-1 shows that even with use of the scheme-specific pantograph, there would still be significant clash between OLE and

Heyrod Hall Overbridge (MVL3/7). Similarly, the bridge does not have the required freight gauge clearance. A process of design optioneering to identify the optimal solution has been undertaken.



Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level

6.2 Design development and justification

6.2.1 Design development for Heyrod Hall Overbridge (MVL3/7) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has also involved engagement with Historic England and TMBC. This iterative and robust process ensured the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultees.

6.2.2 Based on Network Rail's extensive experience delivering comparable schemes, five options were identified for consideration. As introduced in Section 6.1, the option of retaining the structure without undertaking any works would prevent the delivery of the Order Scheme. This option was therefore discounted at an early stage. The remaining four options comprised:

1. Track Lower - Lowering the height of the track to achieve the required headroom while retaining existing bridge.

2. Bridge Jacking - Increasing the height of the bridge through structurally lifting the arch barrel up from the abutments. This would require diagonal cuts to be made to separate the arch barrel from the abutments, lifting of the arch, infilling of the resulting gaps and refacing.

3. Bridge Reconstruction – Removal of the bridge arch and replacement with a deck providing sufficient clearance.

4. Bridge Removal – demolition of the existing bridge, making good the embankments and improvement of access from Printworks Road to provide access to Heyrod Hall.

6.2.3 A summary of the optioneering undertaken for these options is summarised in Table 6-1.

Table 6-1 Optioneering for Heyrod Overbridge (MVL3/7)

Option	Key Considerations	Advantages	Disadvantages	Preferred
1) Track Lower	• Sufficient clearance needs to be achieved to enable electrification of the line and allow freight gauge clearance. • Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service. • The bridge spans a railway cutting and is accessible from the highway network only via a narrow lane between two terraces of houses. This restricts the accessibility of construction vehicles and the delivery of materials / components getting to the site. • Ground investigation has revealed rock to be present at shallow depth within the railway cutting. There is currently no functional track drainage at this location. • The foundation depths of the bridge and cutting retaining walls are a consideration in the development of proposals for Heyrod Hall Overbridge (MVL3/7). Lowering of ground level within the cutting has the potential to undermine these foundations or necessitate significant engineering works to ensure their stability. • The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Buildings & Conservation Areas) Act 1990.	• Lowering of the track would enable retention of the bridge with raising of the parapets undertaken prevent access to OLE.	• To achieve the required clearance, the track would have to be lowered by 500 mm for a distance of 260 m. Due to the shallow depth of rock at this location, this is a substantial engineering operation. • Underpinning of the bridge and stabilisation of the retaining wall may be required due to the shallow depth of their foundations. Underpinning may present risks to the listed building due to changes to the structural performance of the historic structure. • These interventions would require lengthy line possessions to remove the rock, underpin the bridge and stabilise the retaining walls. This would result in significant disruption to the railway and incur considerable public expenditure.	N
2) Bridge Jacking		• This option would enable the retention of the listed bridge. The abutments, deck and parapet would be retained, although in altered form.	• Bridge jacking for masonry arch bridges is a relatively untested methodology, having been delivered on very few historic structures to date. The feasibility jacking masonry arch structures relies on optimal site conditions, where a high level of control can be achieved and long timescales allowed for implementation. The long-term viability of this option is currently unknown. • Bridge jacking would incur extensive disruption to railway users, requiring all works be delivered on site and little scope for off-site construction. • The location of the bridge over a cutting with limited access has significant limitations for execution of a bridge jacking operation. • Jacking of the bridge would raise the level of the access road across the bridge and require a greater increase to parapet height across the structure along with re-grading of access road approaches. • Raising of the bridge arch would impact the form and appearance of the structure, interrupting architectural features such as the stringcourse and the stone coursing pattern across the parapets, detracting from its architectural value and integrity.	N
3) Bridge Reconstruction		• Reconstruction of the bridge would enable the preservation of some elements of the historic structure, through the retention and reuse of the bridge abutments in conjunction with the new bridge deck. • Historic masonry can be reclaimed from removal of the bridge arch and parapets and reused on the reconstructed structure, aiding integration of historic and modern fabric and reduce the visual impact of the reconstruction works. • Reconstruction of the bridge can be delivered substantially from track level. This would minimise the need for construction access by road at this constrained site. • The installation of a preconstructed deck would minimise railway possession time and disruption to the railway network.	• Reconstruction of the bridge would result in the loss of the bridge arch and a portion of the parapets and abutments. This would result in the removal of a significant proportion of the historic bridge, substantially altering its form and appearance, and negatively impacting the integrity and significance of the structure.	**Y**
4) Bridge Removal		• Removal of the bridge would minimise disruption to the railway network and provide a cost effective solution.	• This option would result in the complete removal of the bridge and the loss of a grade II listed structure. • Removal of the bridge would permanently remove road access to Heyrod Hall from Wakefield Road (A63), and necessitate the provision of new road access from Printworks Road.	N

6.2.4 Option 1 Track Lower, and Option 2 Bridge Jacking would both have enabled retention of the maximum amount of historic fabric. However, these options were discounted due to the difficulty of delivering these at this constrained site, the as-yet unproven long-term viability of bridge jacking, and due to the significant cost and disruption required. Option 4, Bridge Removal, was discounted due both to its negative impact on the listed structure and to local residents. Option 3, Bridge Reconstruction was therefore identified as the preferred option to achieve the required clearance for Heyrod Hall Overbridge (MVL3/7). Whilst this option would result in significant alteration of the listed bridge, it was found to represent the most deliverable solution. This took into account the constrained nature of the site; the aims of the Order Scheme; minimising disruption to the railway network and enabling retention of historic fabric as far as possible.

6.3 Preferred option design development – Bridge Reconstruction

6.3.1 Design development was subsequently undertaken to mitigate as far as possible the potential impact of reconstruction on the heritage significance of Heyrod Hall Overbridge (MVL3/7)

6.3.2 The sympathetic approach taken to bridge reconstruction during the restoration of the Huddersfield Narrow Canal prior to its reopening in 2001 was considered as a ‘Reference Design’. The reconstructed masonry canal bridges are in proximity to the W2B section of the Transpennine route and successfully integrated reconstructed bridges within the historic character of the canal corridor. It was recognised by heritage stakeholders that the reconstruction of these canal bridges had successfully achieved designs which responded to the significance of the historic bridges.

Form of Replacement Deck

6.3.3 A number of constraints which had the potential to influence the feasible options for the replacement deck design were identified. These have shaped the choice of the form of the proposed replacement deck. These constraints can be summarised as follows:

- Geometric constraints
    - Gauge clearance – the minimum distance of clearance required between the soffit of the deck and the proposed OLE.
    - Alignment of the access road – the requirement to preserve the existing alignment of the access road which passes between nearby dwellings before a junction with Wakefield Road (A635).

  - Narrow deck width – the width of the deck is dictated by the bridge abutments and alignment of the highway.

- Construction constraints
  - Lift limit <30 t – due to the layout of the site, there is limited access for a large capacity crane at road level, therefore all bridge components have to be delivered from the track and installed with use of a railway crane, with a maximum lift weight capacity of 30 t.
  - Minimisation of disruption to local residents and particularly residents of Heyrod Hall and neighbouring properties.
  - Minimisation of disruption to railway users caused by railway line closures. Shift hours are limited by the window within which work can be safely completed while minimising impact on railway users.

6.3.4 Three forms of bridge deck were considered as potential options for the reconstruction of Heyrod Hall Overbridge (MVL3/7):

- Network Rail standard Conarch.
- Portal deck.
- Filler beam construction.

Table 6-2 Summary of bridge deck design options

Option	Assessment	Preferred	Indicative Photo
1 – Standard Conarch	A standard Conarch is a portal bridge consisting of standardised precast concrete frames which conform with Network Rail's specification. Where the necessary specification requirements are met, these precast units can be transported to site and installed quickly and efficiently to form a portal overbridge, with deck cast in-situ to form a continuous structure. The use of a standardised Network Rail Conarch bridge (precast concrete arch) is not considered feasible at this site and was discounted at an early stage, primarily due to its geometric constraints. The required narrow deck and retention of the alignment of the highway would not allow Network Rail technical standards to be met. The lifting capacity limitations due to the use of a railway crane also discounted the use of standard Conarch edge beams due to their weight.	N	
2 - Portal	A portal bridge consists of a series of precast concrete frames which are then transported to site and installed, with deck cast *in-situ* to form a continuous structure. Unlike a standard Conarch, portal bridges can be designed to bespoke dimensions, allowing site specific geometry to be accommodated. Lift weight limitations and the requirement for a separate parapet beam for this option would impact the level and width of the access road. The portal would result in a larger area of visible concrete, reducing the degree to which they could be sensitively integrated with the retained masonry elements of the listed structure. Portal structures would also require bespoke beam design at each site, reducing standardisation between the proposed new bridge decks on Route Section W2B, increasing costs of the publicly funded works.	N	
3 – Filler Beam	A filler beam deck consists of a concrete slab with longitudinal reinforcing steel beams. This form of construction accommodates site geography, minimises the required lift weights, maximises the extent of works that can be undertaken off-site, and standardises the beam design between sites. The integral edge beam also avoids constraining the layout of the highway. The potential standardisation offered by sympathetically integrated filler beam decks along Route Section W2B would maintain a degree of consistency of design between the structures. This consistent design response to the challenge of electrifying the route could be viewed as part of the next chapter for the management of this section of the Transpennine route.	**Y**	

6.3.5 The filler beam deck (option 3) was selected as the preferred design option and further consideration was given to ensuring the proposed works would be sympathetic to the existing aesthetic of the structure.

6.3.6 In order to visually integrate the proposed precast concrete riser units with the retained masonry abutments, it is proposed to clad their external face with natural stone. The underside of the new deck would not be clad, the benefit of cladding this element would be extremely limited given the lack of visibility of the underside of the deck. Cladding would also present a number of safety risks namely, the introduction elements that may fall onto the railway corridor should they fail over time, the obscuring of critical structural elements that require routine inspection, and the introduction of an additional construction activity that would be undertaken at height and within the railway corridor. It is proposed that the new filler beam deck includes a feature line which would tie in with the stringcourse of the existing structure. The use of masonry cladding and the detailing of a feature line comprise integrated design elements responding to specific features of the existing structure that contribute to its character and architectural interest.

Parapet design

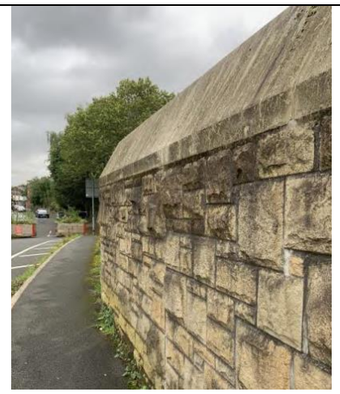
6.3.7 The new parapet design had to achieve vehicle containment and protection of bridge users from the electrified line, whilst responding to the significance of the existing bridge. Numerous options for the proposed new parapet design were considered, these options are summarised below in Table 6-3

Further optioneering was then undertaken to identify a suitable material for the bridge copers, as set out in Table 6-4.

Table 6-3 Summary of parapet design options

Option	Core	Road Facing Elevation	Track Facing Elevation	Assessment	Preferred	Indicative photo
1	Concrete	Concrete with liner finish	Concrete with liner finish	• Pre-cast concrete parapet with exposed concrete liner on both sides of parapet. • This option would not be considered to result in a sensitive addition, with extensive amounts of concrete visible in views of and across the bridge.	N	
2	Concrete	Natural stone cladding	Concrete with liner finish	• Pre-cast concrete parapet with exposed concrete liner on track facing elevation and stone cladding installed to highway facing elevation. • This option would not be considered to result in a sensitive addition, with extensive amounts of concrete visible in views of the bridge.	N	
3	Concrete	Reclaimed stone cladding (as far as possible), newly quarried natural stone cladding where required	Natural Stone cladding	• Pre-cast concrete parapet with natural stone pre-cast into track facing parapet off-site and natural stone cladding installed on highway side post installation. Stone reclaimed from the existing bridge would be used to clad highway-facing elevation as far as reasonably practicable. • This option is considered to represent the optimum balance between constructability, safety and a design sensitive to the significance of the structure.	**Y**	
4	Steel framework	Natural stone	Natural stone	• This option comprises natural stone blocks built up in courses with joints reinforced by a stainless steel framework which is cast into the concrete edge beam. • Due to the time limitations and safety implications of working in an active railway corridor coupled with the minor difference in appearance between Option 3 and Option 4, this option has not been progressed.	N	
5	Masonry	Rebuilt from original stone	Rebuilt from original stone	• The new parapets are required to comply with the relevant standard for vehicle containment. Unreinforced masonry parapets using reclaimed stone would not achieve these standards and result in a safety risk that would be avoided with design option 3. Due to the time limitations and safety implications of working above an active railway corridor with limited edge protection during the rebuilding of parapets, coupled with the minor difference in appearance between Option 3 and Option 5 when viewed from the carriageway, this option has not been progressed. The quantity and quality of the stone able to be reclaimed from the site is also considered a limiting factor.	N	

Table 6-4 Coping stone optioneering

Option	Advantages	Disadvantages	Indicative image	Preferred
Option 1 – Natural Stone	• Natural stone would be sympathetic to the historic character of Heyrod Hall Overbridge (MVL3/7), in keeping with its architectural interest. • Natural stone copers would represent an honest intervention, with the form of the stones readable as a response to the electrification challenge, while sympathetically integrating with the existing and historic character of the bridge. • Over time, this material would weather to further integrate with the existing and proposed masonry elements.	• Natural stone is the heaviest of the three options with a loading of 25kN/m3, requiring consideration in the design of the structural elements of the parapet units and connection with deck. • The weight of natural stone also requires special consideration be given to manual handling safety protocols. • This option is determined to be the most expensive of the three options due to costs for quarrying and fees for masonry contractors.		**Y**
Option 2 – Coloured Concrete	• Lighter material than natural stone with a density of 18 kN/m3. • Concrete can be coloured to achieve a close visual match to the adjacent masonry coping stones • This material would weather over time, increasing the similarity in appearance between coloured concrete and the existing masonry • Coloured concrete copers would be relatively cost effective, reducing the cost of this publicly funded project	• Introduction of modern material, would represent a departure from the materials historically used for coping stones. • While relatively sympathetic this material would risk negatively impacting on the architectural interest of the Heyrod Hall Overbridge (MVL3/7).		N
Option 3 – Glass Reinforced Plastic (GRP)	• Lighter material than natural stone. • Cost effective material, reducing the cost of this publicly funded project.	• There would be a stark visual disparity between the GRP copers and historic fabric, detracting from the architectural interest of Heyrod Hall Overbridge (MVL3/7). • GRP copers would not weather or soften in the way natural stone or concrete would, with the difference in material continuing to detract from the character of the historic bridge. • Of the options considered, GRP copers would result in the highest level of harm to the character of the bridge		N

6.3.8 The preferred Option 3 pre-cast concrete parapet with natural stone cladding for parapet design presented in Table 6-3 would ensure the proposed parapets visually integrate with the retained elements of the existing bridge, while enabling a degree of off-site construction. This approach would realise safe working for operatives constructing the Order Scheme at this location by avoiding working at height over the railway line. It would also successfully reduce the time required for line possession compared to other options, thereby minimising disruption to railway users. This option also presents the opportunity to use reclaimed stone on the highway-facing elevations where possible, which would to a degree mitigate adverse impacts arising from the work.

6.3.9 As summarised in Table 6-4, the specification of natural stone copers would contribute to the high-quality finish of the reconstructed bridge, forming one of the factors embedded into the design which partially mitigates against the high level of harm arising from reconstruction. The use of natural stone copers (Option 1) and cladding would provide visual consistency for the reconstructed span and help to integrate the retained masonry structure with the proposed new span.

6.3.10 The minimum parapet height required by Network Rail Standard NR/L2/CIV/020 for alteration of bridges over an electrified lines is generally 1.5 m; however, justification must be given that a height of 1.8 m cannot be achieved whilst taking into account the risk profile of the bridge. This Network Rail Standard has its basis in ensuring safety on the railway delivers adequate protection for users and the public in line with Health and Safety legislation and Building Regulations.

6.3.11 The risk assessment undertaken for Heyrod Hall Overbridge (MVL3/7) identified the footbridge to be of ‘low risk’ with respect to security and contact with the public. Based on this assessment and in recognition of the need to retain the significance of the listed structure as far as possible, it has been determined that the minimum parapet height required for the structure is 1.5 m. This lower parapet height reduces the disparity between the new parapet and the retained pilasters, enabling more visual cohesion between the new and retained elements.

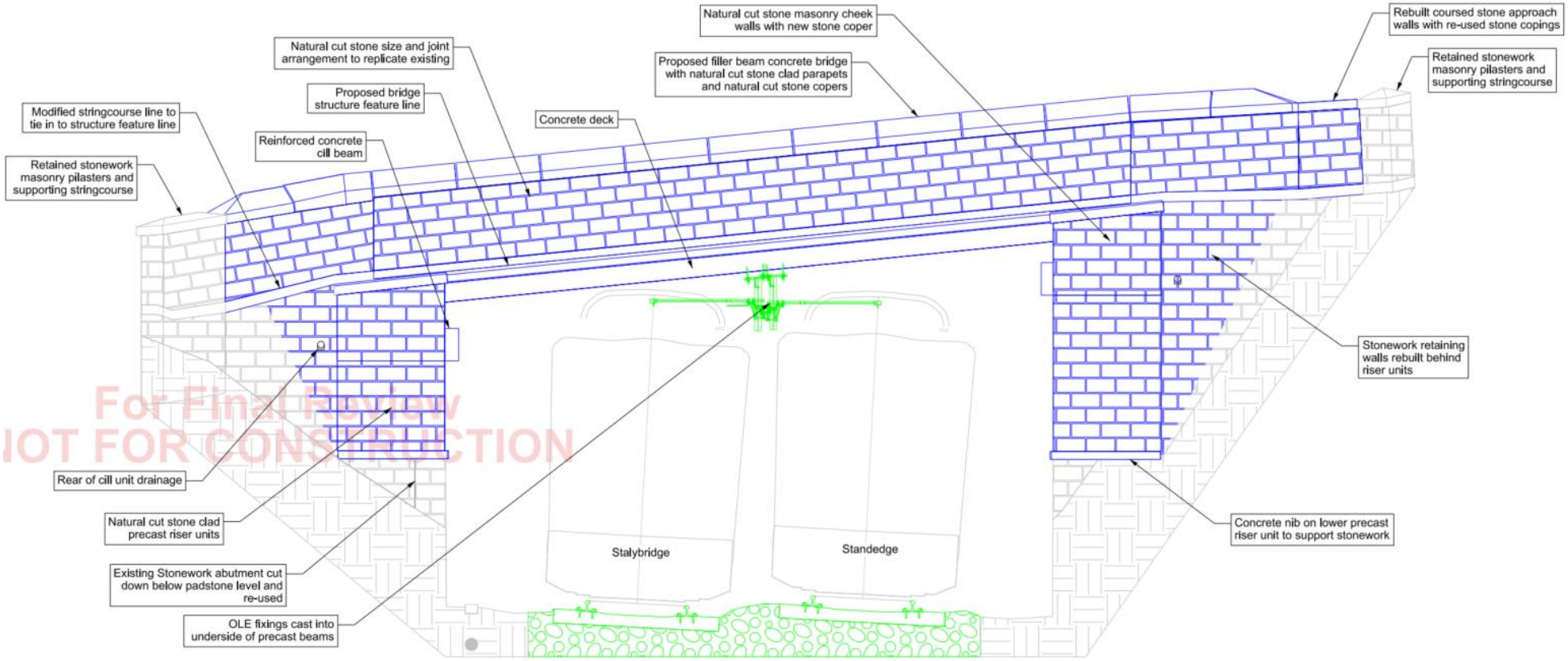
6.3.12 During removal of the existing arch, retention of historic fabric would be maximised as far as possible. Masonry reclaimed from the removal of bridges along the Route Section W2B would be assessed for its suitability for reuse as cladding.

6.4 Description of proposals

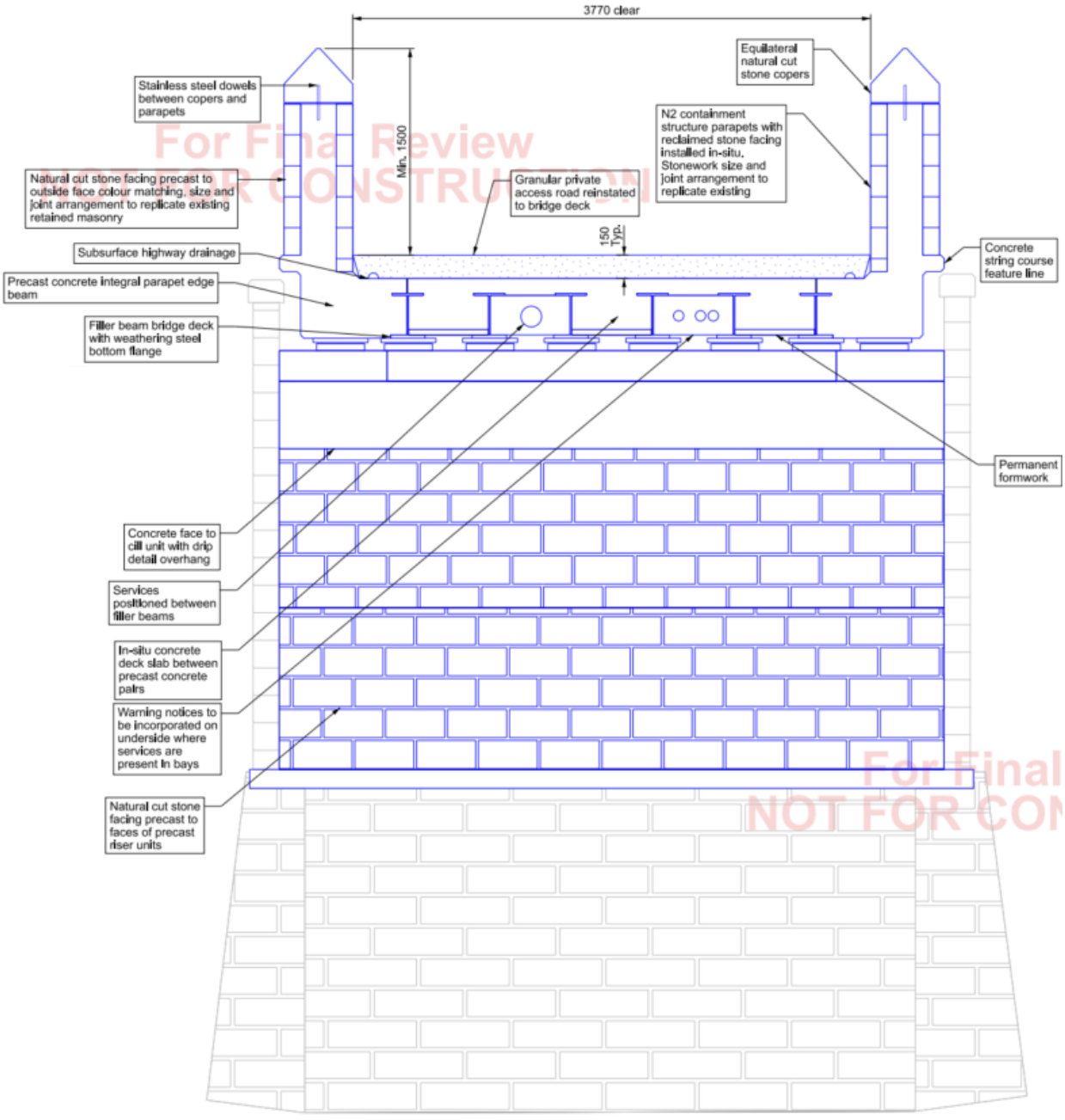
6.4.1 It is proposed to remove the deck of the grade II listed Heyrod Hall Overbridge (MVL3/7) and to construct a new filler beam span, with both the new parapets and structural elements designed in a style to respond to the architectural significance of the existing historic structure (Insert 6-2).

6.4.2 Removal of the existing masonry deck, arch and parapet would be undertaken, minimising the extent of demolition as far as possible and retaining fabric for reuse as far as possible.

6.4.3 The reconstructed bridge would consist of retained masonry abutments beneath the level of the existing impost bands, above which natural stone clad precast concrete risers would be installed. A concrete filler beam deck would be installed on bearings supported by a concrete cill beam. The deck slab would be cast in-situ using permanent formwork situated between weathering steel bottom flanges of the new steel beams. The precast concrete edge beams of the replacement deck would have integral parapets clad with natural stone with natural stone copers. The external parapet elevation would be clad off site and natural stone masonry cast into the exterior of the parapet. The internal elevation would be clad with masonry in-situ using stone reclaimed from the existing historic bridge as far as reasonably practicable. Two electrification hazard signs would be attached to the inside face of each parapet, along with a bridge strike sign. The edge beam design also includes a horizontal feature line which would tie in with the modified and retained existing string course. The highway would be surfaced using a granular material.



Insert 6-2 Proposed elevation of Heyrod Hall Overbridge (MVL3/7)



Insert 6-3 Proposed section Heyrod Hall Overbridge (MVL3/7)

Construction Methodology

6.4.4 The proposed works relating to the reconstruction of the overbridge would comprise:

- Locally break down approach walls and excavate behind deck ends in advance of demolition.
- Careful demolition of the existing masonry arch span by removing the masonry arch and cutting down the abutment to underside of springing stone level.
- Reclamation of historic masonry as far as possible with transportation and secure storage at the site construction compound. Stone would be subject to preliminary rapid assessment for potential reuse and then palletised ready for transportation back to site where it would be redressed and used as appropriate.
- Installation of new bridge elements including precast riser units, cill units, bearings, with materials transported to site by rail.
- Install prefabricated beam pair sections for filler beam deck, including edge beams with integral parapets.
- Cast in-situ concrete between beam pairs and topping slab for the bridge deck.
- The stone wingwalls and approach walls would be rebuilt where taken down locally to enable removal of the deck,
- Install deck waterproofing and protective finishes.
- Build in situ stone-facing to interior of the parapets using reclaimed stone as far as possible and install coper units.
- The approach stone walls would be rebuilt, stone copers installed. and the new access road installed.

6.4.5 The proposed works to Heyrod Overbridge (MVL3/7) are shown in the following drawings which accompany this application:

- Existing and Proposed Plan (167037-TGP-22-MVL3-DRG-T-LP-160713);
- Existing and Proposed Elevation and Section (167037-TGP-22-MVL3-DRG-T-LP-160714);
- Existing and Proposed Section 2 (167037-TGP-22-MVL3-DRG-T-LP-160715); and
- Existing and Proposed Elevation and Section (167037-TGP-22-MVL3-DRG-T-LP-160716).

7. IMPACT OF PROPOSALS

7.1 Heyrod Hall Overbridge (MVL3/7)

7.1.1 The proposed works to the grade II listed Heyrod Hall Overbridge (MVL3/7) are required in order to accommodate electrification of the Transpennine route as part of the wider TRU programme. In order to construct the Order Scheme, the proposed works would require the removal of most of the grade II listed Heyrod Hall Overbridge (MVL3/7) and its reconstruction. This would result in the loss of the majority of the structure, with the extent of retained fabric confined to the abutments, portions of the wingwalls, and pilasters at each end of the bridge parapets.

7.1.2 The proposed works would largely erode the historic and architectural value of the structure through its substantial removal. The retention of the pilasters would maintain an isolated element of the structure's architectural interest. However, their context as part of a little altered structure would be lost.

7.1.3 The proposed intervention would mean the substantial removal of a historic bridge that is part of the infrastructure associated with the Heroic Age (1841-50) of railway construction. It is not only a loss in its own right, but also detrimental to the historic character and group value that this structure contributes to as part of the Transpennine railway line.

7.1.4 The proposed reconstruction of the structure would have an impact on the group value of the bridges designed by A.S. Jee on the Transpennine route. The loss of Heyrod Hall Overbridge (MVL3/7) would remove one element of this group of 18 bridges designed by A.S. Jee (see paragraph 5.2.12) and one of the five bridges which share a common design language (see paragraph 5.3.6). The other bridges designed by Jee derive part of their value from their group relationship. The significance of each of the other bridges would therefore be slightly diminished by the removal of one of their number. The impact of this demolition would amount to less than substantial harm to the retained structures arising from a weakening of the extent to which group value contributes to their significance.

7.1.5 These proposals would therefore result in substantial harm to the significance of Heyrod Hall Overbridge (MVL3/7). The development of the design has embedded details to mitigate against this harm wherever possible. Reclaimed masonry cladding and natural stone copers would visually integrate the new fabric of the proposed deck and parapets with the retained pilasters and approach walls. This consistency of material and finish would reduce the degree to which the proposed change is experienced when moving across the bridge

and would realise an opportunity for the sustainable reuse of historic fabric on the reconstructed bridge. Similarly, the inclusion of a stringcourse detail in the proposed concrete edge beam would visually integrate the new structural element with the altered masonry stringcourse. The level of harm arising from the works would remain as substantial, but the careful consideration given to the visual relationship between the proposed and existing elements of the structure would to a small degree offset the potential harm to Heyrod Hall Overbridge (MVL3/7).

7.2 Other heritage assets

7.2.1 The proposals would have no impact on any other nearby designated or non-designated heritage assets. Some limited change to the setting of non-designated Heyrod Hall (751.2.0) has been identified. Although a historic association exists between Heyrod Hall Overbridge (MVL3/7) and non-designated Heyrod Hall (751.2.0), the reconstruction of the bridge would ensure the pattern of movement from Wakefield Road across the railway to the hall and its associated structures would be retained limiting the impact of the works. The proposed cladding and coping of the new parapets with natural stone would reduce the degree to which the change to the setting of the non-designated heritage asset is experienced. While constituting a change in the setting of the hall, it is considered the proposed demolition and replacement of the bridge would not result in harm to the significance of Heyrod Hall (751.2.0). Similarly, the proposed works would constitute a change to the setting of Heyrod Road Footbridge (MVL3/6). The historic association between the two bridges would remain unchanged following the proposed works, and the limited significance of Heyrod Road Footbridge (MVL3/6) would not be harmed.

7.3 Mitigation

7.3.1 Design proposals were developed through an iterative process which has robustly sought to avoid or reduce the impact on the significance of Heyrod Hall Overbridge (MVL3/7). Additional information with respect to these elements of design development is included above in Section 6.2.

7.3.2 Regular consultation with historic environment stakeholders and the design team were held throughout the new bridge's design development process (see Table 4-1 Consultation for Heyrod Hall Overbridge (MVL3/7)Historic environment stakeholders, including Historic England and TMBC, have been involved in the development of the design mitigation described below.

7.3.3 The design development process has resulted in mitigation being embedded within the design of reconstruction of Heyrod Hall Overbridge (MVL3/7). The following design considerations have been taken into account in response to the magnitude of proposed alteration:

- The use of natural stone cladding to minimise the areas of visible concrete, reflecting the materiality of both the original bridge and many of the other retained structures along the Transpennine route. This approach would ensure natural stone remains the dominant material of the exterior faces of the bridge.
- Salvaged stone from the demolished span would also be considered for reuse on the highway facing elevations of the parapet where feasible.
- The proposed feature line in the precast edge beam would help integrate the newly inserted concrete beam with the portions of string course on the retained pilasters.
- A common approach taken to the design of both bridge reconstructions of Heyrod Hall Overbridge (MVL3/7), Wright's Overbridge (MVL3/20) and Oldham Road Overbridge (MVL3/28). It is considered that progressing comparable designs in tandem would enable a coherent approach and would provide a visible reference to the new phase of design upgrades taking place in the 21st century. This is another chapter in the story of the railway's development and improvement.

7.3.4 During construction of the works, toolbox talks to disseminate best practice for reducing potential impacts in relation to construction activity associated with Heyrod Hall Overbridge (MVL3/7) would also be delivered, for example to help avoid accidental damage.

Recommended compensation

7.3.5 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 3 standards in accordance with Historic England guidance (Historic England 2016). This would provide a permanent record of Heyrod Hall Overbridge (MVL3/7) in its current form and be lodged with the Greater Manchester Historic Environment Record. This building recording would help to compensate for the harm to significance resulting from the reconstruction by providing the opportunity to document the structure which

would be largely lost as a result of the proposed works. The historic building recording would include:

  - Drawings.
  - Photography.
  - Written account.

- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee such as Heyrod Hall Overbridge (MVL3/7). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The reconstruction of Heyrod Hall Overbridge (MVL3/7) and resulting substantial harm is considered justified to ensure the realisation of the substantial public benefits of the Order Scheme, in accordance with paragraph 214 of the NPPF.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The reconstruction of Heyrod Hall Overbridge (MVL3/7) would directly facilitate the achievement of these aims by creating sufficient clearance beneath the bridge to accommodate electrification and the use of larger gauge trains, delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more

efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including reconstruction of Heyrod Hall Overbridge (MVL3/7), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed reconstruction would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four ‘express’, two ‘semi-express’ services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in ‘greener’ energy technology. This supports Network Rail’s Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the reconstruction of Heyrod Hall Overbridge (MVL3/7).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability,

and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Heyrod Hall Overbridge (MVL3/7) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Heyrod Hall Overbridge (MVL3/7) lies primarily in its historical and architectural interest. The bridge is a largely unaltered example of an 1840s overbridge, dating from the Heroic Age (1841–50). The high quality of the bridge's architecture together with the quality workmanship of the construction is characteristic of A.S. Jee's work for the Huddersfield & Manchester Railway. The bridge also derives significance from this direct historical relationship with notable railway engineer A.S. Jee and the historic railway companies namely the Huddersfield & Manchester Railway and LNWR. The setting of Heyrod Hall Overbridge (MVL3/7) makes a minor contribution to the significance of the structure; it also possesses group value as one of a number of A.S. Jee structures on the Transpennine route which share a common design language.

8.1.2 A number of design options were pursued to achieve the clearance required for the OLE. The OLE is a fundamental part of the Order Scheme to deliver a faster service (reduced journey time) and to make provision for electrification and the operation of a 'greener' transport solution. The development of a scheme-specific pantograph which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment, has not resolved the clash between proposed OLE and the listed structure.

8.1.3 The first range of options were focused on the retention of the bridge and employing engineering solutions to facilitate the Order Scheme within the current physical confines of the structure. These options included:

1. Adjusting the vertical rail alignment through track lowering to provide adequate clearance for the required OLE through the arch of the structure.
2. Bridge jacking to increase the height of the arches over the lines to provide sufficient clearances.

8.1.4 However, as outlined in Section 6.2 these options did not meet with safety regulations, operational drivers and buildability. Local geology, topography and access constraints limit the feasibility of delivering the other options considered within the context of the operational railway corridor.

8.1.5 Options were then pursued which accepted the loss of the historic bridge and made attempts to achieve an optimum reconstructed bridge design solution that retained the relationship with the railway and to an extent compensated for the removal of the existing structure. This was done through material choices (use of natural stone cladding referencing the character of the existing bridge); ambition to salvage masonry from the demolished span for use to clad elements of the reconstructed bridge, formation of a horizontal feature line in the concrete edge beams to tie in with the retained section of string course.

8.1.6 The design process has been undertaken in a strongly collaborative manner and has sought historic environment professional support from the outset. The desire to maximise heritage benefits and limit harm was the primary position. Special regard has been given to the desirability of preserving or enhancing the structure or its setting or any features of special architectural or historic interest which it possesses. Every effort was made to retain this historic structure as part of the TRU. However, this was unachievable within the operational parameters set. Regular consultation with historic environment stakeholders and the design team were held throughout the design development process and several mitigation measures have been considered to attempt to avoid or reduce the impact on the significance of Heyrod Hall Overbridge (MVL3/7). Historic England and TMBC have accepted that the approach of reconstructing the structure is necessary to deliver the proposed Order Scheme, and that alternative approaches are not viable. The design development process, including engagement with historic environment stakeholders, resulted in mitigation being embedded within the design of the reconstruction as well as compensation measures being agreed, to be secured as conditions of the listed building consent (see Section 7.3).

8.1.7 With the reconstruction of Heyrod Hall Overbridge (MVL3/7), the Order Scheme can achieve key improvement objectives as outlined

in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity).
- Reduction of delays to trains and highway users (improved efficiency and larger freight containerisation of the Scheme Route means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution).
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy.
- Improving public health and safety in providing safe routes across the railway.

8.1.8 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.9 The reconstruction of Heyrod Hall Overbridge (MVL3/7), which is a grade II listed building, would result in substantial harm to the significance of the listed building and should be considered exceptional. This would mean the loss of an irreplaceable piece of railway infrastructure, dating to the Heroic Age (1841-50) of railway building. It is also a loss to the collection of A.S. Jee bridges that are located along this section of the Transpennine route.

8.1.10 Whilst the reconstruction of Heyrod Hall Overbridge (MVL3/7) is regrettable its loss would be outweighed by the substantial public benefits that accrue from enabling the Transpennine programme to be achieved. The proposals therefore meet the requirements of the NPPF (paragraph 214) in relation to the justification for substantial harm. The proposals would also satisfy the requirements of the Tameside Unitary Development, namely policy C5 in relation to the design of the replacement deck and C8 with regard consideration given to the substantial demolition of the bridge. It would also satisfy Policy JP-P2 contained within Greater Manchester Combined Authority's Places for Everyone (2024). The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to the significance of Heyrod Hall Overbridge (MVL3/7).

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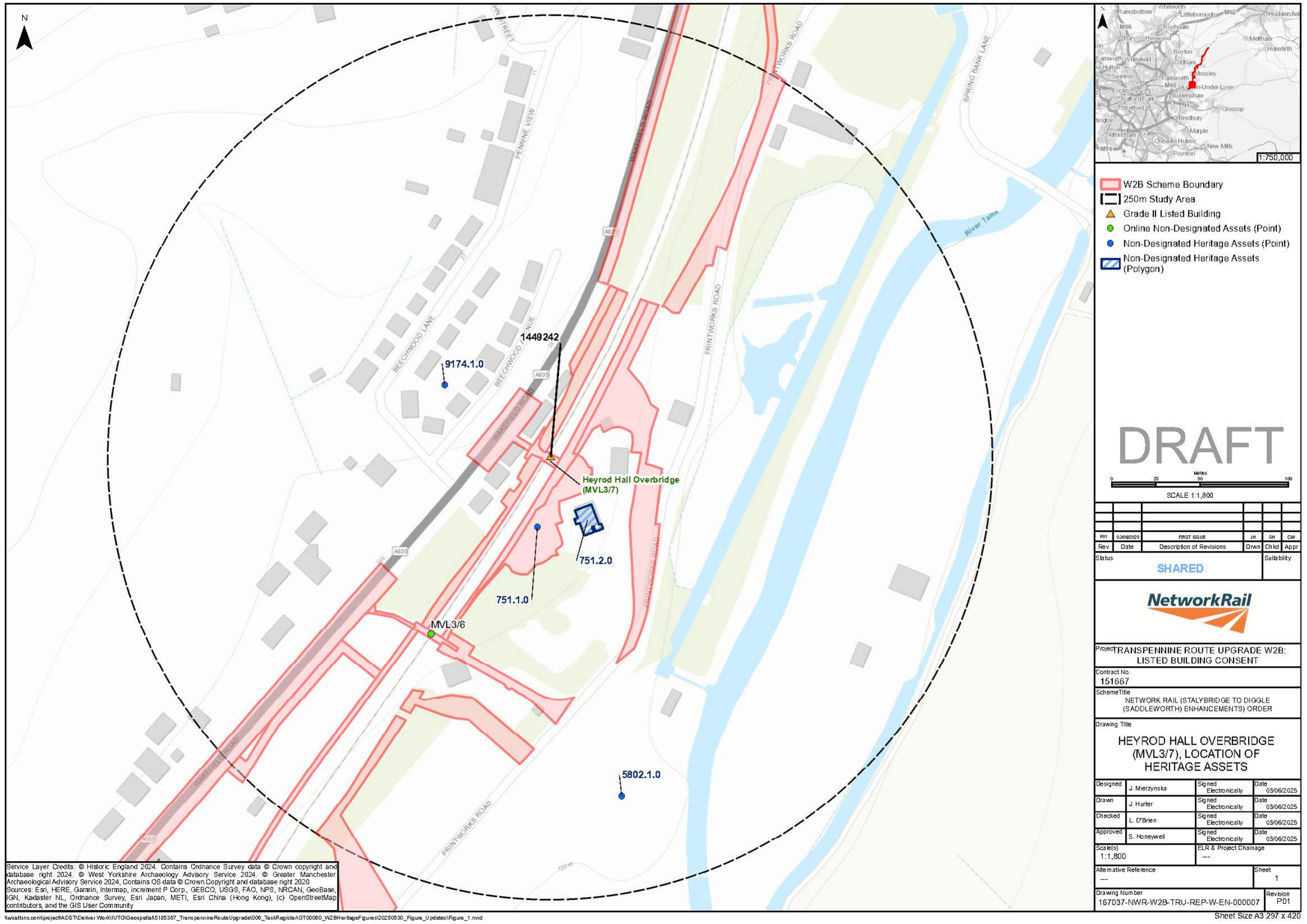
APPENDIX A – LOCATION PLAN



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APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1449242
Date first listed:	27-Sep-2017
List Entry Name:	Heyrod Hall Bridge
Statutory Address 1:	Wakefield Road, Stalybridge, Manchester, SK15 3BZ

Location

Statutory Address:	Wakefield Road, Stalybridge, Manchester, SK15 3BZ

The building or site itself may lie within the boundary of more than one authority.

District:	Tameside (Metropolitan Authority)
Parish:	Non Civil Parish
National Grid Reference:	SJ9720099786

Summary

Road bridge over the Huddersfield & Manchester Railway line, mid-late 1840s, by A S Jee.

Reasons for Designation

Heyrod Hall Bridge (MVL3/7), constructed in the mid-late 1840s by A S Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic interest:

* Constructed during the heroic age of railway building and a little altered example of an 1840s overbridge on what is now one of the main railway lines in northern England;

* Designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* The bridge is well detailed with rusticated voussoirs, ashlar dressings, impost bands, and a parapet incorporating pyramidal coping stops that lift its design above the purely functional.

Group value:

* With the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed between 1837 and 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the

Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

Heyrod Hall Bridge (MVL3/7) was designed by A S Jee and dates to the construction of the Huddersfield & Manchester Railway in 1845-9 (it is depicted on the 1st edition 1:10560 OS map published in 1848). The bridge was constructed to carry a private lane leading to Heyrod Hall over the railway line.

Details

Road bridge over the Huddersfield & Manchester Railway line, mid-late 1840s, by A S Jee. Rock-faced sandstone with ashlar dressings.

Heyrod Hall Bridge (MVL3/7) is located off Wakefield Road in Heyrod, a semi-rural settlement within the township of Stalybridge, and carries a short private lane leading to Heyrod Hall over the Huddersfield & Manchester Railway line. The bridge is similarly detailed on both sides and is constructed of coursed local sandstone with a segmental arched span incorporating rusticated voussoirs with tooled faces that springs from an ashlar impost band. Above the arch is a projecting carriageway band (designed like a stringcourse) and a low parapet of coursed stone with flat ashlar coping stones incorporating pyramidal stops. The projecting wing walls are splayed.

Sources

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APPENDIX C: HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

25 June 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the pre-application meetings over the last five months. These have been extremely useful in explaining the significance of the heritage assets, the design team's approach, and in exploring issues and constraints associated with electrifying the track.

This letter covers our advice regarding proposals for change to eight listed railway structures between Stalybridge and Standedge Tunnel, within the Metropolitan boroughs of Tameside and Oldham in Greater Manchester. This section of the railway is referenced as W2B.

Significance

The section of railway between Stalybridge and Standedge Tunnel was constructed in stages between 1844 and 1849. This was at the height of “railway mania”; an intense period of activity when many competing companies formed and were racing to complete sections of railway. The Stalybridge and Standedge Tunnel railway eventually became part of a wider network of sections of track that extends from Selby and York to Manchester Victoria via Leeds.

The W2B route has considerable heritage value. It traverses areas of dramatic landscape and varied geology, and has remained well preserved and largely unaltered since its opening in the 1840s. The wider railway network from the Yorkshire cities to Manchester contributed hugely to the economic and urban development of the North and was a major factor in the industrial revolution and in the development of towns.

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The tricky geology and terrain of the W2B route presented challenges to the engineers of the 1840s, and many of the most notable surviving features of the railway are the impressively engineered bridge and viaduct structures. These structures are predominantly built from locally sourced stone, meaning they harmonise with the landscape and contribute to local views, adding to the aesthetic value of the route. The significance of the structures also lies in the fact that they survive well and in large numbers. There have been few alterations to bridges, mainly because this section of the line has not been widened as other parts of the wider route have been.

There are eight listed railway structures that will be affected by the proposed electrification works between Stalybridge and Standedge Tunnel; these are:

- Heyrod Hall Overbridge - MVL3/7
- Heyrod Footbridge Overbridge - MVL3/8
- Spring Bank Lane Overbridge - MVL3/9
- Roughtown Road Overbridge - MVL3/17
- Wright's Mill Overbridge - MVL3/20
- Wright's Overbridge - MVL3/23
- Oldham Road Overbridge - MVL3/28
- Saddleworth Viaduct - MVL3/31

All eight of the listed structures were designed by notable railway engineer Alfred Stanistreet Jee, lead engineer for the railway between Huddersfield and Manchester. They were built in the mid-late 1840s and share many architectural characteristics, adding to their group value and enhancing their significance.

Bridges MVL3/7, MVL3/9, MVL3/17, MVL3/20, MVL3/23, and MVL3/28 are all very similar in design. All are made from coursed local sandstone and have segmental arches formed from tooled voussoirs, with larger keystones. Each has dressed ashlar impost bands, sloping string courses above the arch, and parapet copings, with shallow pyramidal caps to the slender piers. They have considerable group value and are easily identifiable in the landscape as bridges associated with the original construction of the railway. The bridges are all well designed and adapted to their individual locations, some being skewed or sloped. High quality workmanship and

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details such as picked and tooled ashlar voussoirs elevate their design above what is purely function, enhancing their significance further.

Heyrod Footbridge (MVL3/8) and Saddleworth Viaduct (MVL3/31) are clearly recognisable as part of the same scheme of work but differ in their form. Heyrod Footbridge features a flat span, and retains its cast-iron edge beams and brick parapets, while Saddleworth Viaduct comprises 23 sandstone arches spanning the River Tame and Huddersfield Narrow Canal.

The structures are all Grade II listed in recognition of their special architectural and historic interest at national level. Saddleworth Viaduct was listed in 1986, while all seven overbridges were listed in 2017 or 2018 after a comprehensive review of the line.

Impacts

The proposals involve demolition and reconstruction of three structures, total removal of one structure, and modifications to four structures. These works are deemed necessary to achieve the clearance required for the OLE (overhead line equipment) and to ensure safety for bridge users. The impacts of proposed works at each structure are discussed below.

Bridges requiring demolition works:

Heyrod Hall Overbridge MVL3/7 carries a short section of private road over the railway to Heyrod Hall. This bridge is in a rock cutting with very hard rock beneath the track, prohibiting track lowering.

Wright's Mill Overbridge MVL3/20 carries the public footpath and bridleway over the railway where it passes through a steep-sided rock cutting. Options to lower the track at this bridge have been investigated but discounted due to the location on the bridge in a rock cutting with very hard rock beneath. Track lowering would also have a knock-on effect to a nearby underbridge.

Oldham Road Overbridge MVL3/28 is a skew overbridge located on the north-east side of Greenfield Station and carries Oldham Road over the track below. There will be

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the addition of a new footbridge alongside the reconstructed road bridge. Options to lower the track at this bridge have been investigated but would be difficult to achieve due to the proximity to the station.

Proposals at these three bridges involves the complete dismantling of each bridge and reconstruction to create a raised, flat deck with sufficient clearance for OLE. Stone would be reclaimed and used to clad the inside faces of parapet walls; however matching stone is likely to be needed to clad the external sides of the parapets. New copers would also be needed to ensure parapets were the correct height.

The demolition and reconstruction of these bridges will cause substantial harm to their significance through the total loss of historic form and loss of much of their original fabric. The proposals will also diminish the group value of the historic bridges on the railway.

Wright's Overbridge MVL3/23 is a footbridge that carries a public footpath from north-west to south-east across the railway. The railway here is in a steep cutting and due to gradients, the bridge slopes down towards the south-east. Proposals involve the total removal of this bridge and diversion of the public right of way across the railway at another point.

The removal of Wright's Overbridge will cause substantial harm to its significance through the total loss of its historic form and all original fabric. Its removal will necessitate the re-routing of a historic public footpath, which is part of a network of paths in the area connecting mills and farms with workers' housing, and contributes to the landscape character of the area and to the setting of the bridge. The proposals will also further diminish the group value of the historic bridges on the railway.

Bridges requiring modifications:

Heyrod Footbridge Overbridge MVL3/8 carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane which are also listed.

Spring Bank Lane Overbridge MVL3/9 (also known as Heyrod Bridge) carries Spring Bank Lane over the railway. Due to the lie of the land the bridge slopes down towards the east. The splayed projecting wing walls are also covered by the listing.

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Roughtown Road Overbridge MVL3/17 carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The projecting wing walls are also covered by the listing.

Minimal interventions are proposed at these three bridges, the most significant changes being the introduction of new triangular copers to ensure the correct and safe parapet heights.

The introduction of triangular copers to raise the parapet heights to 1.5m will result in a low level of less than substantial harm to the significance of the bridges through the changes to their appearance and the loss of original copers. This harm could be further lowed by using stone copers instead of concrete, and by undertaking any other restoration works required such as replacing the recently rendered section of parapet copings in the south-west corner of Roughtown Road Bridge.

Saddleworth Viaduct MVL3/31 (also known as Uppermill Arches and Uppermill Viaduct) carries the railway over a series of roads and lanes, and the River Tame and Huddersfield Narrow Canal. Due to the lack of space available on the viaduct deck, proposals here involve attaching brackets to the exterior of the viaduct for the OLE supports.

The proposed works at Saddleworth Viaduct will result in a low level of less than substantial harm to the significance of the structure through the change to its appearance and in the physical impact on the elevations of the viaduct from the brackets. This harm could be further lowed by ensuring the spacing of the masts responds to the structural and architectural rhythm of the viaduct to lessen their visual impact.

Policy

National policy relating to the conservation and enhancement of the historic environment is articulated in section 16 of the National Planning Policy Framework (NPPF, 2023). These policies state that heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so they can be enjoyed for their contribution to the quality of life of existing and future generations (NPPF para 195). Also, when considering the impact of a proposed development, great weight should be given to an asset's conservation (NPPF para 205).

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Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification (NPPF 206).

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss. In practice this means that less harmful alternative solutions should be explored through the pre-application and application processes.

In addition to section 16 of the NPPF, we refer you to Section 12 'Achieving well-designed and beautiful places' when considering the design for replacement bridge structures. Para 132 states that being sympathetic to local character and history is important, along with a consistent and high-quality standard of design (para 133).

Position

The proposed works to upgrade the W2B section of the Transpennine route network will be the first major programme of work since its construction in the 1840s. The wider public benefits of the upgrade work to this key transport network will be vast and will have positive knock-on effects across the region. The challenging geology and hydrology across the route still present issues to engineers today, and we welcome the work that has gone into investigating alternative options to demolition and reconstruction for the bridges affected.

The proposals will result in substantial harm to the significance of bridges MVL3/7, MVL3/20, MVL3/23, and MVL3/28, with the highest level of harm to bridge MVL3/23 which will be dismantled and not reconstructed. The proposals will cause harm through the loss of the form of the arched bridges and though the loss of historic fabric. There will be the additional harm to the group value of the bridges.

We agree that the bridges are predominantly experienced from the bridge deck, and that re-use of original fabric should be focussed on the inside faces of the parapet walls to ensure the look of the bridge when crossing it is not unacceptably altered, however this re-use of materials does not lower the harm to less than substantial levels. It will be for decision takers to weigh the balance of this substantial harm against the public benefits of the scheme.

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Works to bridges MVL3/8, MVL3/9 and MVL3/17 is largely limited to raising the parapets to ensure they are the safe and correct height. We acknowledge that Network Rail has a legal obligation to take reasonable steps to prevent people from coming into contact with the OLE by ensuring parapets cannot be climbed or walked on. We appreciate the work undertaken to investigate various options for different types of pantographs to limit the height at which the parapets need to be raised to. The use of triangular copers will introduce a change in the appearance of the bridges and cause a low level of less than substantial harm to their significance, but the impact can be lessened by use of stone rather than concrete copers which will be less visually obtrusive. Parapet design should be tailored to the individual circumstances of each bridge to ensure the least harmful solution is used.

There will also be a low level of less than substantial harm at Saddleworth Viaduct from the introduction of brackets to the structure to support the OLE. This can be further lowered by thoughtful spacing of the brackets.

We welcome the detailed options appraisals undertaken during the design of the proposed works to listed structures on the W2B route. We recommend that details are finalised using bespoke designs that respond to the particular character of each structure and its setting.

Next Steps

Thank you for involving us at the pre-application stage of this project. The above advice is the response that we would give if the same proposals were put forward unamended for statutory approval.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

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Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

17 September 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meeting on 27 August to review the proposals for bridges MVL3/7, 8, 17 and 20. It was useful to see the drawings in advance and then talk through the proposals with the team.

The significance of the affected structures has been set out in our letter of 25 June 2024 and won't be repeated here. The impacts of the proposed changes and our comments are detailed below:

MVL3/7 - Heyrod Hall Overbridge
The changes to this bridge involve demolition and reconstruction of the bridge deck and sections of the abutments, resulting in substantial harm to the significance of the bridge. The bridge is built from coursed local sandstone, and the voussoirs have been lightly tooled around the edges to give them definition and add interest to the arch. The proposed changes will result in the total loss of the historic form of this bridge and much of the original fabric.

In order to reduce harm, every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works. We welcome the use of natural cut stone copers.

MVL3/8 - Heyrod/Springbank Lane Footbridge
The appearance of this bridge will change slightly through the introduction of new copers which will increase parapet height. The use of natural stone will help to minimise the appearance of the new copers and mean they were be less obvious. Overall, there will be a very low level of less than substantial harm to this bridge.

MVL3/17 - Roughtown Road Overbridge
This is another bridge where the proposals involve the introduction of new copers

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which will increase parapet height. The changes here will be more noticeable than at MVL3/8 but still constitute a low level of less than substantial harm.

In order to minimise harm, it will be necessary to carefully design the ends of the new sections of coping stones to manage how they interact with the piers of the bridge. The piers are topped by shallow pyramidal caps, which currently form a prominent feature of the bridge's architecture. There is a danger that the definition of these caps will become lost if the new copers butt up to them. This mitigation could be achieved by either terminating the new copers short of the piers, or by raising the height of the pier caps so they remain prominent.

Additional mitigation should involve repairs to the fabric of the parapet walls, including removal of the cement kerb section and bollards, which will no longer be needed once the road is one-way.

MVL3/20 - Wright's Mill Overbridge
The proposals for demolition and reconstruction of this bridge will result in a substantially altered structure and substantial harm to the significance of the listed asset.

The historic form and materials of this bridge are very similar to MVL3/7, and the proposed construction works are also comparable, however the proposed parapet at MVL3/20 will be noticeably taller due to the bridge's use as a bridleway. The proposal drawings show the ends of the new copers sharply sloping down towards the piers of the bridge.

As advised with MVL3/17 above, care should be taken in the design and integration of these copers so they complement the existing structure and do not appear overly obvious. As with MVL3/7, we advise that every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works.

Next Steps

I look forward to reviewing the next series of proposals for other parts of the scheme.

Yours sincerely

Louise Davies

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
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Historic England

Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, Tony Gee and Partners, August 2024

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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

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Historic England

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Springbank Lane Footbridge (MVL3/8) – Heritage Statement

Rule 10(6)(d)

Author	Network Rail
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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Conditions 1
1.4 Summary of proposal 3
2. LEGISLATION AND POLICY CONTEXT 3
2.1 Legislation 3
2.2 National Policy 4
2.3 Local planning policy 7
3. ASSESSMENT METHODOLOGY 12
3.1 Research 12
3.2 Significance and setting 12
4. CONSULTATION 13
5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE 18
5.1 History of the W2B Transpennine Route 18
5.2 Springbank Lane Footbridge (MVL3/8) 20
5.3 Surrounding heritage assets 29
6. PROPOSALS 31
6.1 Background to proposals 31
6.2 Design development and justification 32
6.3 Electrical Protection Works 35
6.4 Description of proposals 38
7. IMPACT OF PROPOSALS 41
7.1 Springbank Lane Footbridge (MVL3/8) 41
7.2 Other heritage assets 42

7.3 Mitigation 43

7.4 Public benefit 44

8. CONCLUSION 46

9. REFERENCES 48

APPENDIX A – Location Plan 50
APPENDIX B – National Heritage List Description 51
APPENDIX C – Historic England Pre-Application Response Letter 55

List of tables

Table 4-1 Consultation for Springbank Lane Footbridge (MVL3/8) 13

Table 6-1 Optioneering for Springbank Lane Footbridge (MVL3/8) 34

Table 6-2 Parapet Extension Material 37

List of inserts

Insert 1-1 Springbank Lane Footbridge (MVL3/8) south elevation in the foreground 2

Insert 1-2 Springbank Lane Footbridge (MVL3/8), open joints and fractures to approach walls 2

Insert 5-1 Springbank Lane Footbridge (MVL3/8) from the historic line plan held by Network Rail, 1905 21

Insert 5-2 Engineering drawing setting out the reconstruction of Springbank Lane Footbridge (MVL3/8), undated from the historic plans held by Network Rail 23

Insert 5-3 Springbank Lane Footbridge (MVL3/8) northern elevation 24

Insert 5-4 Springbank Lane Footbridge (MVL3/8) footpath and parapets atop of the bridge 24

Insert 5-5 Footpath from Spring Bank Lane to Springbank Lane Footbridge (MVL3/8). 24

Insert 5-6 Springbank Lane Footbridge (MVL3/8), curved approach from the east. 25

Insert 5-7 Springbank Lane Footbridge (MVL3/8), approach from Wakefield Road to the west of the overbridge. 25

Insert 5-8 View north from Springbank Lane Footbridge (MVL3/8) to Spring Bank Lane Overbridge (MVL3/9). 25

Insert 5-9 View south from the parapet of Springbank Lane Footbridge (MVL3/8). 26

Insert 6-1 Drawing showing the clash between existing Springbank Lane Footbridge (MVL3/8) and proposed pantograph level.....32

Insert 6-2 - Proposed north elevation of Springbank Lane Footbridge (MVL3/8).....39

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order extends from Stalybridge Tunnel, in the west, through to the eastern portal of Standedge Tunnel (the "Order Scheme"). This section of the Transpennine route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a Listed Building. The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade II listed Springbank Lane Footbridge (MVL3/8) (NHLE 1452382). This bridge is located in the village of Heyrod (NGR SD 97332 00110), approximately 3.6 km east of Ashton-Under-Lyne. A location plan is provided in Appendix A.

1.1.7 The Historic England list description (included in full in Appendix B) names the listed building as “Railway Overbridge MVL3/8, Springbank Lane Footbridge”. Throughout this Heritage Statement the structure is referred to as “Springbank Lane Footbridge (MVL3/8)” in accordance with Network Rail’s naming of the structure.

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF 2025) specifically paragraph 207, which seeks an assessment proportionate to the importance of the affected heritage asset and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail’s requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will seek to:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;
- Present the design requirements of the Order Scheme at the structure;
- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the National Planning Policy Framework, 2024 (MHCLG, 2024) and the Tameside Unitary Development Plan Written Statement, 2004 (Tameside Metropolitan Borough Council, 2004).

1.3 Current Conditions

1.3.1 Springbank Lane Footbridge (MVL3/8) (Insert 1-1) was originally built in the mid to late 1840s by A. S. Jee for the Huddersfield & Manchester Railway, and was reconstructed in the later 19th century. The footbridge is situated on the eastern peripheries of the small settlement of Heyrod, which is located c. 3.6 km east of Ashton-under-Lyne, and consists of narrow flat span that crosses over the two-track railway line of the Transpennine route.

1.3.2 The structure was subject to a visual examination as part of Network Rail's maintenance regime in 2020, which notes that 'significant defects were present on this structure' (Network Rail, 2020). These defects include:

- Open joints and loose masonry (Insert 1-2);
- Vegetation rooted in fractures to the jack arch and abutments; and
- Bulging stonework.

Insert 1-1 Springbank Lane Footbridge (MVL3/8) south elevation in the foreground

Insert 1-2 Springbank Lane Footbridge (MVL3/8), open joints and fractures to approach walls

1.4 Summary of proposal

1.4.1 In order to achieve the TRU programme objectives, electrification of the route is required. This would require the alteration of a number of existing bridges, including Springbank Lane Footbridge (MVL3/8) to accommodate Overhead Line Equipment (OLE). Following optioneering, it has been determined to be necessary to undertake a minor track lower, like for like repairs to the structure and retain and raise the parapet of Springbank Lane Footbridge (MVL3/8) (option 1). These works would therefore enable implementation of the Order Scheme.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) ("Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—

a) any object or structure fixed to the building;

b) any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

'(1) Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

(2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

(3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) *' the preservation of particular features of the building, either as part of it or after severance from it;*

b) *the making good, after the works are completed, of any damage caused to the building by the works; [and]*

c) *the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.*

2.1.5 It is also defined in s.17 (2) that a condition 'may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'.

2.1.6 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance on the Historic Environment (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective 'to protect and enhance our natural, built and historic environment'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16

of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' and includes guidance on plan making, managing Historic Environment Records; how to determine proposals affecting the historic environment; and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand* the potential impact of the proposal on their significance.'
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance.'*
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

  a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

  b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*
- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

a) *the nature of the heritage asset prevents all reasonable uses of the site; and*

b) *no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and*

c) *conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and*

d) *the harm or loss is outweighed by the benefit of bringing the site back into use.'*

- Paragraph 215 – *'Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.'*
- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*
- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.'*

Planning Practice Guidance: Historic Environment

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be

proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that 'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

Tameside Unitary Development Plan

2.3.1 The Tameside Unitary Development Plan (2004) is part of the statutory Local Plan policies for Tameside Metropolitan Borough which provides the set of planning policies which make up the current local plan.

2.3.2 The Tameside Unitary Development Plan sets out local planning policies that 'provide a framework for development and conservation over the whole of the Tameside area, to set out the main considerations on which planning applications in the Borough are determined, and to guide land use decisions by the Council and other agencies.'

2.3.3 Policies within the framework which are relevant to this Heritage Statement are outlined below.

Policy C Conservation and Enhancement of the Built Environment.

Policy C1 Townscape and Urban Form

In considering proposals for built development, the Council will *expect the distinct settlement pattern, open space features, topography, townscape and landscape character of specific areas of the Borough to be understood, and the nature of the surrounding fabric to be respected. The relationship between buildings and their setting should be given particular attention in the design of any proposal for development.*

Urban design frameworks will be produced for particular areas and corridors in the Borough, as supplementary planning guidance, setting out fundamental principles which should be followed and from which detailed design may be interpreted.

The Council will establish a strategy to secure the retention and enhancement of landmark buildings which form a distinctive element of the local skyline or townscape, and which represent a unique part of the heritage of the area. Re-use and conversion of such buildings which become redundant will be permitted, subject to other relevant policies.

Policy C5 Alternative Uses, Alterations and Additions for Listed Buildings

Whilst continuation of the use for which the building was designed is most desirable, the Council will permit alternatives uses for Listed Buildings where evidence demonstrates that the existing or original use is unlikely to support the maintenance and preservation of the building.

The Council will require that proposed new uses, or other alterations and additions to Listed Buildings, should not adversely affect the essential character of the building, should be in keeping with its architectural style and features, and should harmonise with its surroundings. The effect of the proposals on any protected species which may be using the Listed Building should also be taken into account.

Such development must be of a high standard of design. The external appearance, design and materials will be expected to match as near as possible those of the existing building and, where appropriate, new internal features should also harmonise with the existing.

Extensions and additions should be secondary in scale, design and location to the principal building and standard solutions or modern

features which fail to relate to the character of the building will not be permitted

Policy C6: Setting of Listed Buildings

New development, including any proposed as a result of a new use for a Listed Building, which fails to preserve, or detracts from, the setting of a Listed Building or structure will not be permitted.

Policy C8 Demolition of Listed Buildings

The Council will not recommend the demolition of Listed Buildings, apart from in exceptional circumstances after the following considerations have been assessed:

a) the condition of the building and the cost of repairing and maintaining it in relation to its importance and to the value derived from its continued use, and

b) the adequacy of efforts that have been made to retain the building in its present use or to find compatible alternative uses, and

c) the merits of alternative proposals for the site.

In such circumstances the Council will also need to be satisfied that an acceptable alternative form of development can go ahead on the site as soon as practical following demolition, that any use of the building by protected species has been taken into account, and that provision can be made to record the detail of the building prior to demolition.

Places for Everyone (Greater Manchester Combined Authority 2024)

2.3.4 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Tameside, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of *relevance to this assessment:*

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

Setting out a clear vision that recognises and embeds the role of heritage in place-making;

Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;

Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;

Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and

Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base

and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.5 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.6 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the 'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance' (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.7 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.8 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Springbank Lane Footbridge (MVL3/8). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 May 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England (Historic England, 2017 and 2019).

3.2.2 Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest.

3.2.3 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development.
- The form and appearance of the development.
- Additional effects (change to skyline etc.).

- Permanence.
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and Tameside Metropolitan Borough Council (TMBC) have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of the TRU.

4.1.2 Regular meetings with Historic England and TMBC have been held to discuss the significance of Springbank Lane Footbridge (MVL3/8) and the alignment of the railway as well as the design development of this structure. Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall Route and design development for all listed structures along Route Section W2B.

4.1.3 The design development of the Order Scheme in relation to Springbank Lane Footbridge (MVL3/8) was discussed during meetings with the statutory stakeholders on the dates outlined in Table 4 1 below:

Table 4-1 Consultation for Springbank Lane Footbridge (MVL3/8)

Date	Stakeholder in attendance	Key agreements/items discussed

12 January 2021	• TMBC
	• Historic England
		• Presentation of options to stakeholders comprising:
		  • Track lower and retention of Springbank Lane Footbridge (MVL3/8) and Springbank Lane Overbridge (MVL3/9); and
		  • Reconstruction of Springbank Lane Footbridge (MVL3/8) and Springbank Lane Overbridge (MVL3/9).
		• Track lowering identified to be preferred option for Historic England.

2 February 2021	• TMBC • Historic England	• Historic England highlighted their desire for retention of the structure and need for a strong and clear justification if replacement is proposed. Balance of this harm against public benefit of the proposals was also noted.
2 March 2021	• TMBC	• Preferred option for Springbank Lane Footbridge (MVL3/8) identified to comprise retention of the structure with a track lower and parapet raise (option 1).
May 2021	• Historic England • Oldham Metropolitan	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II overbridges and underbridges which are noted for their inherent significance, particularly as essential railway structures. The

Date	Stakeholder in attendance	Key agreements/items discussed
	Borough Council (OMBC) • Kirklees Council	group value of the bridges was identified as a key contributor to significance. • Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs. • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. • Reassurance was provided to the councils that they would be involved in the GRIP 3 design process which would be used within the detailed design development of GRIP 4 (Single Option Development). Clarification was also provided on the sustainable heritage initiatives. • Historic England stated that they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
22 June 2021	• TMBC	• Review of track lowering and bridge reconstruction options with TMBC.
25 January 2022	• TMBC	• Update provided to TMBC officers on design development for Springbank Lane Footbridge (MVL3/8). • Parapet height requirements noted to be 1.8m above the bridge deck. • Discussion of the balance of harm against the public benefit delivered by the TRU.
22 June 2022	• TMBC	• Review of optioneering for Springbank Lane Footbridge (MVL3/8).
6 February 2024	• Historic England	• Details of the challenges of the electrification of the Route in relation to listed overbridges were presented. Design measures under consideration for addressing these challenges noted to include: • Reduced voltage clearances: • Development of scheme-specific pantograph, reducing electrical clearances to a minimum. • Site specific risk assessments of bridges due to reduced overhead wire heights. • Electrical protection works: • Risk-based approach to raising parapets. Where safe to do so, 1.5m height parapets may be employed, rather than standard 1.8m height. • This approach has been embedded in designs for W2B.

Date	Stakeholder in attendance	Key agreements/items discussed
		• Example images of recently installed steeple copers were shared, and the potential for colouring of the concrete copers was noted. • The design approach for electrification across / under existing railway bridges was noted to have agreed in principle by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage.
5 March 2024	• Historic England	• Network Rail presented the discussion around retention and reconstruction of the group of listed structures in which Springbank Lane Footbridge (MVL3/8) would be retained.
19 March 2024	• TMBC	• Meeting to discuss the electrical protection works to the seven listed structures, including Springbank Lane Footbridge (MVL3/8). Principles of electrification works were presented and included the use of a risk-based approach to reduce the impact to the existing structures. • The proposed works Springbank Lane Footbridge identified that the current parapet height of 1.5m is sufficient for electrification and therefore works would include refurbishment of the footbridge, replacing the copers with triangular concrete copers to prevent loitering on the parapet as well as anti-trespass fences. • The council queried whether natural stone could be used instead of concrete for the copers to be more in keeping with the character of the structure.
9 April 2024	• Historic England	• Presentation of revised proposals for Springbank Lane Footbridge (MVL3/8) comprising retention of structure, welcomed by Historic England.
5 May 2024	• TMBC	• Presentation of proposals for listed structures along Route Section W2B to TMBC conservation officer including electrical protection works and approach to overbridge reconstruction. • Preference for use of stone copers for listed bridges emphasised by TMBC.
7 May 2024	• Historic England	• Electrical protection works comprising parapet raising at Springbank Lane Footbridge (MVL3/8) agreed in principle by Historic England.
14 May 2024	• TMBC	• Presentation of revised proposals for Springbank Lane Footbridge (MVL3/8) to TMBC officers comprising: • Retention of grade II listed asset; Raising of existing parapet to 1.5m using steeple copers; and repairs to jack arch, parapet and cast-iron beams.

Date	Stakeholder in attendance	Key agreements/items discussed

24 May 2024	• TMBC	• This meeting was used to outline to members of the Local Planning Authority (following changes in personnel) the significance of Springbank Lane Footbridge (MVL3/8), and identified the requirements for intervention in order to accommodate the electrification. The works therefore included:
		  • Replace existing copers with triangular concrete copers;
		  • Reinstate fencing to lighting columns to reduce trespass; and
		  • Refurbishment of the footbridge.
		• The council expressed their preference of natural stone instead of concrete for the proposed triangular copers.

25 June 2024	• Historic England	• Pre-application advice letter from Historic England (see Appendix C for the full letter) identifies in relation to Springbank Lane Footbridge that:
		  • Works are largely limited to raising of the parapet height.
		  • Acknowledge that NR have a legal obligation to prevent contact with OLE and ensure parapets cannot be climbed or walked upon. Investigation into various option acknowledged.
		  • Use of stone rather than concrete copers preferred.
		  • Parapet design should be tailored to each bridge.

15 July 2024	• TMBC	• Written response from TMBC on proposed alteration of listed railway bridges identifying the following requirements relevant to Springbank Lane Footbridge (MVL3/8):
		  • Proposed works to listed bridges should be kept to the minimum necessary to facilitate the Order Scheme and ensure their continued use and enjoyment, whilst retaining as much as practicable of their individual character and appearance.
		  • Any replacement stonework and/or new stonework (copings, for example) should be in natural stone.
		  • All new stonework at bridge level should respect the colour, texture, form to the existing and follow the same coursing pattern.
		  • Any application for listed building consent should be supported by a Heritage Statement prepared in accordance with the NPPF.
		  • Listed building consent drawings to clearly identify on plan and in a methodology / specification details all works including repair work, fencing for all bridges, and

Date	Stakeholder in attendance	Key agreements/items discussed
		to include the extent of reconstruction of MVL3/7 and MVL3/20.
27 August 2024	• Historic England	• Design presented to Historic England in meeting, agreed that impact only changes the profile of the copers from flat top to steeple. • Assessed as overall minor works.

17 September 2024	• Historic England	• Extended pre-application advice letter from Historic England (see Appendix C) identifies that:
		  • The appearance of the bridge would change slightly from new copers and increased parapet height.
		  • Natural stone would minimise appearance of new copers
		  • Overall very low level of less than substantial harm

28 March 2025	• TMBC	• Review of draft heritage statements for structures including Springbank Lane Overbridge (MVL3/9). • Inclusion of Historic England's formal responses within the Heritage Statements requested. • Need for clear identification of public benefits of the scheme in the heritage statements identified. • TMBC confirmed that construction methodology as set out in the heritage statement was sufficient for consenting purposes.
4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits.
6 May 2025, 14 May 2025, 21 May 2025, 29 May 2025	• TMBC	• Emails sent to TMBC regarding updated proposals for attachment of a parallel flange channel to Springbank Lane Overbridge (MVL3/9) and inclusion in the listed building consent application. Confirmation received that listed building consent application should encompass the parallel flange channel only, and not the wider retaining wall
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction.

Date	Stakeholder in attendance	Key agreements/items discussed
		• The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs under Springbank Lane Footbridge (MVL3/8) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age of railway building (Historic England 2017b). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774 km to 11,703 km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds Line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after the railway's authorisation (Alan Baxter Associates, 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. This included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is 'indisputably significant as a major engineering achievement' (Alan Baxter Associates 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Springbank Lane Footbridge (MVL3/8) was first constructed in the mid to late 1840s for the Huddersfield & Manchester Railway Company. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at over three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York,

Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associates, 2019). This was produced to characterise the overall heritage significance of the Transpennine route as a whole.

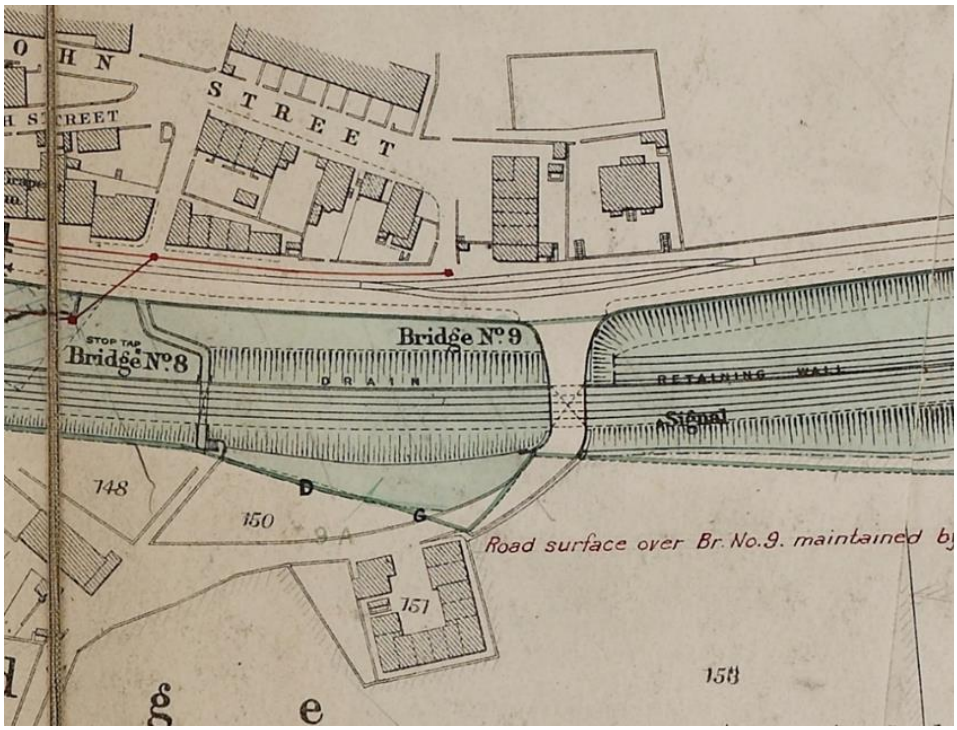
5.2 Springbank Lane Footbridge (MVL3/8)

History

5.2.1 Springbank Lane Footbridge (MVL3/8) was constructed between 1845 and 1849 during the Heroic Age of railway building. The single-span bridge was originally designed by A.S. Jee for the Huddersfield & Manchester Railway and provided pedestrian access east-west across the valley.

5.2.2 The 1st edition Ordnance Survey map of 1845 depicts the footbridge crossing of the 'London and North Western Railway', connecting Heyrod with nearby farmstead at Spring Bank, the Hartshead Print Works and Spring Grove Mill within a semi-rural landscape. Mapping from the 20th century (1938 Six-inch Ordnance Survey onwards) reveals the environs of the bridge to have remained largely unchanged, despite some alterations occurring within this local landscape, including the demolition of the Hartshead Print Works. The establishment of the large-scale Hartshead Power Station c. 85m east of Springbank Lane Footbridge from the mid-1910s and particularly the presence of the two cooling towers from the 1940s formed prominent elements within the setting of the footbridge until their demolition in the 1980s.

5.2.3 An undated drawing held by Network Rail reveals the partial reconstruction of the bridge, likely during the late 19th century (Insert 5-2). The drawing shows that the bridge deck was replaced using second-hand cast-iron girders from a structure in Walsall, cut down to fit the abutments of Springbank Lane Footbridge (MVL3/8). The insertion of girders, tie rods and jack arches and an additional layer of concrete topped with asphalt raised the level of the footway by ten inches, necessitating the insertion of an additional step at the east end of the bridge. It is possible that these alterations were undertaken in the later 19th century, as suggested by the use of blue engineering bricks for the parapets which were in common use by this time. The raising of the footway at this time also included the insertion of the two drainage channels along the borders of the footpath.



Insert 5-1 Springbank Lane Footbridge (MVL3/8) from the historic line plan held by Network Rail, 1905

Description

5.2.4 Springbank Lane Footbridge (MVL3/8) comprises a single span cast iron girder footbridge over the railway.

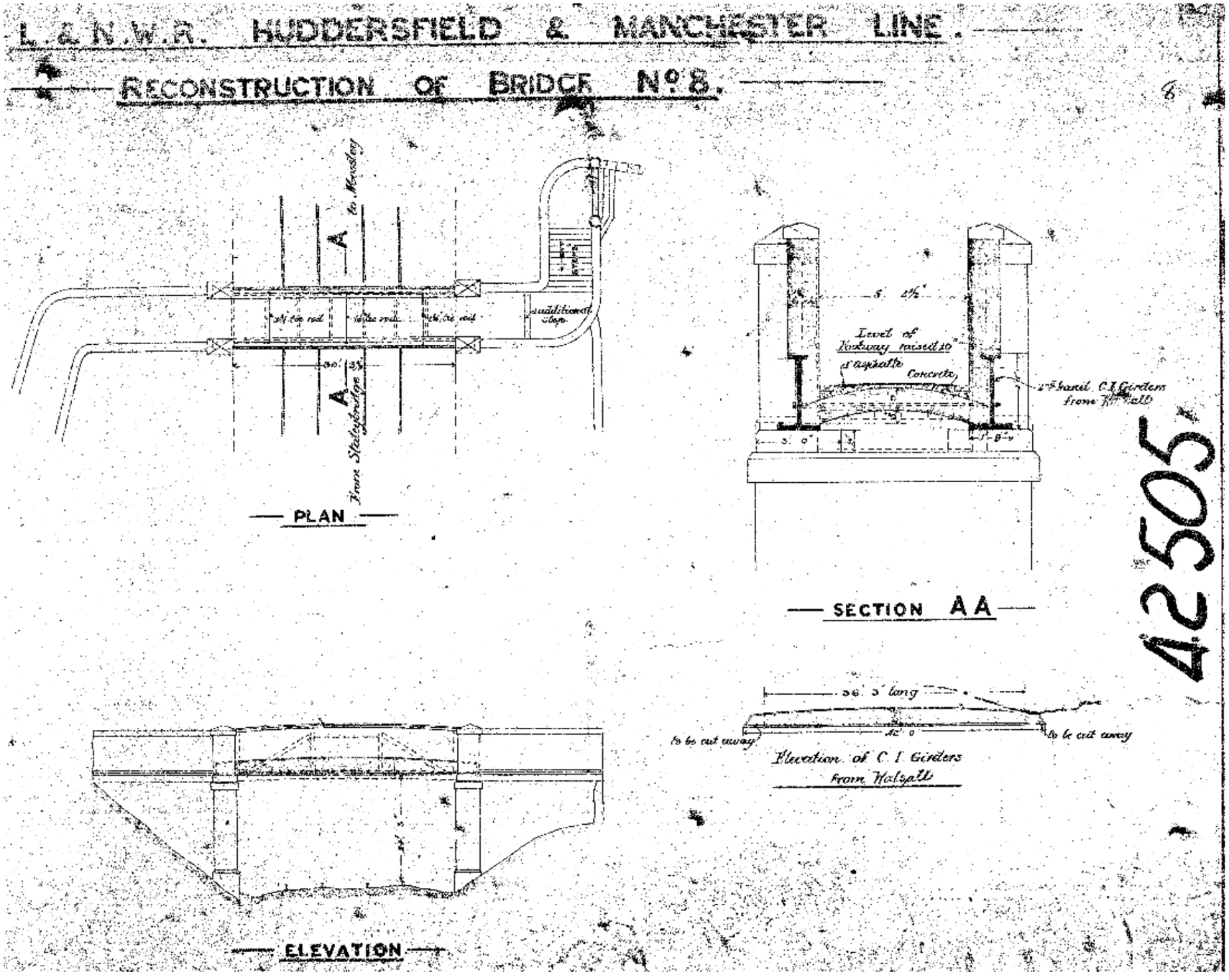
5.2.5 The footbridge comprises two cast-iron girders with a brick jack arch spanning between the bottom flanges and supporting a mass concrete fill bridge deck (Insert 5-3). Battered quarry-faced stone abutments encase the bridge and a weathered plinth is topped by an ashlar stone band. The parapets are constructed in blue engineering brick topped with flat stone copers, resulting from reconstruction in the later 19th century (Insert 5-2). The brick parapets may replace an original cast iron balustrade and retain some evidence for late 19th and early 20th century alterations. The current concrete and asphalt deck surface also likely results from alterations in the late 19th century as evidenced by Network Rail archival drawings (Insert 5-2 and Insert 5-4).

5.2.6 Projecting piers are present at all four of the inner corners which have quoins with flush returns linking them below the bridge span. These piers have parapet imposts, three ashlar steps and pyramidal caps which are highly weathered. The distinctive curved approach walling of the bridge is formed by random coursed squared stone with punched hog's-back copings and projecting band at the base. The bridge deck surface is topped with modern tarmac.

5.2.7 The bridge is accessed from the east via a long footpath from Spring Bank Lane which is constructed of short landings of sandstone setts divided by flights of three shallow steps with setted treads and flagstone risers, all of which are well-worn (Insert 5-5). This footpath forms part of the listed structure. The footpath leads to steep steps enclosed by a curving northern wall with circular posts that are punch dressed with a domed top (Insert 5-6). On the western extent of the bridge there is also a winding enclosed footpath connecting the footbridge with Wakefield Road (Insert 5-7).

5.2.8 The setting of Springbank Lane Footbridge (MVL3/8) is somewhat localised given the nature of the topography and landscape surrounding the structure. Views of the structure and its position spanning the Transpennine route are possible from Wakefield Road to the west, whilst views from the bridge deck provide a visual connection to Springbank Lane Overbridge (MVL3/9) located to the north. Views towards of the northern elevation of the footbridge are also appreciable from Springbank Lane Overbridge (MVL3/9) which evidences its relationship with the railway.

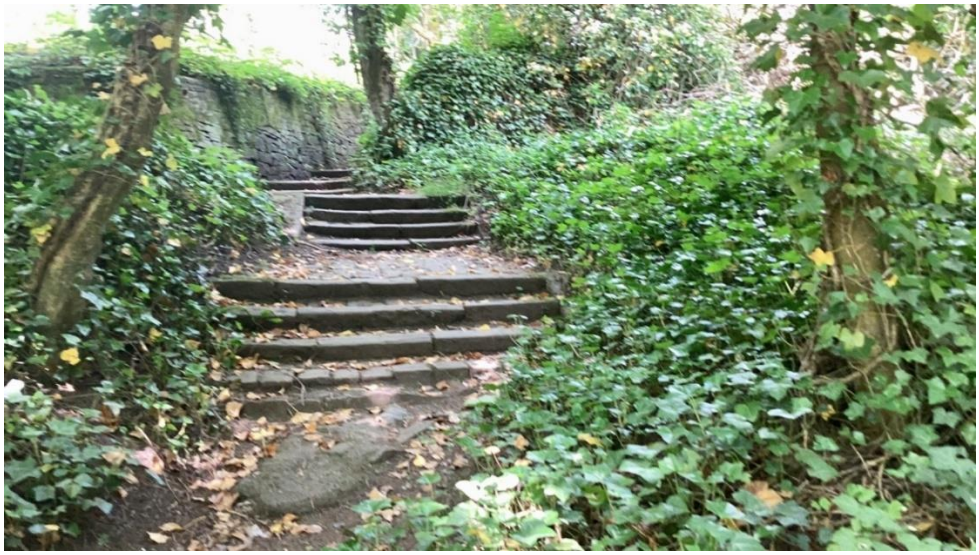
5.2.9 The landscape setting of the bridge is semi-rural, comprising a mixture of historic and modern residential buildings and woodland, with long views to the surrounding Pennines. The footpaths framing the approach to the bridge from the east and west gradually reveal views of the bridge and its setting due to the local topography and curving path. As such, the setting of the footbridge is a contributing factor to its overall significance



Insert 5-2 Engineering drawing setting out the reconstruction of Springbank Lane Footbridge (MVL3/8), undated from the historic plans held by Network Rail

Insert 5-3 Springbank Lane Footbridge (MVL3/8) northern elevation

Insert 5-4 Springbank Lane Footbridge (MVL3/8) footpath and parapets atop of the bridge



Insert 5-5 Footpath from Spring Bank Lane to Springbank Lane Footbridge (MVL3/8).

Insert 5-6 Springbank Lane Footbridge (MVL3/8), curved approach from the east.

Insert 5-7 Springbank Lane Footbridge (MVL3/8), approach from Wakefield Road to the west of the overbridge.

Insert 5-8 View north from Springbank Lane Footbridge (MVL3/8) to Spring Bank Lane Overbridge (MVL3/9).

Insert 5-9 View south from the parapet of Springbank Lane Footbridge (MVL3/8).

Significance

5.2.10 Springbank Lane Footbridge (MVL3/8) was designated as a grade II listed building in 2018. The Historic England List Entry description identifies the bridge to be of special interest for to the following reasons:

- Historic interest:
    - Constructed during the Heroic Age of railway building and a relatively little-altered example (retaining cast-iron edge beams) of an 1840s footbridge on what is now one of the main railway lines in northern England.
    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - The bridge is well-detailed with impost bands, a parapet incorporating pyramidal-capped pillars, and large circular gateposts leading to a well-constructed stepped footpath, that lift its design above the purely functional.
- Group value:
    - With the other listed structures designed by Jee on the Huddersfield & Manchester Railway line, in particular Heyrod Bridge (NHLE 1449241) (Springbank Lane Overbridge (MVL3/9)).

5.2.11 Springbank Lane Footbridge (MVL3/8) is of significance as an example of an 1840s footbridge. It was originally constructed during

the Heroic Age (1841–50) of railway building and the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield and Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route, give the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.12 Documentary evidence reviewed as part of this project has identified evidence for reconstruction of the bridge using cast iron beams from another structure in the late 19th century. This reveals Springbank Lane Footbridge (MVL3/8) to have been subject to significant alteration, contrary to the NHLE assessment of it as a little altered structure. Despite these changes, Springbank Lane Footbridge (MVL3/8) retains evidence of the high-quality workmanship and attention to detail which is characteristic of Jee's work for the Huddersfield & Manchester Railway. This can be seen in the distinctive narrow curved parapet walling, with use of varied stone walling techniques and styles on the bridge abutments and approaches. The use of dressed stone, coping and decorative return quoins adds further architectural interest to the bridge. The quality of design and construction evident in the pilasters and wing walls elevates the overall visual expression of the footbridge to become a structure that is more than merely functional. The replacement of the bridge deck reusing cast iron beams from an earlier structure to create a flat span evidences the evolution of the structure under the LNWR and the incorporation of fabric from other LNWR-owned structures.

5.2.13 The setting of Springbank Lane Footbridge (MVL3/8) makes a minor contribution to the structure's overall significance. Though its setting has undergone changes since the mid-19th century, the footpaths to the east and west communicate the historic function of the structure, linking across the railway line and enhances the approach to and from the bridge and overall appreciation of the footbridge. The approaches enable for pockets of intervisibility between the bridge and footpath, whilst views of the bridge along the railway line allow for an appreciation of its relationship with the railway and Springbank Lane Overbridge (MVL3/9) which contribute towards its group value and setting. The contribution that setting makes towards the significance of Springbank Lane Footbridge (MVL3/8) is minor.

Group value

5.2.14 As identified in the list description, Springbank Lane Footbridge (MVL3/8) is recognised to be of group value with other listed structures by A.S. Jee on the Huddersfield & Manchester Railway[1]. These comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wrights Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);.
- Wright's Bridge Overbridge (MVL3/23) (grade II listed, NHLE 1452409);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Overbridge(MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Uppermill Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121).;
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);

[1] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537**)** was designed by A.S. Jee for the Huddersfield & Manchester Railway. Consent was granted for extensive change to the overbridge as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade. The overbridge will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 1223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[2].

5.2.15 Whilst the architectural detailing of Springbank Lane Footbridge (MVL3/8) is unique amongst these assets, the group value which Springbank Lane Footbridge (MVL3/8) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age (1841–50) of railway building more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it) as coherent features of a single historic route.

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated heritage assets

5.3.2 There are a total of four listed buildings present within a 250 m buffer of Springbank Lane Footbridge (MVL3/8). These comprise:

- Springbank Lane Overbridge (MVL3/9) (grade II listed as Heyrod Bridge, NHLE 1449241), located c. 75 m north of Springbank Lane Footbridge (MVL3/8).
- Holly Cottage (grade II listed, NHLE 1309347), a late 18th century back-to-back double gabled terraced house, located c. 54 m northwest of Springbank Lane Footbridge (MVL3/8).
- 14, 16 and 18 John Street (grade II listed, NHLE 1163008), comprising three terraced houses all of which have three storeys (located c. 81 m northwest of Heyrod Overbridge (MVL3/8.

[2] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

- Moorfield House (grade II listed, NHLE 1356467), a late 18th century house, located c. 179 m south-west of Springbank Lane Footbridge (MVL3/8).

5.3.3 The most pertinent designated heritage asset to Springbank Lane Footbridge (MVL3/8) is Springbank Lane Overbridge (MVL3/9) (NHLE 1449241) which forms a grade II listed single span arch railway overbridge. As a result of the clear and open nature of the railway tracks, and its location sunk into the railway cutting, views north from the footbridge are channelled towards the southern façade of Springbank Lane Overbridge (MVL3/9). These uninterrupted views emphasise the prominence of the overbridge within the setting of Springbank Lane Footbridge (MVL3/8), reinforcing the legibility of the structure's ties to historic transportation networks.

5.3.4 The grade II listed Holly Cottage (NHLE 1309347) comprises a pair of late 18th century double-depth terraced houses, one bay in width which are located c. 50 m south-west of the overbridge. Principal views from the cottages look to the south, towards a series of later cottages ranged along John Street. The rear (north) elevation is largely blind and does not enjoy significant views. The east gable looks across the railway line and bridge, with casement windows present to either side of the elevation. Springbank Lane Footbridge (MVL3/8) may be visible in oblique views from the gable end however does not form a prominent element within these views and does not contribute to the significance of Holly Cottage.

5.3.5 None of the remaining designated heritage assets, 14,16, and 18 John Street (NHLE 1356467 and Moorfield House (NHLE 1356467) within the 250 m study area are considered relevant to Springbank Lane Footbridge (MVL3/8) either in terms of historical relationship, shared intervisibility or proximity.

Non-designated heritage assets

5.3.6 The Greater Manchester Historic Environment Record (HER) records four non-designated heritage assets within 250 m of Springbank Lane Footbridge (MVL3/8) all of which duplicate the listed buildings identified in above.

5.3.7 Not recorded within the local Historic Environment Record but considered a non-designated heritage asset within its own right, is the abandoned remains for the Hartshead Power Station. It is considered relevant to the proposed Order Scheme at Springbank Lane Footbridge (MVL3/8) principally through the relative proximity and the bridge's former use in supporting access to that power station (despite this not being its original purpose). The Greater Manchester Historic Landscape Characterisation survey (Redhead,

2012) indicates that the Hartshead Power Station operated east of Heyrod from 1926 until it was demolished in the 1980s; some buildings survive (HGM44414; HGM44566). It is shown on early 20th century Ordnance Survey mapping. Infrastructure associated with the power station, including the water coolers, were built immediately south-east of the footbridge, extending the site to cover approximately 26 acres (Wharton-Street and Young, 2019). The power station was decommissioned in 1979 and the cooling towers demolished. The site is now disused and covered by woodland, screening it from surrounding areas. There is limited opportunity for glimpsed views of the power station from the bridge. Due to the recessed nature of the bridge within the railway and undulating topography, there are no views of the bridge from the power station site.

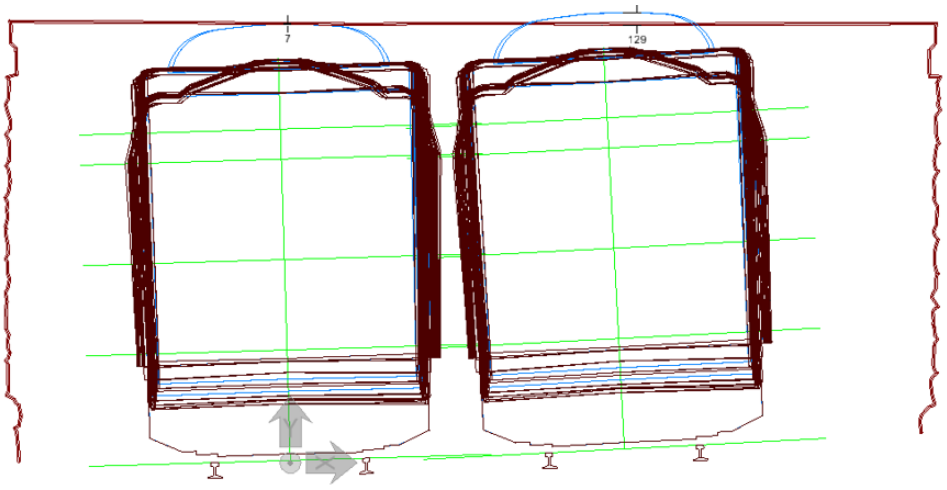
6. PROPOSALS

6.1 Background to proposals

6.1.1 In order to achieve the TRU programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. This necessitates the installation of OLE along the Route Section W2B .

6.1.2 Inadequate clearances to safely install OLE has been recognised as a challenge across much of the TRU, preventing the installation of overhead lines below some existing overbridges. To reduce the requirement for intervention into structures along the route as far as possible, a scheme-specific pantograph has been developed which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment. A number of structures along the route also do not provide adequate gauge clearance for the required freight trains on the route, the requirement for which has been considered as part of the design development process.

6.1.3 Insert 6-1 shows that even with use of the scheme-specific pantograph, there would still be significant clash between OLE and Springbank Lane Footbridge (MVL3/8). Works to enable the electrification of the railway at this site were therefore identified. Similarly, the bridge does not have the required freight gauge clearance. A process of design optioneering to identify the optimal solution has been undertaken.



Insert 6-1 Drawing showing the clash between existing Springbank Lane Footbridge (MVL3/8) and proposed pantograph level

6.2 Design development and justification

6.2.1 Design development for Springbank Lane Footbridge (MVL3/8) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has also involved engagement with Historic England and TMBC (as detailed above in Table 4-1). This iterative and robust process ensures the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultees.

Optioneering

6.2.2 Based on Network Rail's extensive experience delivering comparable schemes, five options were identified for consideration at Springbank Lane Footbridge (MVL3/8). As introduced in 6.1, the option of retaining Springbank Lane Footbridge (MVL3/8) without undertaking any works would prevent the delivery of the Order Scheme. This option was therefore discounted at an early stage. The remaining four options comprised:

1. Track Lower - Lowering the height of the track to achieve the required headroom while retaining existing bridge.
2. Bridge Jacking - Increasing the height of the bridge through structurally lifting the deck up from the abutments. This would require cuts to be made to separate the deck from the abutments, lifting of the deck, infilling of the resulting gaps and refacing.

3. Bridge Reconstruction – Removal of the bridge deck, alteration of the abutments and replacement with a deck providing sufficient clearance.
4. Bridge Removal – demolition of the existing bridge and diversion of footpath.

6.2.3 A summary of the optioneering process is summarised in Table 6-1:

Table 6-1 Optioneering for Springbank Lane Footbridge (MVL3/8)

Option	Key Constraints	Advantages	Disadvantages	Preferred
1) Track Lower	• Sufficient clearance needs to be achieved to enable electrification of the line and allow freight gauge clearance. • Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service. • The bridge spans a railway cutting and is accessible from the highway network only via a narrow footpath flanked by stone walls. This constrains the accessibility of the site to construction vehicles and the delivery of materials / components. • Ground investigation has revealed the shallow foundation depth of the bridge. There is currently no functional track drainage at this location. • The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Buildings & Conservation Areas) Act 1990.	• Lowering of the track would enable retention of the listed bridge with raising of the parapets undertaken to prevent access to OLE. • Achieves clearance under Springbank Lane Footbridge (MVL3/8) and Springbank Lane Overbridge (MVL3/9) without the need for reconstruction	• Taking into account track lowering for MVL3/9 and to achieve the required clearance, the track would have to be lowered by varying depth for a distance of 500 m. The maximum depth would be c.342 mm on the Huddersfield Down line. Due to the shallow depth of rock at this location, this is a substantial engineering operation. • Requirement to improve drainage and consider how this water is discharged • Alteration of the retaining walls required to facilitate the new, lowered track position. Consideration to be given to the relationship between retaining wall configuration and listed building.	**Y**
2) Bridge Jacking		• Disruption of railway minimised due to short duration of jacking operation. • This option would enable the retention of the listed bridge. The abutments, deck and parapet would be retained, although in altered form.	• Bridge jacking for masonry arch bridges is a relatively untested methodology, having been delivered on very few historic structures to date. The feasibility jacking masonry arch structures relies on optimal site conditions, where a high level of control can be achieved and long timescales allowed for implementation. The long-term viability of this option is currently unknown. • The location of the bridge over a cutting with limited access has significant limitations for execution of a bridge jacking operation. • Jacking of this bridge would not be viable as the structural beams are cast iron which is very brittle, therefore would likely be damaged during the jacking. • Jacking of the bridge would raise the level of the footpath across the bridge, and require a greater increase to parapet height across the structure. • Option would require consideration given to the design of altered junctions between deck and abutment/parapets which would impact appearance of retained structure	N
3) Bridge Reconstruction		• Reconstruction of the bridge would enable the preservation of elements of the historic structure, through the retention and reuse of the bridge abutments in conjunction with the new bridge deck. • Reconstruction of the bridge can be delivered substantially from track level. This would minimise the need for construction access by road at this constrained site. • The installation of a preconstructed deck would minimise railway possession time and disruption to the railway network.	• Reconstruction of the bridge would result in the loss of the bridge deck and a portion of the parapets and abutments. This would result in the removal of a significant proportion of the historic bridge, substantially altering its form and appearance, and negatively impacting the integrity and significance of the structure.	N
4) Bridge Removal		• Removal of the bridge would minimise disruption to the railway network and provide a cost effective solution.	• This option would result in substantial harm to the listed building due to the complete removal of the structure • Removal of the bridge would permanently remove footpath access across the railway in this location, requiring consideration given to its re-routing	N

6.2.4 The preferred option of track lowering and increasing parapet height (option 1) was determined in early discussions on the overbridge. This option was deemed to be deliverable in terms of cost and constructability and would have minimal impact on the significance of the grade II overbridge. Given that this is achievable for Springbank Lane Footbridge (MVL3/8), this option was progressed to detailed design and the other options 2 to 4 presented in Table 4 1 were not investigated further.

6.3 Preferred option design development – Option 1 Track Lower

6.3.1 Design development was subsequently undertaken to mitigate the potential impact of the electrification of the line on the heritage significance of the structure as far as reasonably practicable and develop a sensitive design solution which would ensure the structure complies with Network Rail safety standards for bridges over electrified railway lines.

Track Lower

6.3.2 To facilitate the track lower between Springbank Lane Footbridge (MVL3/8) and Springbank Lane Overbridge (MVL3/9) it is necessary to construct a retaining wall between the structures. The proposed design comprises the installation of piles (king posts) with boards spanning between these to retain the embankment. To minimise the potential for damage to the listed structure, attachment of this C-section structural steel component to the bridge would allow the piles to be offset from the listed building. This would avoid the need for piling in close proximity to the structure, yet still allow the retaining wall to extend right up to each of the listed bridges performing the required structural function. The PFC would be attached to the east abutment on the north elevation by bolts extending a minimum of 200mm into the structure. This minor and largely reversible intervention was considered to be preferable to the alternative of piling immediately adjacent to the listed building to facilitate the track lower, and ultimately the retention of Springbank Lane Footbridge (MVL3/8) over the electrified railway.

Electrical Protection Works

6.3.3 A key factor considered throughout the design process is the required compliance with health, safety and security standards. The existing flat form of the copers to the footbridge presents a security risk due to the potential for sitting or walking along them. It is therefore necessary to replace these with anti-sitting steeple copers to prevent access along the top of the bridge parapet. This proposed alteration in turn triggers the need to comply with Network Rail safety standards for bridges crossing an electrified railway which require a

minimum clearance to be achieved to reduce the risk of members of the public coming into contact with live electrical equipment. Where these minimum clearances are not achieved, as is the case at Springbank Lane Footbridge (MVL3/8), a minimum parapet height must instead be achieved.

6.3.4 The current height of the parapets at Springbank Lane Footbridge (MVL3/8) falls below the minimum height requirement as set out in NR/L3/CIV/020. This Network Rail Standard has its basis in ensuring safety on the railway delivering adequate protection for users and the public in line with Health and Safety legislation and Building Regulations. The minimum parapet height required for bridges over an electrified line is generally 1.5 m; however, justification must be provided that a height of 1.8 m cannot be achieved whilst taking into account the risk profile of the bridge.

6.3.5 The risk assessment undertaken for Springbank Lane Footbridge (MVL3/8) identified the footbridge to be of 'low risk' with respect to security and contact with the public. Based on this assessment and in recognition of the need to retain the significance of the listed structure as far as possible, it has been determined that the minimum parapet height required for the structure is 1.55 m, allowing 50 mm tolerance for future resurfacing of the bridge deck.

6.3.6 To meet this requirement it was identified that the existing 235 mm copers be removed and replaced with 382 mm high steeple copers. The proposed replacement copers would satisfy the minimum required parapet height requirement and ensure the shape of coping stone complies with Network Rail standards. The proposed height of the altered parapets would exceed the minimum required height of 1.55 m; however, limiting the parapet raise to minimum permissible height while introducing a compliant coping stone shape would require intervention into the fabric of the parapets below the copers, thus resulting in greater impact to the historic fabric of the bridge.

6.3.7 Optioneering was undertaken to determine the type of material to be used for the parapet raising. Three options were considered to try to limit changes to the structure's historic fabric and impacts on its architectural interest. The options considered are summarised below in Table 6-2

Table 6-2 Parapet Extension Material

Option	Advantages	Disadvantages	Indicative image	Preferred
Option 1 – Natural Stone	• Natural stone would be sympathetic to the historic character of Springbank Lane Footbridge (MVL3/8), in keeping with its architectural interest. • Natural stone copers would represent an honest intervention, with the form of the stones readable as a response to the electrification challenge, while sympathetically integrating with the existing and historic character of the bridge. • Over time, this material would weather to further integrate with the existing masonry elements Springbank Lane Footbridge (MVL3/8).	• This option is determined to be the most expensive of the three options due to costs for quarrying and fees for masonry contractors. • Natural stone is heavier than the other two options, resulting in increased loading of historic parapets and bridge structure. • The weight of natural stone also requires special consideration be given to manual handling safety protocols.		**Y**
Option 2 – Coloured Concrete	• Lighter material than natural stone, reducing loading on the retained parapets and structure. • Concrete can be coloured to achieve a close visual match to the adjacent masonry coping stones. • This material would weather over time, increasing the similarity in appearance between coloured concrete and the existing masonry. • Coloured concrete copers would be relatively cost effective, reducing the cost of this publicly funded project.	• Introduction of different modern material into listed structure. While relatively sympathetic this material would risk negatively impacting on the architectural interest of the Springbank Lane Footbridge (MVL3/8)		N
Option 3 – Glass Reinforced Plastic (GRP)	• Lighter material than natural stone, reducing loading on bridge and parapets • Cost effective material, reducing the cost of this publicly funded project	• There would be a stark visual disparity between the GRP copers and historic fabric, detracting from the architectural interest of Springbank Lane Footbridge (MVL3/8) • GRP copers would not weather or soften in the way natural stone or concrete would, with the difference in material continuing to detract from the character of the historic bridge. • Of the options considered, GRP copers would result in the highest level of harm to the character of the bridge		N

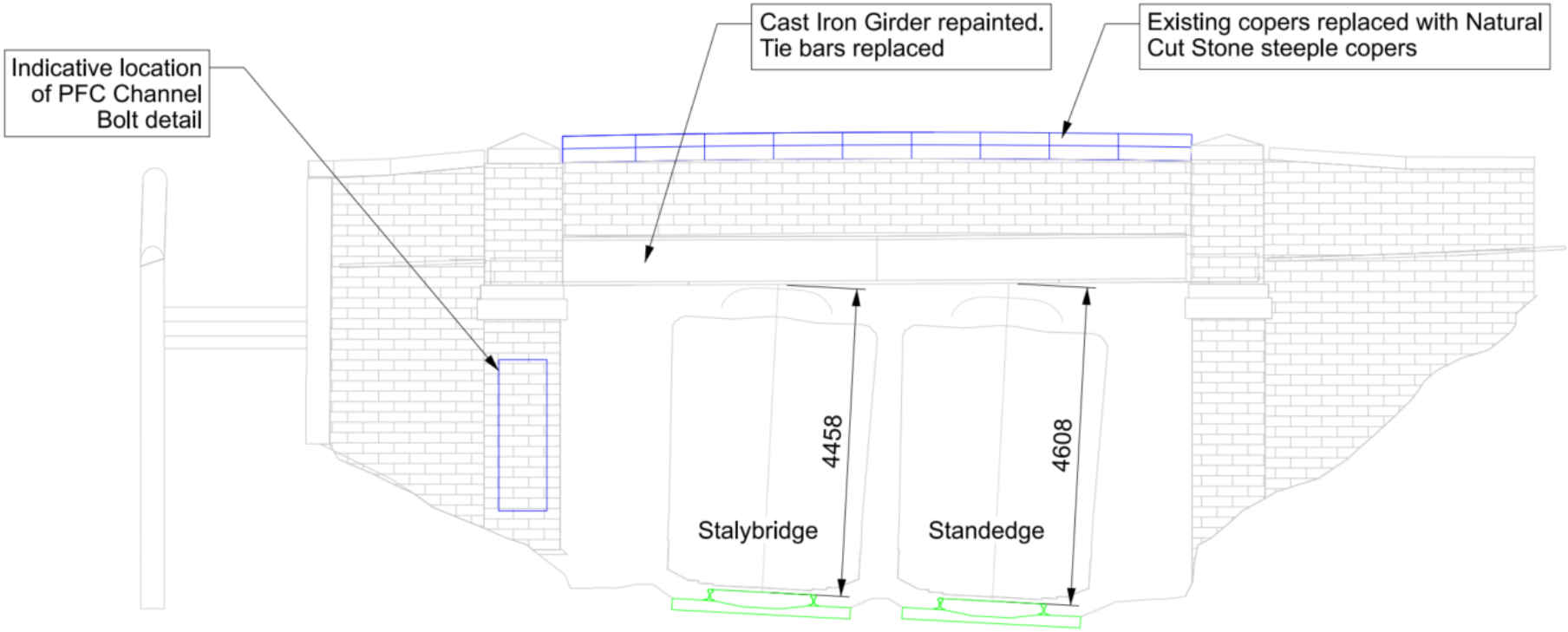
6.3.8 Structural assessment of the existing bridge and parapets established that the footbridge can accommodate the additional weight of natural stone steeple copers without any requirement for strengthening the existing structure. Taking the factors outlined in Table 6-2 into account, it was decided that Option 1 (natural stone) would be progressed as the preferred option as it would minimise the adverse impact the works would have on the historic character and significance of Springbank Lane Footbridge (MVL3/8).

6.4 Description of proposals

6.4.1 The proposed track lowering at this location would enable the retention of Springbank Lane Footbridge (MVL3/8) in a largely unaltered state. Works are nevertheless required to the bridge to facilitate the electrification of the railway in a manner that complies with the required safety standard for a structure over an electrified line (Insert 6-2).

6.4.2 The works to the listed bridge would comprise:

- Replacement of the existing flat coping stones between the bridge piers with natural stone steeple copers which achieve the minimum parapet height and required sloped profile;
- Repointing the parapets and jack arches;
- Replacement of the jack arch tie bars;
- Grit blasting and repainting of the cast iron girders;
- Installation of bonding lugs;
- Installation of two electrification warning signs per parapet;
- Installation of flashover strips; and
- Installation of PFC on the east abutment on the north elevation of the bridge.



Insert 6-2 - Proposed north elevation of Springbank Lane Footbridge (MVL3/8)

Construction Methodology

6.4.3 The proposed works to Springbank Lane Footbridge (MVL3/8) would comprise:

- Removal of the existing copers using track machinery between the bridge piers;
- Installation of nine new natural stone steeple copers per parapet, which would each be c. 1m in length, to be fixed to the parapet using stainless steel dowels.. The process for installation of copers comprises:
    - Drill holes into existing parapets;
    - Land steeple copers with cast-in dowels from the track using lifting straps and lower into the dowel holes and onto shims; and
    - Flood grout between the steeple copers including the dowel holes.
- Removal of existing pointing and application of new pointing using hand tools using lime-based mortar for repairs to transverse jack arch and parapets.
- Installation of five replacement jack arch tie bars, as per the NR standard detail (NR-CIV-SD-2800-B and 2801-B).
- Clean using grit-blasting and then repaint existing cast iron beams.
- Installation of a bonding lug on each of the cast iron girders.
- Installation of PFC with fixings embedded at least 200mm into masonry.

6.4.4 The proposed works to Springbank Lane Footbridge (MVL3/8) are shown in the following drawings which accompany this application:

- Existing and Proposed Plan (167037-TGP-22-MVL3-DRG-T-LP-160802); and
- Existing and Proposed Elevation and Section (167037-TGP-22-MVL3-DRG-T-LP-160803).

7. IMPACT OF PROPOSALS

7.1 Springbank Lane Footbridge (MVL3/8)

7.1.1 The proposed works to the grade II listed Springbank Lane Footbridge (MVL3/8) are required in order to accommodate OLE infrastructure as part of the wider TRU programme. These works would result in minor alteration of the structure comprising addition of natural stone steeple copers, replacement of tie bars, installation of a PFC, and minor repairs.

7.1.2 The proposed works have been designed in manner sympathetic to the historic character of Springbank Lane Footbridge (MVL3/8). Great weight has been given to preserving the structure's architectural interest, while also achieving a design which is deliverable and conforms with the safety requirements of an electrified railway.

7.1.3 The proposed works would result in the removal of the existing flat stone copers, and drilling of holes into the brick parapets for installation of the new copers with grouted steel dowels. This would result in some limited loss of historic fabric. However the existing copers were a later addition rather than part of the original A.S. Jee design, having been installed during the reconstruction of the bridge in the later 19th century. The addition of new natural stone steeple copers would constitute a permanent change to the structure. Following the installation of the copers, the steel dowels would be concealed from view.

7.1.4 The installation of steeple copers would alter the appearance of the bridge, slightly increasing the parapet and altering their form. The extent of this change in height has been limited as far as possible through a risk-assessment based approach. The new copers have been designed to match the existing in terms of colour and form to minimise visual changes and would be legible as a modern alteration of the structure. The proposed use of natural stone is sympathetic to the character of the bridge, matching the materiality of the existing flat copers as well as the original 1840s abutments. This material would weather over time to better integrate visually with the historic structure.

7.1.5 The installation of the PFC on the north elevation of the bridge would represent a minor alteration to the appearance of the structure, with an associated limited disturbance of historic fabric arising from the fixings required to facilitate attachment. This proposed permanent addition to the structure is considered preferable to the alternative of piling in close proximity to the bridge and would facilitate the lowering

of the railway track allowing the retention of Springbank Lane Footbridge (MVL3/8) over the electrified line.

7.1.6 Whilst resulting in minor alteration and intervention into historic fabric of Springbank Lane Footbridge (MVL3/8), these works would have a limited impact on the overall significance of the structure. The form of the bridge's cast-iron deck and brick jack arch would be maintained, as would architectural features such as the quarry-faced stone abutments, ashlar stone band topped plinths and the quality of detailing and construction, which are key aspects of the asset's significance.

7.1.7 The group value of the structure with other bridges designed by A.S. Jee for the Huddersfield & Manchester Railway would be maintained. The proposed works would affect fabric of late 19th century date and would not impact Jee's original construction. The connection to the other Jee structures would continue to be understood, maintaining the bridge's group value with other Jee-designed bridges along the Transpennine route. The minor raising of the parapet height and adding of natural stone steeple copers would be understood as a sensitive alteration as this is only a slight visual variation from the previous flat stone copers. Further, this change is required to enable modernisation of the railway line through its electrification, and part of the ongoing use and modernisation of the historic railway network.

7.1.8 Repointing of the parapets and jack arch would improve the condition of the structure, maintaining its historic fabric and ensuring preservation of its significance. The grit-blasting and painting of the bridge deck and installation of bonding lugs to the cast-iron beams would also serve to improve its condition and longevity.

7.1.9 These proposals would therefore result in a very low level of less than substantial harm to the significance of Springbank Lane Footbridge (MVL3/8), as stated by Historic England in their letter of 17 September 2024.

7.2 Other heritage assets

7.2.1 Due to the distance from the surrounding heritage assets and the low visual impact of the proposals, the proposals would not result in any impact to any surrounding designated or non-designated heritage assets

7.3 Mitigation

7.3.1 The design proposals have been developed to minimise impacts on the fabric, form and appearance of Springbank Lane Footbridge (MVL3/8). This has been achieved through a robust process of optioneering, undertaken in in consultation with Historic England and TMBC. Measures incorporated into the design to mitigate impacts on the significance of the bridge include:

- Use of natural stone steeple copers to best match existing historic fabric, to minimise visual impact upon historic significance and look more in keeping with its original architectural style. Natural stone copers would weather over time and aid their integration with the historic bridge masonry still evident in the abutments, deck and pilasters.
- Inclusion of steeple copers allows for the raise in parapet height to exceed the safety minimum of 1.55m without requiring significant intrusion into fabric below copers.
- Lowering the track rather than reconstruction, jacking or removal minimises impact on the fabric of the bridge while allowing for safe clearance under the footbridge.

7.3.2 During construction of the works, toolbox talks to disseminate best practice for reducing potential impacts in relation to construction activity associated with Springbank Lane Footbridge (MVL3/8), would also be delivered, for example to help avoid accidental damage.

Recommended Compensation

7.3.3 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 1 standards in accordance with Historic England guidance (Historic England 2017c). This would provide a permanent record of Springbank Lane Footbridge (MVL3/8) in its current form and be lodged with the Greater Manchester Historic Environment Record.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Springbank Lane Footbridge (MVL3/8). Further engagement with stakeholders with respect to the content of the

interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The works proposed to be undertaken to Springbank Lane Footbridge (MVL3/8) are required to ensure the realisation of the substantial public benefits of the Order Scheme.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The completion of the proposed works at Springbank Lane Footbridge (MVL3/8) would contribute towards this, ensuring compliance with Network Rail safety standards to allow electrification under the footbridge, thereby delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including Springbank Lane Footbridge (MVL3/8), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed works at Springbank Lane Footbridge (MVL3/8) would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four 'express', two 'semi-express' services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits through the introduction of more environmentally viable energy solutions and is an investment in 'greener' energy technology. This supports Network Rail's Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the works to Springbank Lane Footbridge (MVL3/8).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Springbank Lane Footbridge (MVL3/8) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public

engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Springbank Lane Footbridge (MVL3/8) lies primarily in its historic and architectural interest. The bridge is an altered example of an footbridge dating to the Heroic Age (1841-1850) of railway building, with later alterations likely from the late 19th century including the inclusion of blue engineering brick parapets. The high quality of the bridge's architecture, including impost bands, pyramidal-capped pillars, and large circular gateposts, together with the quality workmanship of the construction is characteristic of A.S. Jee's work for the Huddersfield & Manchester Railway. The bridge derives significance from this direct historic relationship with notable railway engineer A.S. Jee and the historic railway companies namely the Huddersfield & Manchester Railway and LNWR. The setting of Springbank Lane Footbridge (MVL3/8) makes a minor contribution to the significance of the structure. It also possesses group value as one of a number of A.S. Jee structures on the Transpennine route which share a common design language.

8.1.2 The proposals for alteration of Springbank Lane Footbridge (MVL3/8) have been developed through a robust optioneering process, undertaken in consultation with Historic England and TMBC, and designed to minimise impact on the significance of the listed building as far as possible. The proposed works would comprise:

- Replacement of the existing flat coping stones with natural stone steeple copers;
- Repointing the parapets and jack arches;
- Replacement of the jack arch tie bars;
- Grit blasting and repainting of the cast iron girders;
- Installation of bonding lugs;
- Installation of warning signs to the parapets;
- Flashover strips anchored into the jack arches and parapets over the track central line; and
- Installation of PFC to north elevation of the bridge.

8.1.3 The proposals would result in a low level of less than substantial harm to the significance of Springbank Lane Footbridge (MVL3/8), as defined under the paragraph 214 of the NPPF. These impacts are necessary in order to deliver the TRU, and would support the achievement of public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution);
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and
- Improving public health and safety in providing safe routes across the railway.

8.1.4 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.5 These substantial public benefits would outweigh the less than substantial harm to the significance of Springbank Lane Footbridge (MVL3/8) as defined in paragraph 215 of NPPF. The proposals would also satisfy the requirements of Policy C5 of the Tameside Unitary Development Plan in relation to the impact on the character of the listed building, and preservation of its architectural style and features. They would also fulfil the requirements of policy JP-P2 of Places for Everyone in relation to responding to the significance of heritage assets and sense of place, and delivering benefits to the historic environment, economic viability, accessibility and environmental quality. The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to the significance of Springbank Lane Footbridge (MVL3/8).

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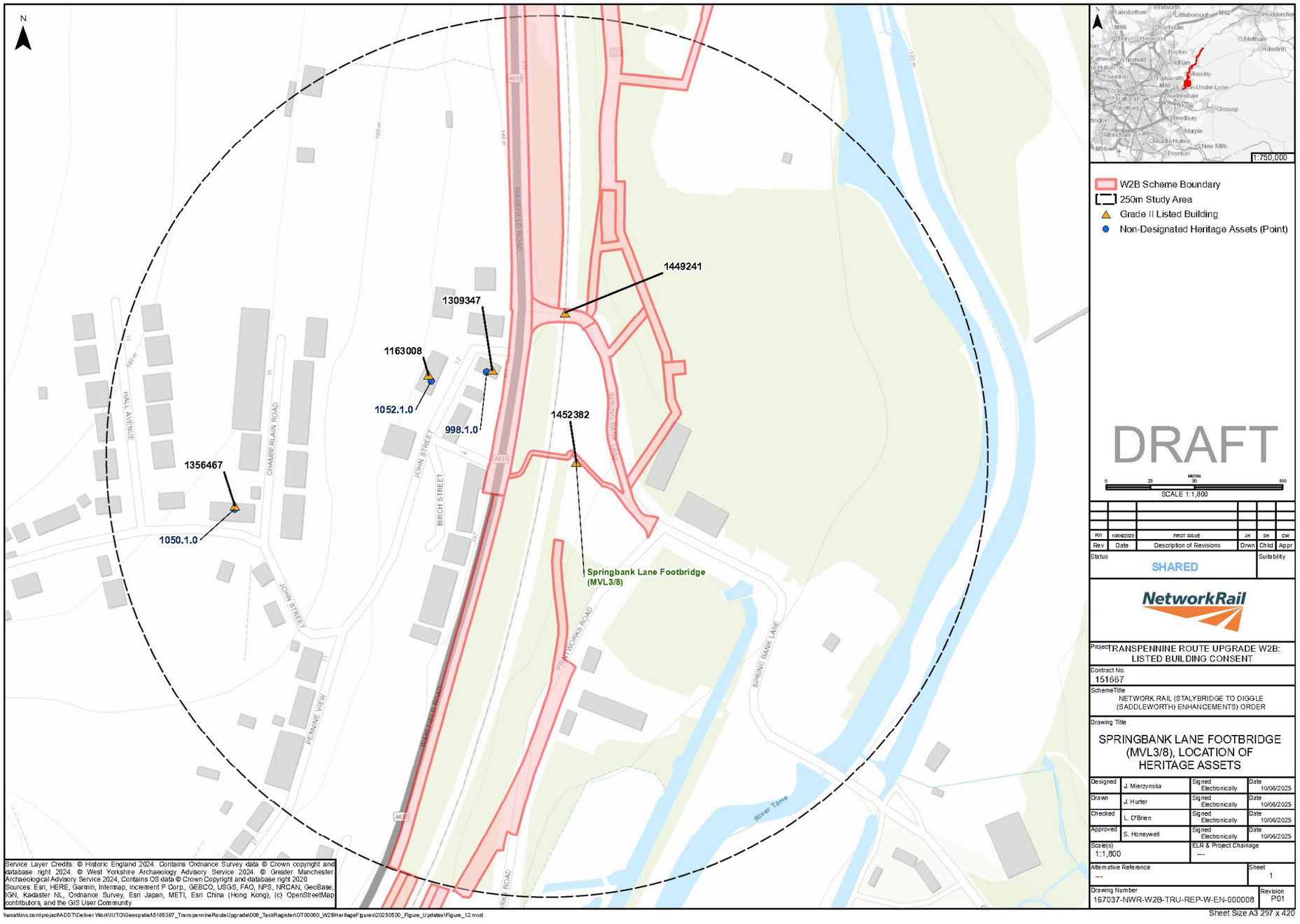
APPENDIX A – LOCATION PLAN



APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1452382
Date first listed:	23-Mar-2018
List Entry Name:	Railway overbridge MVL3/8, Springbank Lane Footbridge
Location Description:	Footpath between A635 Wakefield Road and Spring Bank Lane, Heyrod.

Location

The building or site itself may lie within the boundary of more than one authority.

District:	Tameside (Metropolitan Authority)
Parish:	Non Civil Parish
National Grid Reference:	SD9733200110

Summary

Railway overbridge and flight of steps, 1845-1849, with later parapets, by AS Jee for the Huddersfield and Manchester Railway.

Reasons for Designation

Springbank Lane Footbridge (MVL3/8), constructed in the mid-late 1840s by AS Jee for the Huddersfield and Manchester Railway and with later parapet alterations, is listed at Grade II for the following principal reasons:

Historic interest:

* constructed during the heroic age of railway building and a relatively little-altered example (retaining cast-iron edge beams) of an 1840s overbridge on what is now one of the main railway lines in northern England;

* designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* the bridge is well-detailed with impost bands, a parapet incorporating pyramidal-capped pillars, and large circular gateposts leading to a well-constructed stepped footpath, that lift its design above the purely functional.

Group value:

* with the other listed structures designed by Jee on the Huddersfield and Manchester Railway line, in particular Heyrod Bridge (National Heritage List for England 1449241).

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed between 1837 and 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two

companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently (2018) owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

This overbridge was built to carry the footpath between Spring Bank Lane and Wakefield Road over the railway. It was designed by AS Jee (1816-1858) and dates from the line's construction between 1845 and 1849. The upper courses of the parapets appear to be of a different brick from the lower six courses and all are probably a later addition, probably replacing an iron parapet or balustrade. The deck has been overlaid with tarmac. Otherwise the bridge appears little-altered.

Details

Railway overbridge and flight of steps, 1845-1849, by AS Jee for the Huddersfield and Manchester Railway, with late-C19 and C20 parapet alterations.

MATERIALS: sandstone, cast iron, red brick, blue engineering brick.

DESCRIPTION: the bridge carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane.

The single span has a deck formed by cast-iron edge beams with a brick jack arch spanning between the bottom flanges. The abutments are battered, of squared and coursed quarry-faced stone with a weathered plinth and surmounted by an ashlar band. Projecting piers at all four inner corners are quoined, with a flush return linking them beneath the span. The piers have parapet imposts of three weathered ashlar steps, and pyramidal caps. The approach walls are of random-coursed squared stone with punched hog's-back copings and a weathered projecting band at the base. The parapets are of blue engineering brick laid in alternate header and stretcher courses, the bottom six courses apparently older than those above. The stone parapet copings are twice-weathered. The deck is surfaced with tarmac.

On the eastern side steep steps run down to the north between the approach walls to a landing enclosed by a curving northern wall, with monumental posts at the eastern corners. The posts are circular with a weathered plinth, punch-dressed, and with a dome-topped deep circular cap to the southern post, that to the north being missing. The northern approach wall continues for two metres beyond the post alongside the footpath, stepping down to meet the ground. Mild steel handrails are fixed to the southern post and the inner faces of the approach walls.

SUBSIDIARY FEATURES: from the landing, four sandstone steps run down to the footpath, which is comprised of short landings of sandstone setts divided by flights of three shallow steps with setted treads and flagstone risers, all well-worn.

Sources

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APPENDIX C – HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

25 June 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the pre-application meetings over the last five months. These have been extremely useful in explaining the significance of the heritage assets, the design team's approach, and in exploring issues and constraints associated with electrifying the track.

This letter covers our advice regarding proposals for change to eight listed railway structures between Stalybridge and Standedge Tunnel, within the Metropolitan boroughs of Tameside and Oldham in Greater Manchester. This section of the railway is referenced as W2B.

Significance

The section of railway between Stalybridge and Standedge Tunnel was constructed in stages between 1844 and 1849. This was at the height of “railway mania”; an intense period of activity when many competing companies formed and were racing to complete sections of railway. The Stalybridge and Standedge Tunnel railway eventually became part of a wider network of sections of track that extends from Selby and York to Manchester Victoria via Leeds.

The W2B route has considerable heritage value. It traverses areas of dramatic landscape and varied geology, and has remained well preserved and largely unaltered since its opening in the 1840s. The wider railway network from the Yorkshire cities to Manchester contributed hugely to the economic and urban development of the North and was a major factor in the industrial revolution and in the development of towns.

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The tricky geology and terrain of the W2B route presented challenges to the engineers of the 1840s, and many of the most notable surviving features of the railway are the impressively engineered bridge and viaduct structures. These structures are predominantly built from locally sourced stone, meaning they harmonise with the landscape and contribute to local views, adding to the aesthetic value of the route. The significance of the structures also lies in the fact that they survive well and in large numbers. There have been few alterations to bridges, mainly because this section of the line has not been widened as other parts of the wider route have been.

There are eight listed railway structures that will be affected by the proposed electrification works between Stalybridge and Standedge Tunnel; these are:

- Heyrod Hall Overbridge - MVL3/7
- Heyrod Footbridge Overbridge - MVL3/8
- Spring Bank Lane Overbridge - MVL3/9
- Roughtown Road Overbridge - MVL3/17
- Wright's Mill Overbridge - MVL3/20
- Wright's Overbridge - MVL3/23
- Oldham Road Overbridge - MVL3/28
- Saddleworth Viaduct - MVL3/31

All eight of the listed structures were designed by notable railway engineer Alfred Stanistreet Jee, lead engineer for the railway between Huddersfield and Manchester. They were built in the mid-late 1840s and share many architectural characteristics, adding to their group value and enhancing their significance.

Bridges MVL3/7, MVL3/9, MVL3/17, MVL3/20, MVL3/23, and MVL3/28 are all very similar in design. All are made from coursed local sandstone and have segmental arches formed from tooled voussoirs, with larger keystones. Each has dressed ashlar impost bands, sloping string courses above the arch, and parapet copings, with shallow pyramidal caps to the slender piers. They have considerable group value and are easily identifiable in the landscape as bridges associated with the original construction of the railway. The bridges are all well designed and adapted to their individual locations, some being skewed or sloped. High quality workmanship and

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details such as picked and tooled ashlar voussoirs elevate their design above what is purely function, enhancing their significance further.

Heyrod Footbridge (MVL3/8) and Saddleworth Viaduct (MVL3/31) are clearly recognisable as part of the same scheme of work but differ in their form. Heyrod Footbridge features a flat span, and retains its cast-iron edge beams and brick parapets, while Saddleworth Viaduct comprises 23 sandstone arches spanning the River Tame and Huddersfield Narrow Canal.

The structures are all Grade II listed in recognition of their special architectural and historic interest at national level. Saddleworth Viaduct was listed in 1986, while all seven overbridges were listed in 2017 or 2018 after a comprehensive review of the line.

Impacts

The proposals involve demolition and reconstruction of three structures, total removal of one structure, and modifications to four structures. These works are deemed necessary to achieve the clearance required for the OLE (overhead line equipment) and to ensure safety for bridge users. The impacts of proposed works at each structure are discussed below.

Bridges requiring demolition works:

Heyrod Hall Overbridge MVL3/7 carries a short section of private road over the railway to Heyrod Hall. This bridge is in a rock cutting with very hard rock beneath the track, prohibiting track lowering.

Wright's Mill Overbridge MVL3/20 carries the public footpath and bridleway over the railway where it passes through a steep-sided rock cutting. Options to lower the track at this bridge have been investigated but discounted due to the location on the bridge in a rock cutting with very hard rock beneath. Track lowering would also have a knock-on effect to a nearby underbridge.

Oldham Road Overbridge MVL3/28 is a skew overbridge located on the north-east side of Greenfield Station and carries Oldham Road over the track below. There will be

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the addition of a new footbridge alongside the reconstructed road bridge. Options to lower the track at this bridge have been investigated but would be difficult to achieve due to the proximity to the station.

Proposals at these three bridges involves the complete dismantling of each bridge and reconstruction to create a raised, flat deck with sufficient clearance for OLE. Stone would be reclaimed and used to clad the inside faces of parapet walls; however matching stone is likely to be needed to clad the external sides of the parapets. New copers would also be needed to ensure parapets were the correct height.

The demolition and reconstruction of these bridges will cause substantial harm to their significance through the total loss of historic form and loss of much of their original fabric. The proposals will also diminish the group value of the historic bridges on the railway.

Wright's Overbridge MVL3/23 is a footbridge that carries a public footpath from north-west to south-east across the railway. The railway here is in a steep cutting and due to gradients, the bridge slopes down towards the south-east. Proposals involve the total removal of this bridge and diversion of the public right of way across the railway at another point.

The removal of Wright's Overbridge will cause substantial harm to its significance through the total loss of its historic form and all original fabric. Its removal will necessitate the re-routing of a historic public footpath, which is part of a network of paths in the area connecting mills and farms with workers' housing, and contributes to the landscape character of the area and to the setting of the bridge. The proposals will also further diminish the group value of the historic bridges on the railway.

Bridges requiring modifications:

Heyrod Footbridge Overbridge MVL3/8 carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane which are also listed.

Spring Bank Lane Overbridge MVL3/9 (also known as Heyrod Bridge) carries Spring Bank Lane over the railway. Due to the lie of the land the bridge slopes down towards the east. The splayed projecting wing walls are also covered by the listing.

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Roughtown Road Overbridge MVL3/17 carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The projecting wing walls are also covered by the listing.

Minimal interventions are proposed at these three bridges, the most significant changes being the introduction of new triangular copers to ensure the correct and safe parapet heights.

The introduction of triangular copers to raise the parapet heights to 1.5m will result in a low level of less than substantial harm to the significance of the bridges through the changes to their appearance and the loss of original copers. This harm could be further lowed by using stone copers instead of concrete, and by undertaking any other restoration works required such as replacing the recently rendered section of parapet copings in the south-west corner of Roughtown Road Bridge.

Saddleworth Viaduct MVL3/31 (also known as Uppermill Arches and Uppermill Viaduct) carries the railway over a series of roads and lanes, and the River Tame and Huddersfield Narrow Canal. Due to the lack of space available on the viaduct deck, proposals here involve attaching brackets to the exterior of the viaduct for the OLE supports.

The proposed works at Saddleworth Viaduct will result in a low level of less than substantial harm to the significance of the structure through the change to its appearance and in the physical impact on the elevations of the viaduct from the brackets. This harm could be further lowed by ensuring the spacing of the masts responds to the structural and architectural rhythm of the viaduct to lessen their visual impact.

Policy

National policy relating to the conservation and enhancement of the historic environment is articulated in section 16 of the National Planning Policy Framework (NPPF, 2023). These policies state that heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so they can be enjoyed for their contribution to the quality of life of existing and future generations (NPPF para 195). Also, when considering the impact of a proposed development, great weight should be given to an asset's conservation (NPPF para 205).

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Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification (NPPF 206).

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss. In practice this means that less harmful alternative solutions should be explored through the pre-application and application processes.

In addition to section 16 of the NPPF, we refer you to Section 12 'Achieving well-designed and beautiful places' when considering the design for replacement bridge structures. Para 132 states that being sympathetic to local character and history is important, along with a consistent and high-quality standard of design (para 133).

Position

The proposed works to upgrade the W2B section of the Transpennine route network will be the first major programme of work since its construction in the 1840s. The wider public benefits of the upgrade work to this key transport network will be vast and will have positive knock-on effects across the region. The challenging geology and hydrology across the route still present issues to engineers today, and we welcome the work that has gone into investigating alternative options to demolition and reconstruction for the bridges affected.

The proposals will result in substantial harm to the significance of bridges MVL3/7, MVL3/20, MVL3/23, and MVL3/28, with the highest level of harm to bridge MVL3/23 which will be dismantled and not reconstructed. The proposals will cause harm through the loss of the form of the arched bridges and though the loss of historic fabric. There will be the additional harm to the group value of the bridges.

We agree that the bridges are predominantly experienced from the bridge deck, and that re-use of original fabric should be focussed on the inside faces of the parapet walls to ensure the look of the bridge when crossing it is not unacceptably altered, however this re-use of materials does not lower the harm to less than substantial levels. It will be for decision takers to weigh the balance of this substantial harm against the public benefits of the scheme.

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Works to bridges MVL3/8, MVL3/9 and MVL3/17 is largely limited to raising the parapets to ensure they are the safe and correct height. We acknowledge that Network Rail has a legal obligation to take reasonable steps to prevent people from coming into contact with the OLE by ensuring parapets cannot be climbed or walked on. We appreciate the work undertaken to investigate various options for different types of pantographs to limit the height at which the parapets need to be raised to. The use of triangular copers will introduce a change in the appearance of the bridges and cause a low level of less than substantial harm to their significance, but the impact can be lessened by use of stone rather than concrete copers which will be less visually obtrusive. Parapet design should be tailored to the individual circumstances of each bridge to ensure the least harmful solution is used.

There will also be a low level of less than substantial harm at Saddleworth Viaduct from the introduction of brackets to the structure to support the OLE. This can be further lowered by thoughtful spacing of the brackets.

We welcome the detailed options appraisals undertaken during the design of the proposed works to listed structures on the W2B route. We recommend that details are finalised using bespoke designs that respond to the particular character of each structure and its setting.

Next Steps

Thank you for involving us at the pre-application stage of this project. The above advice is the response that we would give if the same proposals were put forward unamended for statutory approval.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

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Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

17 September 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meeting on 27 August to review the proposals for bridges MVL3/7, 8, 17 and 20. It was useful to see the drawings in advance and then talk through the proposals with the team.

The significance of the affected structures has been set out in our letter of 25 June 2024 and won't be repeated here. The impacts of the proposed changes and our comments are detailed below:

MVL3/7 - Heyrod Hall Overbridge
The changes to this bridge involve demolition and reconstruction of the bridge deck and sections of the abutments, resulting in substantial harm to the significance of the bridge. The bridge is built from coursed local sandstone, and the voussoirs have been lightly tooled around the edges to give them definition and add interest to the arch. The proposed changes will result in the total loss of the historic form of this bridge and much of the original fabric.

In order to reduce harm, every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works. We welcome the use of natural cut stone copers.

MVL3/8 - Heyrod/Springbank Lane Footbridge
The appearance of this bridge will change slightly through the introduction of new copers which will increase parapet height. The use of natural stone will help to minimise the appearance of the new copers and mean they were be less obvious. Overall, there will be a very low level of less than substantial harm to this bridge.

MVL3/17 - Roughtown Road Overbridge
This is another bridge where the proposals involve the introduction of new copers

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which will increase parapet height. The changes here will be more noticeable than at MVL3/8 but still constitute a low level of less than substantial harm.

In order to minimise harm, it will be necessary to carefully design the ends of the new sections of coping stones to manage how they interact with the piers of the bridge. The piers are topped by shallow pyramidal caps, which currently form a prominent feature of the bridge's architecture. There is a danger that the definition of these caps will become lost if the new copers butt up to them. This mitigation could be achieved by either terminating the new copers short of the piers, or by raising the height of the pier caps so they remain prominent.

Additional mitigation should involve repairs to the fabric of the parapet walls, including removal of the cement kerb section and bollards, which will no longer be needed once the road is one-way.

MVL3/20 - Wright's Mill Overbridge
The proposals for demolition and reconstruction of this bridge will result in a substantially altered structure and substantial harm to the significance of the listed asset.

The historic form and materials of this bridge are very similar to MVL3/7, and the proposed construction works are also comparable, however the proposed parapet at MVL3/20 will be noticeably taller due to the bridge's use as a bridleway. The proposal drawings show the ends of the new copers sharply sloping down towards the piers of the bridge.

As advised with MVL3/17 above, care should be taken in the design and integration of these copers so they complement the existing structure and do not appear overly obvious. As with MVL3/7, we advise that every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works.

Next Steps

I look forward to reviewing the next series of proposals for other parts of the scheme.

Yours sincerely

Louise Davies

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Telephone 0161 242 1416
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Historic England

Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, Tony Gee and Partners, August 2024

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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

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Historic England

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Roughtown Road Overbridge (MVL3/17) – Heritage Statement

Rule 10(6)(d)

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current conditions 3
1.4 Summary of proposal 5
2. LEGISLATION AND POLICY CONTEXT 5
2.1 Legislation 5
2.2 National Policy 7
2.3 Local planning policy 10
3. ASSESSMENT METHODOLOGY 14
3.1 Research 14
3.2 Significance and setting 14
4. CONSULTATION 15
5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE 22
5.1 History of the W2B Transpennine Route 22
5.2 Roughtown Road Overbridge (MVL3/17) 24
5.3 Surrounding heritage assets 35
6. PROPOSALS 38
6.1 Background to proposals 38
6.2 Design development and justification 39
6.3 Development of Preferred Option – track slewing and increasing parapet raising 41
6.4 Description of proposals 46
7. IMPACT OF PROPOSALS 49
7.1 Roughtown Road Overbridge (MVL3/17) 49
7.2 Other heritage assets 50

7.3 Mitigation 50

7.4 Public benefit 51

8. CONCLUSION 53

9. REFERENCES 55

APPENDIX A – LOCATION PLAN 57

APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION 58

APPENDIX C – HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS 61

List of Tables

Table 4-1 Consultation for Roughtown Road Overbridge (MVL3/17) 16

Table 6-1 Optioneering Summary 40

Table 6-2 Parapet Extension Material 43

Table 6-3 OLE attachment optioneering 45

List of Inserts

Insert 1-1 Roughtown Road Overbridge (MVL3/17), view from south. 4

Insert 1-2 Displaced masonry and vegetation growth on Roughtown Road Overbridge MVL3/17 4

Insert 5-1 County Series Map 1891. 25

Insert 5-2 1905 historic line plans produced by LNWR showing Roughtown Road Overbridge (MVL3/17). 25

Insert 5-3 County Series Map 1904-1906. 26

Insert 5-4 County Series Map 1933-1938. 26

Insert 5-5 County Series Map 1956. 26

Insert 5-6 County Series Map 1970. 27

Insert 5-7 County Series Map 1992. 27

Insert 5-8 Roughtown Road Overbridge (MVL3/17), south-east elevation. 29

Insert 5-9 Roughtown Road Overbridge (MVL3/17), north-west elevation. 29

Insert 5-10 Roughtown Road Overbridge (MVL3/17), detail of arch and soffit 30

Insert 5-11 Roughtown Road Overbridge (MVL3/17), view east across the bridge deck.....30

Insert 5-12 Roughtown Road Overbridge (MVL3/17), view looking north-east from the across the bridge deck.....30

Insert 5-13 Roughtown Road Overbridge (MVL3/17), view looking south-west from the across the bridge deck. 31

Insert 5-14 Roughtown Road Overbridge (MVL3/17), looking east from the end of the bridge deck with the former Cotton Mill (now Warmco Woodend Mill) in the distance. 31

Insert 5-15 Roughtown Road Overbridge (MVL3/17), looking west from the end of the bridge deck with the spire of St John the Baptist Church visible. 31

Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level for Roughtown Road Overbridge (MVL3/17) 38

Insert 6-2 Proposed elevation Roughtown Road Overbridge (MVL3/17).....47

Insert 6-3 Visualisation of Roughtown Road Overbridge (MVL3/17) looking north along the overbridge. 48

Insert 6-4 Visualisation of Roughtown Road Overbridge (MVL3/17) looking south along the overbridge 48

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the "Order Scheme"). This section of the Transpennine Route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure, reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a listed building. The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade ll listed Roughtown Road Overbridge (MVL3/17) (NHLE 1452405). This bridge is located to the north of Mossley in Roughtown (NGR SD9772402832), Tameside. A location plan is provided in Appendix A.

1.1.7 The Historic England list description (included in full in Appendix B) names the listed building as “Railway Overbridge MVL3/17, Roughtown Road”. Throughout this Heritage Statement the structure is referred to as “Roughtown Road Overbridge (MVL3/17)” in accordance with Network Rail’s naming of the structure.

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF, revised 2025) specifically paragraph 207, which seeks an assessment proportionate to the assets’ importance and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail’s requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;

- Present the design requirements of the Order Scheme at the structure;
- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the National Planning Policy Framework, 2024 and the Tameside Unitary Development Plan Written Statement, 2004.

1.3 Current conditions

1.3.1 Roughtown Road Overbridge (MVL3/17) (Insert 1-1) is a mid to late 1840s masonry overbridge, designed by Alfred Stanistreet (A.S.) Jee for the Huddersfield and Manchester Railway. The overbridge is located to the north of Mossley, and comprises a single segmental arch bridge which carries Roughtown Road over the Transpennine route.

1.3.2 Roughtown Road Overbridge (MVL3/17) was subject to a detailed examination as part of Network Rail's maintenance regime in April 2022, which assessed the overbridge to be in an overall fair condition. A number of minor defects identified in this assessment include:

- Open joints across the structure;
- Small-scale vegetation growing within open joints, shrubs and trees close to abutments (Insert 1-2);
- Weathering and damp staining across the structure suggesting that damp coursing has failed;
- Fractures within stonework;
- Displaced stonework (Insert 1 2);
- Broken and missing reflective bollards at the east end of the bridge; and
- Absence of bridge strike emergency ID plates from the parapet.

Insert 1-1 Roughtown Road Overbridge (MVL3/17), view from south.

Insert 1-2 Displaced masonry and vegetation growth on Roughtown Road Overbridge MVL3/17

1.4 Summary of proposal

1.4.1 In order to achieve the TRU programme objectives, electrification of the route is required. This would require the alteration of a number of existing overbridges, including Roughtown Road Overbridge (MVL3/17) to accommodate OLE, higher line speed and increased freight trains. It has been determined to be necessary to undertake minor adjustments to the structure, including raising the parapets in line with Network Rail Safety Regulations and attaching OLE to the underside of the bridge arch. These works would therefore enable implementation of the Order Scheme.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) ("Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'*In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—*

a) any object or structure fixed to the building;

b) any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

a) 'Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

b) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any

features of special architectural or historic interest which it possesses.

c) *Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'*

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) *'the preservation of particular features of the building, either as part of it or after severance from it;*

b) *the making good, after the works are completed, of any damage caused to the building by the works; [and]*

c) *the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.*

2.1.5 It is also defined in s.17 (2) that a condition *'may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'.*

2.1.6 The Act also states in s.66 (1):

'*In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.*

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance (PPG; updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective 'to protect and enhance our natural, built and historic environment'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' and includes guidance on assessment of significance of heritage assets and their setting that may be affected by the proposed works and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance*.'
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance*.'
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of*:

a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional*.'

- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

  a. *the nature of the heritage asset prevents all reasonable uses of the site; and*

  b. *no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and*

  c. *conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and*

  d. *the harm or loss is outweighed by the benefit of bringing the site back into use*.'

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use*.'
- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset*.'
- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals*

that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.'

Planning Practice Guidance

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that 'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

Tameside Unitary Development Plan

2.3.1 The Tameside Unitary Development Plan 2004 is part of the statutory Local Plan policies for the Tameside Metropolitan Borough (TMBC) which provides the set of planning policies which make up the current local plan.

2.3.2 The Tameside Unitary Development Plan sets out local planning policies that 'provide a framework for development and conservation over the whole of the Tameside area, to set out the main considerations on which planning applications in the Borough are determined, and to guide land use decisions by the Council and other agencies.'

2.3.3 Policies within the framework which are relevant to this Heritage Statement are outlined below.

Policy C Conservation and Enhancement of the Built Environment.

Policy C1 Townscape and Urban Form

In considering proposals for built development, the Council will expect the distinct settlement pattern, open space features, topography, townscape and landscape character of specific areas of the Borough to be understood, and the nature of the surrounding fabric to be respected. The relationship between buildings and their setting should be given particular attention in the design of any proposal for development.

Urban design frameworks will be produced for particular areas and corridors in the Borough, as supplementary planning guidance, setting out fundamental principles which should be followed and from which detailed design may be interpreted.

The Council will establish a strategy to secure the retention and enhancement of landmark buildings which form a distinctive element of the local skyline or townscape, and which represent a unique part of the heritage of the area. Re-use and conversion of such buildings which become redundant will be permitted, subject to other relevant policies.

Policy C5 Alternative Uses, Alterations and Additions for Listed Buildings

Whilst continuation of the use for which the building was designed is most desirable, the Council will permit alternatives uses for Listed Buildings where evidence demonstrates that the existing or original

use is unlikely to support the maintenance and preservation of the building.

The Council will require that proposed new uses, or other alterations and additions to Listed Buildings, should not adversely affect the essential character of the building, should be in keeping with its architectural style and features, and should harmonise with its surroundings. The effect of the proposals on any protected species which may be using the Listed Building should also be taken into account.

Such development must be of a high standard of design. The external appearance, design and materials will be expected to match as near as possible those of the existing building and, where appropriate, new internal features should also harmonise with the existing.

Extensions and additions should be secondary in scale, design and location to the principal building and standard solutions or modern features which fail to relate to the character of the building will not be permitted

Policy C6: Setting of Listed Buildings

New development, including any proposed as a result of a new use for a Listed Building, which fails to preserve, or detracts from, the setting of a Listed Building or structure will not be permitted.

Policy C8 Demolition of Listed Buildings

The Council will not recommend the demolition of Listed Buildings, apart from in exceptional circumstances after the following considerations have been assessed:

the condition of the building and the cost of repairing and maintaining it in relation to its importance and to the value derived from its continued use, and

the adequacy of efforts that have been made to retain the building in its present use or to find compatible alternative uses, and

the merits of alternative proposals for the site.

In such circumstances the Council will also need to be satisfied that an acceptable alternative form of development can go ahead on the site as soon as practical following demolition, that any use of the building by protected species has been taken into account, and that provision can be made to record the detail of the building prior to demolition.

Places for Everyone

2.3.4 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Tameside, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

2.3.5 *Policy JP-P2: Heritage*

2.3.6 *We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.*

2.3.7 *Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:*

2.3.8 *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2.3.9 *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

2.3.10 *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

2.3.11 *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

2.3.12 *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

2.3.13 *Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are*

protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.14 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.15 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the 'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance' (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.16 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap

with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.17 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance,' as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Roughtown Road Overbridge (MVL3/17). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 May 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England. Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When

making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in Annex 2 of the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest..

3.2.2 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence;
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and TMBC have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of the TRU.

4.1.2 Regular meetings with Historic England and TMBC have been held to discuss design development of the proposals in relation to Roughtown Road Overbridge (MVL3/17). Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall route and design development for all structures along Route Section W2B.

4.1.3 The design development for Roughtown Road Overbridge (MVL3/17) was presented and discussed with the historic environment stakeholders on the following dates:

Table 4-1 Consultation for Roughtown Road Overbridge (MVL3/17)

Date	Stakeholder in attendance	Key agreements/items discussed
2 March 2021	• TMBC	• An overview of the optioneering for each structure within the TMBC boundary was outlined by Network Rail. • Preferred option presented at this stage for Roughtown Road Overbridge (MVL3/17) was for track slewing and to raise the parapets height to 1850mm (option 1, see paragraph 6.2.4) .
6 February 2024	• Historic England	• Details of the challenges of the electrification of the route in relation to listed overbridges were presented. Design measures under consideration for addressing these challenges noted to include: - Reduced voltage clearances • Development of scheme-specific pantograph, reducing electrical clearances to a minimum. • Site specific risk assessments of bridges due to reduced overhead wire heights. - Electrical protection works • Risk-based approach to raising parapets. Where safe to do so, 1.5 m height parapets may be employed, rather than standard 1.8 m height. • This approach has been embedded in designs for the Order Scheme. • The design approach for electrification across / under existing railway bridges was noted to

Date	Stakeholder in attendance	Key agreements/items discussed
		have agreed in principle by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage • Confirmation that the design optioneering would be undertaken in consultation with Historic England.
5 March 2024	• Historic England	• Confirmation that Roughtown Road Overbridge (MVL3/17) is amongst the structures being retained.
19 March 2024	• TMBC	• Meeting to discuss the electrical protection works to the seven listed structures, including Roughtown Road (MVL3/17). Principles of electrification works were presented and included the use of a risk-based approach to reduce the impact to the existing structures. • The proposed works to Roughtown Road (MVL3/17) include increasing the parapet height to 1.5m and replace existing copers with triangular copers,
9 April 2024	• Historic England	• Presentation of proposal for coloured concrete copers at Roughtown Road Overbridge (MVL3/17). Historic England welcomed the opportunity to colour match the concrete to the existing structure as this would be less visually intrusive.

Date	Stakeholder in attendance	Key agreements/items discussed
7 May 2024	• Historic England	• Agreement in principle with Historic England on the requirement for electrical protection work and parapet raising at Roughtown Road Overbridge (MVL3/17). • Proposals for alteration of Roughtown Road Overbridge (MVL3/17) noted to include modification of the track to accommodate clearance. • Design development process noted to include challenge of Network Rail standards to retain the listed structure. • Confirmation that the parapet raising to 1.5 m would be achieved by using triangular concrete copers coloured to blend with historic structure and remove sitting risk. • Parapet raising would utilise a risk-based approach to reduce impact to the structure, enabling raising of the parapet to be reduced from 1.8 m to 1.5 m.
24 May 2024	• TMBC	• This meeting was used to outline to members of the Local Planning Authority (following changes in personnel) the significance of Roughtown Road Overbridge (MVL3/17), along with site specific constraints and the design approach for the preferred option agreed of track slewing and parapet height raising (option 1).

Date	Stakeholder in attendance	Key agreements/items discussed
		• TMBC expressed preference for use of stone copers in keeping with the structure's historic character.
25 June 2024	• Historic England	• Pre-application advice letter from Historic England identifies that the proposed works to MVL3/17 would result in a low level of less than substantial harm resulting from the change in appearance and loss of original copers (see Appendix C for the full response letter). • It was suggested that using stone instead of concrete and any undertaking restoration works would help to lessen the impact.
27 August 2024	• Historic England	• This meeting was used to present the draft listed building consent drawings to Historic England and to discuss the proposals presented in the drawings. • The design team presented the need to use coloured concrete copers due to structural constraints which was accepted by Historic England. • Historic England raised whether other repairs would be undertaken to mitigate impact of copers in which it was confirmed that the arch would be refurbished to meet the new electrical standards. • In discussion about how OLE would be attached to the structure, Historic England expressed preference for attaching on the underside of the arch rather than the freestanding mast.

Date	Stakeholder in attendance	Key agreements/items discussed

3 September 2024	• TMBC	• Discussion around draft LBC drawings for MVL3/17 and further conversation around the coloured concrete copers for this structure due to weight loading and structural constraint. This would be undertaken to match the existing. The council recognised the constraint and requested for justification to be provided in the Heritage Statement
		• OLE attachment options were also presented in two options:
		  • Option 1 - Having gantries (OLE arms) next to the structure which would have a greater visual impact and would have free running cables under the structure.
		  • Option 2 - Fixtures on the underside of the structure.
		• Details of the OLE attachment would be provided as part of the listed building consent application.

17 September 2024	• Historic England	• Extended pre-application advice letter from Historic England (see Appendix C) identifies that:
		  ○ Acknowledge that the introduction of new copers and increased parapet height would result in a noticeable change though would amount to a low level of less than substantial harm.
		  ○ Mitigation of harm through careful design of the new copers and their interaction with the bridge piers was highlighted.

Date	Stakeholder in attendance	Key agreements/items discussed
1 October 2024	• TMBC	• Meeting to provide update to Roughtown Road (MVL3/17) following from the comments received from Historic England. • Clarification to the council that the OLE portals would be at a greater distance than what the visualisations show, and the bridge arm would be attached to the underside of the arch barrel.

28 March 2025	• TMBC	• Consultation to go over the draft Heritage Statements. Comments raised, during this meeting and have since been actioned include:
		  • Request for inclusion of Historic England feedback in appendix to the Heritage Statements
		  • Request for condition surveys subject to Network Rail's approval
		  • Request for further emphasis of public engagement in the reports

4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits.
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs under Roughtown Road Overbridge (MVL3/17) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age of railway building (1841-1850) (Historic England, 2017). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774km to 11,703km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after its authorisation (Alan Baxter Associates, 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is 'indisputably significant as a major engineering achievement' (Alan Baxter Associates 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Roughtown Road Overbridge (MVL3/17) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at

over three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associated, 2019). This was produced to characterise the overall heritage significance of the Transpennine route

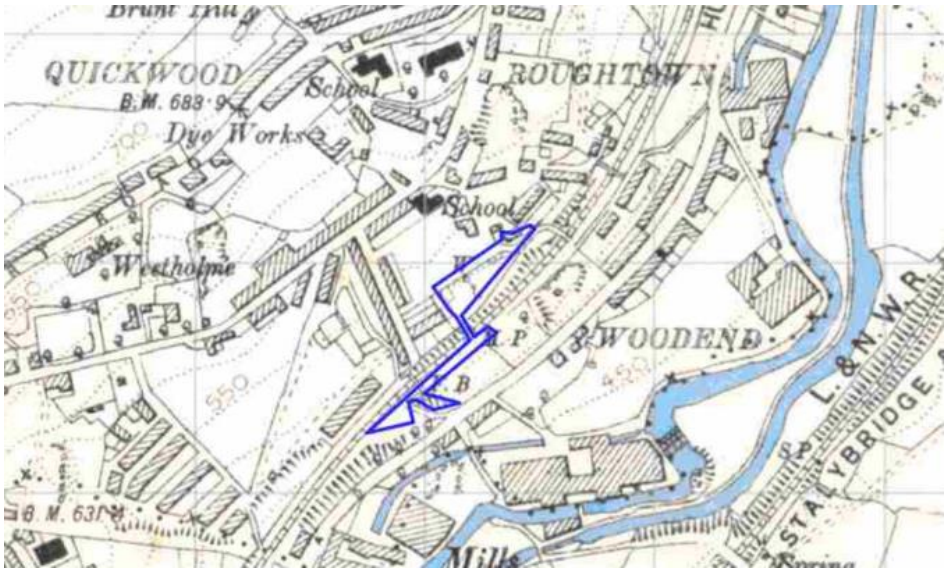
5.2 Roughtown Road Overbridge (MVL3/17)

History

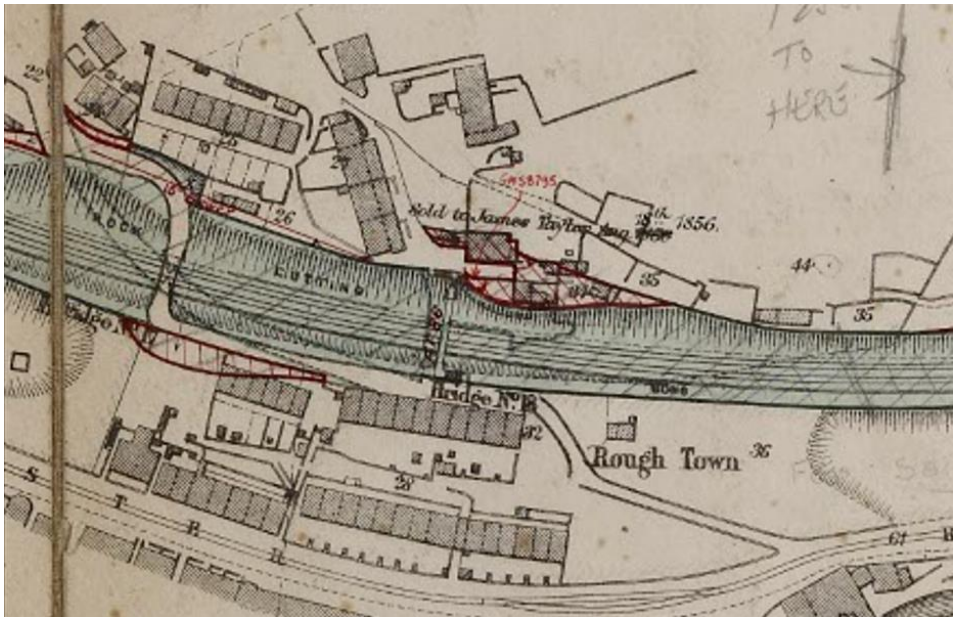
5.2.1 Roughtown Road Overbridge (MVL3/17) was constructed between 1845 and 1849 during the Heroic Age of railway building. The single-span bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway and is situated within the suburb of Roughtown, to the north of Mossley.

5.2.2 At the time of the construction of the Huddersfield & Manchester Railway, Roughtown comprised a scattered neighbourhood of houses which was rapidly being amalgamated into the expanding town of Mossley. This expansion was fuelled by the growth of the town's textile industry, aided by the arrival of the Huddersfield Narrow Canal in 1811 and the Huddersfield & Manchester Railway in the mid-19th century as they helped to improve connectivity with surrounding markets and villages. The Six-Inch Ordnance Survey map of 1854 (not reproduced here) depicts Roughtown Road Overbridge carrying a local road across the railway cutting linking the hamlet with Rough Town Mill (cotton) which was located adjacent to the River Tame to the east of the railway line.

5.2.3 The County Series Map 1891 (Insert 5-1) shows further expansion of Mossley and industry to surround the hamlet of Roughtown. Multiple mills and an iron foundry are depicted along the River Tame to the east of the Transpennine Route, whilst expansion of the settlement is focussed to the west with rows of closely packed worker's housing, schools and a church. The alignment of the railway running north-east to south-west through Roughtown and Mossley divided residential areas to the west of the line from the industry focussed along the River Tame. The historic line plan drawings from 1905 show that Roughtown Road Overbridge (MVL3/17) was therefore an important link which maintained connectivity between the east and west of the line (Insert 5-2).



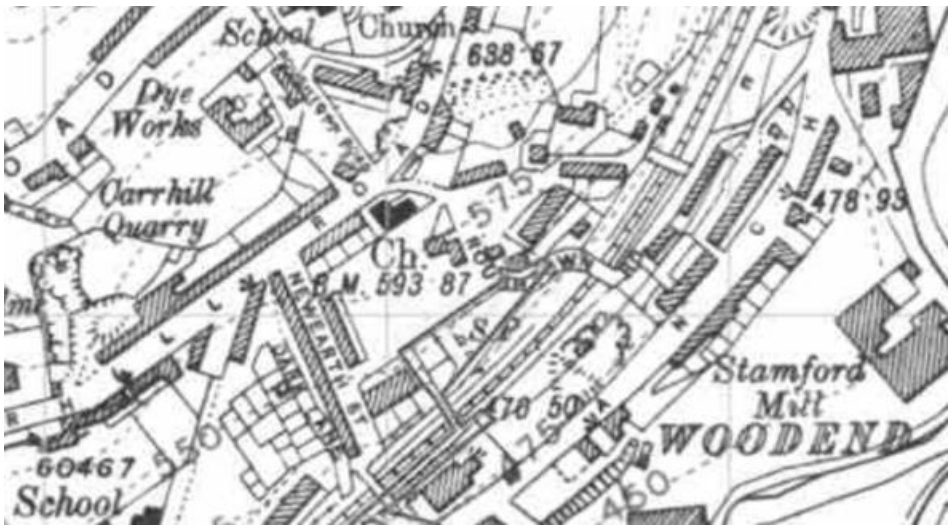
Insert 5-1 County Series Map 1891.



Insert 5-2 1905 historic line plans produced by LNWR showing Roughtown Road Overbridge (MVL3/17).

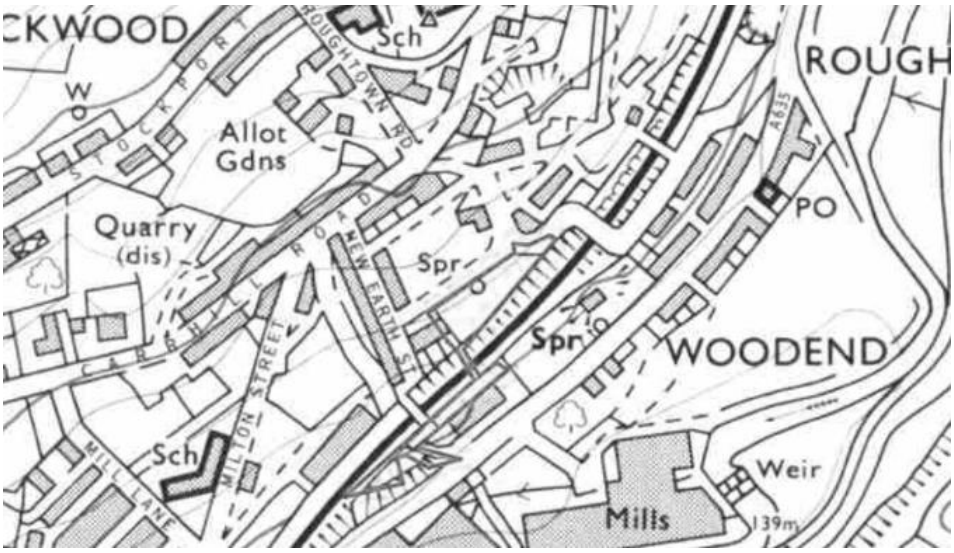
5.2.4 Throughout the 20th century, the general morphology of the area did not undergo any significant change (Insert 5-3 to Insert 5-7). The mills remained extant until the mid-20th century however these were removed before the 21st century and superseded by a modern industrial estate. Roughtown Road Overbridge (MVL3/17) is shown to have remained in use carrying a road over the railway line.

Insert 5-3 County Series Map 1904-1906.



Insert 5-4 County Series Map 1933-1938.

Insert 5-5 County Series Map 1956.



Insert 5-6 County Series Map 1970.

Insert 5-7 County Series Map 1992.

Description

5.2.5 Roughtown Road Overbridge (MVL3/17) is a single-span overbridge with battered abutments which carries Roughtown Road over the Transpennine route. The railway crossing is aligned north-west to south-east, sloping downwards towards the south-east due to the gradient of the local topography, and spans the two-track railway line which is set within a deep cutting. The bridge survives in largely its original form, with limited evidence of alteration.

5.2.6 Roughtown Road Overbridge (MVL3/17; Insert 5-8 and Insert 5-9) is constructed of regular-coursed, rock-faced buff sandstone. The overbridge is formed by a segmental arch flanked by raking abutments with curved wing walls which terminate in slender pilasters with pyramidal caps. The arch springs from ashlar impost bands. It is formed by rusticated v-jointed gritstone voussoirs with tooled margins which continue as quoins to the soffits. The arch keystone is emphasised and breaks above and below the arch, a characteristic decorative feature of Jee's work for the Huddersfield & Manchester Railway. Above the arch is a squared ashlar string course which supports a parapet of coursed rock-faced stone with coping over. The arch soffit is comprised of narrow courses of masonry with tooled detailing (Insert 5-10). Some limited evidence of modern repair to the structure is apparent comprising a short section of rendered parapet copings in the south-west corner, and a short cement kerb with modern bollards installed next to the inner face of the south-west corner.

5.2.7 The setting of Roughtown Road Overbridge (MVL3/17) maintains its historic integrity given the minor changes which have occurred to its environs since the mid-19th century. Its ongoing use connecting Roughtown to the north-west with the Woodend Mill to the south-east retains the legibility of this link and contributes towards its significance. Views of the underbridge can be appreciated from the footbridges to the north-east and south-west. Its location on a steep south-eastern slope provides fortuitous views of its setting from the bridge deck. Views from the bridge deck also take in the Woodend Mill to the south, and Roughtown to the north-west Insert 5-11 to Insert 5-15) enabling for an appreciation of its wider setting, and its relationship with the railway. However, there is limited visibility for the train passengers themselves.

Insert 5-8 Roughtown Road Overbridge (MVL3/17), south-east elevation.

Insert 5-9 Roughtown Road Overbridge (MVL3/17), north-west elevation.

Insert 5-10 Roughtown Road Overbridge (MVL3/17), detail of arch and soffit

Insert 5-11 Roughtown Road Overbridge (MVL3/17), view east across the bridge deck

Insert 5-12 Roughtown Road Overbridge (MVL3/17), view looking north-east from the across the bridge deck.

Insert 5-13 Roughtown Road Overbridge (MVL3/17), view looking south-west from the across the bridge deck.

Insert 5-14 Roughtown Road Overbridge (MVL3/17), looking east from the end of the bridge deck with the former Cotton Mill (now Warmco Woodend Mill) in the distance.

Insert 5-15 Roughtown Road Overbridge (MVL3/17), looking west from the end of the bridge deck with the spire of St John the Baptist Church visible.

Significance

5.2.8 Roughtown Road Overbridge (MVL3/17) was designated as a grade II listed building in March 2018. The Historic England List Entry description identifies the bridge to be of special interest for to the following reasons:

- Historic interest:
    - Constructed during the Heroic Age of railway building and a little-altered example of an 1840s overbridge on what is now one of the main railway lines in northern England.
    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - The bridge is well-detailed with ashlar impost bands and string course, and pilasters and voussoirs with tooled margins, that lift its design above the purely functional.
- Group value:
    - With the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

5.2.9 Roughtown Road Overbridge (MVL3/17) is of significance as a largely unaltered example of an 1840s overbridge, dating from the Heroic Age (1841–50) of railway building and the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield & Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route, give the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.10 Roughtown Road Overbridge (MVL3/17) derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. Architectural elements such as the ashlar impost bands and string course, tooled margins on the pilasters voussoirs and the quality of workmanship across the structure are notable features of Jee's design which elevates the structure above the purely functional. The design language adopted by A.S. Jee was used across a number of other overbridges built along this section of the Huddersfield &

Manchester railway, which further contributes to the understanding of the group value of these related structures. The bridge survives in its original form, with limited evidence of intervention or alteration, and remains in use for its original purpose. The structure continues to reveal Jee's original design intent which is a strong contributing factor to its significance.

5.2.11 The setting of Roughtown Road Overbridge (MVL3/17) makes a minor contribution to its overall significance. Its relationship with the railway is a key component of its setting given that the overbridge continues to span the operational railway and therefore retains its close physical and integral part of the Transpennine railway. The historic integrity of its setting can be appreciated from views of the bridge deck which evidence its relationship with the railway and the wider setting looking out towards Roughtown and Woodend Mill. Views of the bridge can be appreciated from the footbridges to its northeast and south west, which also capture views of the bridge in the context of its wider setting. The contribution that setting makes towards the significance of the underbridge is minor.

Group value

5.2.12 As identified in the list description, Roughtown Road Overbridge (MVL3/17) is recognised to be of group value with other listed structures by A.S. Jee on the Huddersfield & Manchester Railway[1]. These comprise:

- Heyrod Hall Footbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Wrights Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);
- Wright's Overbridge (MVL3/23) (grade II listed, NHLE 1452409);

[1] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. Consent was granted for extensive change to the overbridge as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade. The overbridge will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Overbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Saddleworth Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 123531).
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II listed, NHLE 1450265). [2]

5.2.13 Of these bridges, four are of particularly similar form to Roughtown Road Overbridge (MVL3/17), comprising segmental arched bridges of stone construction, which are similarly detailed architecturally, These overbridges comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Spring Bank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Wrights Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406); and
- Wrights Bridge Overbridge (MVL3/23) (grade II listed, NHLE 1452409);

5.2.14 The group value which Roughtown Road Overbridge (MVL3/17) derives from these relationships provides an understanding of the

[2] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age of railway building (1841–50) more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it) as coherent features of a single historic route.

5.2.15 Masonry railway bridges across the historic Huddersfield & Manchester Railway route have been characterised as being of local or regional interest, depending on their architectural quality, contribution to wider historical interest of the route, and their group value. It has been noted however that, as a group, they are not of substantial national interest due to their dating from a period of railway development when thousands of similar structures were erected (Alan Baxter Associates, 2019).

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated heritage assets

5.3.2 There are eight listed buildings within the 250m buffer of Roughtown Road Overbridge (MVL3/17). These comprise:

- Woodend Toll Bar Cottage (grade II, NHLE 1068038), a former tollhouse cottage dating to the early 19th century located c. 70m to the south-east.
- Summerhill Cottage (grade II, NHLE 1068042), a mid-18th century vernacular two-storey house located c. 60m to the north-west.
- 32 and 34 Greenhill Cottages (grade II, NHLE 1356440), a late 18th century vernacular house located c. 80m to the north.
- Church of St John the Baptist (grade II, NHLE 1356439), a gothic revival stone church dating from 1878-9 by Wild and Collins, located c.190m to the north-west.
- 1 Quickwood (grade II, NHLE 1162836). an early 19th century school master's house located c. 195m north-west.
- Garden Wall to Numbers 3, 4, and 5 and 6 Manor House (grade II, NHLE 1068041), a former Manor House of 17th and 19th century date, located 185m to the north-west.

- 7-17 Quickwood 2 Quickwood (grade II, NHLE 1309435), seven cottages dating from 18th to early 19th century, located c.160m to the north-west.
- Woodend Mill (grade II, NHLE 1268030), a cotton mill of 1838-1840,located c.210m to the south.

5.3.3 Woodend Toll Bar Cottage (grade II, NHLE 1068038), and the spire of the Church of St John the Baptist (grade II, NHLE 1356439) maintain some intervisibility with Roughtown Road Overbridge (MVL3/17). That being said, they do not maintain any meaningful historic relationship and make very little contribution to each other's significance and setting.

Non-designated heritage assets

5.3.4 The Greater Manchester Historic Environment Record (HER) records 18 non-designated heritage assets within 250 m of Roughtown Road Overbridge (MVL3/17), eight of which duplicate the listed buildings identified in paragraph 5.3.2 above.

5.3.5 The remaining ten assets comprise the following:

- Roughtown Mill (site of) (5387.1.0) is located 220 m north-east of the overbridge. First established in 1786, the mill is now demolished and the site has since been redeveloped.
- Andrew Mill (site of) (6337.1.0) is located 180 m north-east of the overbridge. Andrew Mill was a former fulling mill from 1765-1871 and a cotton spinning mill from 1805-1960. The mill is no longer extant.
- Stamford Mill (site of) (6341.1.0) is located 200 m south-east of the overbridge. The mill operated from 1860-61 to 1959 and is now demolished.
- St Johns School (Former) (17907.1.0) is located c. 225 m to the north west of the overbridge. Originally built as 'Roughtown School' in 1885 by James Heywood Whitehead, it was renamed St John's School in 1878. A fire in 1912 resulted in its reconstruction with additional spaces and before closing as a school in 1979. The structure remains extant and in use as a community centre.
- Drill Hall (Former) (17912.1.0) is located c. 150 m to the southwest of the overbridge. It was established in 1912 for gatherings for companies to the Duke of Wellington's Territorial West Riding Regiment. A shooting range was located in basement and hall on the top floor. It is now used by the Tameside Sports Association.

- Roughtown Green (17913.1.0) is located c. 113 m to the west of the overbridge and consist of a small park located on a steep hillside, with mature trees and playground areas.
- Methodist School (former) (17914.1.0) is location c. 124 m northwest of the overbridge. The structure was built in 1866 with stone and lightly coloured brick and slate roof. The structure remains extant and in use by an organ works.
- Roughtown Tavern (former) (17916.1.0) is located c. 155 m to the north-east of the overbridge. It consists of a former stone built, two storey with basement beerhouse with slate roof. The structure has since been converted two private residences.
- Newearth Footbridge (MVL3/16) is located c. 185 m to the south-west of the overbridge. The footbridge with riveted wrought iron girders and masonry abutments was built in 1884 by LNWR and had replaced a former stone segmental overbridge built for and contemporary with the Huddersfield & Manchester Railway.
- Roughtown Road Footbridge (MVL3/18) is located c. 65 m to the north of the overbridge. The footbridge consists of riveted wrought iron girders with cross braced panels. It was built in 1896 by LNWR and had replaced a former stone segmental overbridge built for and contemporary with the Huddersfield & Manchester Railway.

5.3.6 A number of these non-designated heritage assets are no longer extant and their significance now primarily derives from their archaeological remains. As such, these assets do not contribute towards the significance or setting of Roughtown Road Overbridge (MVL3/17).

5.3.7 The remaining offline extant non-designated assets do not share any meaningful visual or historic relationship with Roughtown Road Overbridge (MVL3/17) and therefore do not contribute towards the overbridges' overall setting or significance.

5.3.8 Newearth Footbridge (MVL3/16) (c.180m south-west of Manchester Road Overbridge) and Roughtown Road Footbridge (MVL3/18) (c. 70m north-east of Manchester Road Overbridge) are both historic railway structures which are online and form part of the historic significance of the railway. Both footbridge spans were rebuilt in wrought iron by LNWR in 1884 and 1896 to replace the original masonry arch spans. This contributes towards understanding the late 19th century works and change in ownership to the railway line. Both footbridges are in proximity to Roughtown Road Overbridge (MVL3/17) and they maintain intervisibility with each other. As such, they contribute towards the setting of Roughtown Road Overbridge

(MVL3/17) given that they maintain legibility of the historic railway and its infrastructure and contribute towards its setting.

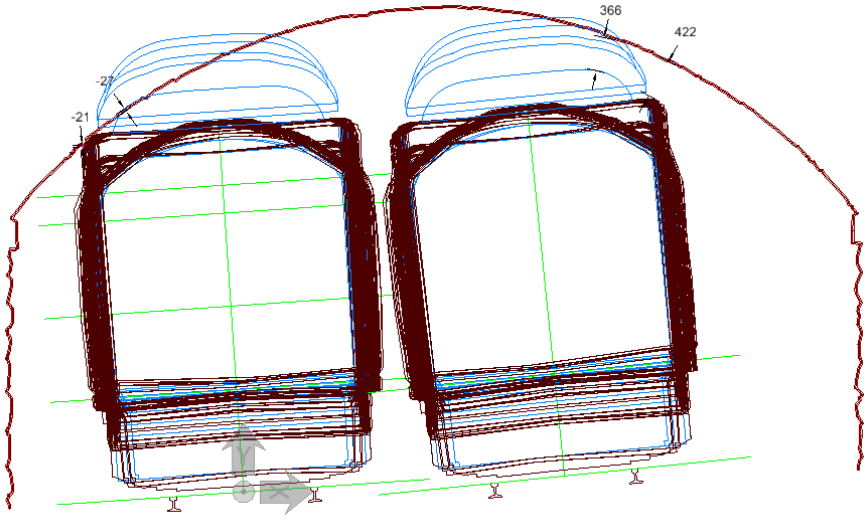
6. PROPOSALS

6.1 Background to proposals

6.1.1 In order to achieve the TRU programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. This necessitates the installation of overhead lines along Route Section W2B.

6.1.2 Inadequate clearances to safely install OLE has been recognised as a challenge across much of the TRU, preventing the installation of overhead lines below some existing overbridges. To reduce the requirement for intervention into structures along the route as far as possible, a scheme-specific pantograph has been developed which enabled the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment. A number of structures along the route also do not provide adequate gauge clearance for the required freight trains on the route, the requirement for which has been considered as part of the design development process.

6.1.3 Insert 6-1 shows that even with use of the scheme-specific pantograph, there would still be significant clash between OLE and Roughtown Road Overbridge (MVL3/17). Similarly, the bridge does not have the required freight gauge clearance. A process of design optioneering to identify the optimal solution has been undertaken.



Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level for Roughtown Road Overbridge (MVL3/17)

6.2 Design development and justification

6.2.1 Design development for Roughtown Road Overbridge (MVL3/17) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has also involved engagement with Historic England and TMBC (as detailed above in Section 4). The iterative and robust process ensures the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultees.

6.2.2 Based on Network Rail's extensive experience delivering comparable schemes, four options were identified for further consideration. As introduced in Section 6.1, the option of retaining the structure without undertaking any works would prevent the delivery of the Order Scheme. This option was therefore discounted at an early stage. The remaining four options comprised:

1. Track slewing and parapet raising – realignment of the railway track and raising of the parapet to meet Network Rail safety standards.

2. Track lower – Lowering the height of the track to achieve the required headroom while retaining the existing bridge.

3. Bridge Jacking - Increasing the height of the bridge through structurally lifting the arch barrel up from the abutments. This would require diagonal cuts to be made to separate the arch barrel from the abutments, lifting of the arch, infilling of the resulting gaps and refacing.

4. Bridge Reconstruction – Removal of the bridge deck, alterations of the abutments and replacement with a deck providing sufficient clearance.

6.2.3 A summary of the optioneering undertaken for these options is summarised in Table 6-1.

Table 6-1 Optioneering Summary

Option	Key Constraints	Advantages	Disadvantages	Preferred
1) Track slewing and parapet raising	• Sufficient clearance needs to be achieved to enable electrification of the line and allow freight gauge clearance. • Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service. • The bridge spans a railway cutting and is accessible from the highway network only via Roughtown Road. This restricts the accessibility of construction vehicles and the delivery of materials/components getting to the site. • The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Buildings & Conservation Areas) Act 1990.	• Slewing the track would enable the retention of the listed bridge with raising of the parapets undertaken to prevent access to OLE. • This would not require any significant alterations to the grade II listed structure, enabling its retention in substantially its current form. • Minimising overall cost of the proposed works.	• The existing track would need to be renewed for it to be slewed which would result in line possession times, disruption to the railway and disruption of the road. • The parapet extension would result in the loss of the existing stone copers.	**Y**
2) Track Lower		• Lowering of the track would enable retention of the listed bridge with raising of the parapets undertaken prevent access to OLE.	• Underpinning of the bridge and stabilisation of the retaining wall would be required due to the shallow dept of their foundations. Underpinning may present risks to the listed building due to changes to the structural performance of the historic structure. • These interventions would require lengthy line possession to remove the rock, underpin the bridge and stabilise the retaining walls. This would result in significant disruption to the railway and incur considerable public expenditure.	N
3) Bridge Jacking		• This option would enable the retention of the listed bridge. The abutments, deck and parapet would be retained, although in altered form.	• Bridge jacking for masonry arch bridges is a relatively untested methodology, having been delivered on very few historic structures to date. The feasibility jacking masonry arch structures relies on optimal site conditions, where a high level of control can be achieved and long timescales allowed for implementation. The long-term viability of this option is currently unknown. • Bridge jacking would incur extensive disruption to railway users, requiring all works be delivered on site and little scope for off-site construction. • The location of the bridge over a cutting with limited access has significant limitations for execution of a bridge jacking operation. • Jacking of the bridge would raise the level of the road across the bridge, increasing the steepness of the fall to the east along with re-grading of access road approaches. • Raising of the bridge arch would impact the form and appearance of the structure, interrupting architectural features such as the stringcourse and the stone coursing pattern across the parapets, detracting from its architectural value and integrity.	N
4) Bridge Reconstruction		• Reconstruction of the bridge would enable the preservation of some elements of the historic structure, through the retention and reuse of the bridge abutments in conjunction with the new bridge deck. • Historic masonry can be reclaimed from removal of the bridge arch and parapets and reused on the reconstructed structure, aiding integration of historic and modern fabric and reduce visual impact of the reconstruction works. • Reconstruction of the bridge can be delivered substantially from track level. This would minimise the need for construction access by road at this constrained site. • The installation of a preconstructed deck would minimise railway possession time and disruption to the railway network.	• Reconstruction of the bridge would result in the loss of the bridge arch and a portion of the parapets and abutments. This would result in the removal of a significant proportion of the historic bridge, substantially altering its form and appearance, and negatively impacting the integrity of the structure.	N

6.2.4 The preferred option of track slewing and increasing the parapet height (option 1) was determined in early discussions on the overbridge. This option was deemed to be deliverable in terms of cost and constructability and would have minimal impact on the significance of the grade II overbridge. Given that this is achievable for Roughtown Road Overbridge (MVL3/17), this option was progressed to detailed design and the other options 2 to 4 presented in Table 6-1 were not investigated further.

6.3 Development of Preferred Option – track slewing and increasing parapet raising

6.3.1 Design development was subsequently undertaken to mitigate the potential impact of the electrification of the line on the heritage significance of the structure as far as reasonably practicable. The retention of the existing structure requires works to ensure it complies with Network Rail safety standards for bridges over electrified railway lines.

Electrical protection works

6.3.2 A key factor considered throughout the design process is the required compliance with health, and safety standards and security requirements. The existing flat form of the copers on Roughtown Road Overbridge (MVL3/17) present a security risk due to the potential for sitting or walking along them. It is therefore necessary to replace these with anti-sitting steeple copers to prevent access along the top of the bridge parapets. This proposed alteration in turn triggers the need to comply with Network Rail safety standards for bridges crossing an electrified railway which require a minimum clearance to be achieved to reduce the risk of members of the public coming in to contact with live electrical equipment. Where these minimum clearances are not met, as is the case at Roughtown Road Overbridge (MVL3/17), alterations to achieve a minimum parapet height are required.

6.3.3 The current height of the parapets falls below the minimum height requirement for parapets over an electrified railway line as required by NR/L3/CIV/020. This Network Rail standard has its basis in ensuring safety on the railway delivering adequate protection for users and the public in line with the Health and Safety legislation and Building Regulations. The minimum parapet height required for bridges over an electrified line is generally 1.5 m; however, justification must be given that a height of 1.8m cannot be achieved whilst taking into account the risk profile of the bridge.

6.3.4 The risk assessment undertaken for Roughtown Road Overbridge (MVL3/17) identified the vehicular and pedestrian/cycle overbridge

to be of 'low risk' with respect to security and contact with the public. Based on this assessment and in recognition of the need to retain the significance of the listed structure as far as possible, it has been determined that the minimum parapet height required for the structure is 1.55 m, allowing 50 mm tolerance for future resurfacing of the bridge deck.

6.3.5 To meet this requirement it was identified that the existing 200 mm high copers would be removed and replaced with 525 mm high steeple copers. The proposed replacement copers would satisfy the minimum required parapet height and ensure their shape complies with Network Rail standards. The use of copers of consistent size would ensure a coherent appearance in keeping with the architectural character of the bridge. Due to the varying height of the existing parapets, the finished height of the proposed copers would vary across the structure and in places would exceed the minimum required height of 1.55 m. However, limiting the parapet raise to minimum permissible height while introducing a compliant coping stone shape would require intervention into the fabric of the parapets below the copers, resulting in greater impact to the historic fabric of the bridge. It was therefore determined that exceeding the minimum parapet height of 1.55 m is justified.

6.3.6 Optioneering was undertaken to determine the type of material to be used for the parapet raising. Three options were considered to try to limit changes to the structure's historic fabric and impacts on its architectural interest. The options considered are summarised in Table 6-2 Parapet Extension Material below

Table 6-2 Parapet Extension Material

Option	Advantages	Disadvantages	Indicative image	Preferred
Option 1 – Natural Stone	• Natural stone would be sympathetic to the historic character of Roughtown Road Overbridge (MVL3/17), in keeping with its architectural interest. • Natural stone copers would represent an honest intervention, with the form of the stones readable as a response to the electrification challenge, while sympathetically integrating with the existing and historic character of the bridge. • Over time, this material would weather to further integrate with the existing masonry elements Roughtown Road Overbridge (MVL3/17).	• Natural stone is the heaviest of the three options with a density of 25kN/m3. The use of stone would result in unacceptable loading of the historic parapets and bridge structure, resulting is risks to the structural integrity of the bridge. • The weight of natural stone also requires special consideration be given to manual handling safety protocols. • This option is determined to be the most expensive of the three options due to costs for quarrying and fees for masonry contractors.		N
Option 2 – Coloured Concrete	• Lighter material than natural stone with a density of 18 kN/m3, reducing loading on the retained parapets and structure. • Concrete can be coloured to achieve a close visual match to the adjacent masonry coping stones • This material would weather over time, increasing the similarity in appearance between coloured concrete and the existing masonry • Coloured concrete copers would be relatively cost effective, reducing the cost of this publicly funded project.	• Introduction of modern material into listed structure. While relatively sympathetic this material would risk negatively impacting on the architectural interest of the Roughtown Road Overbridge (MVL3/17).		Y
Option 3 – Glass Reinforced Plastic	• Lighter material than natural stone, reducing loading on bridge and parapets. • Cost effective material, reducing the cost of this publicly funded project.	• There would be a stark visual disparity between the GRP copers and historic fabric, detracting from the architectural interest of Roughtown Road Overbridge (MVL3/17). • GRP copers would not weather or soften in the way natural stone or concrete would, with the difference in material continuing to detract from the character of the historic bridge. • Of the options considered, GRP copers would result in the highest level of harm to the character of the bridge		N

6.3.7 Whilst it is recognised that the use of natural stone coping stones would provide the most sympathetic design solution for Roughtown Road Overbridge (MVL3/17), natural stone is significantly heavier than light-weight concrete (25kN/m3 vs 18kN/m3) and would result in unacceptable loading of the structure and parapets, with potential for adverse impacts to the structural integrity of the bridge. Option 2 lightweight coloured concrete, was therefore identified as the preferred option for the coping stones.

OLE

6.3.8 The design development process included optioneering to determine the type of OLE to be used at this location. Two OLE options were considered feasible. The potential impact of these options on the significance of the listed overbridge was considered, with each option resulting in distinctly different impacts on historic fabric and the appearance and setting of Roughtown Road Overbridge (MVL3/17). These options comprised

- Siting twin track cantilevers either side of the bridge.
- Attaching an OLE bridge arm to the bridge soffit.

6.3.9 Table 6-3 below summarises the assessment of these options and their potential impact on the significance of Roughtown Road Overbridge (MVL3/17)

Table 6-3 OLE attachment optioneering

Option	Advantages	Disadvantages	Indicative image	Preferred
1 – Bridge arm	• Visually discrete, reducing the clutter of OLE and minimising the prominence of the equipment in the setting of Manchester Road Overbridge (MVL3/17).	• Requires the minor physical alteration of the listed structure, entailing the attachment of the bridge arm to the underside of the bridge.		**Y**
2 – Twin track cantilever	• Avoids intrusive works to the listed bridge, cables would be free-running beneath the bridge. • Inherently reversible with very minor intervention into the listed structure.	• Introduces visually intrusive features in the immediate setting of Manchester Road Overbridge (MVL3/17). • Reduces the degree to which the architectural interest of the bridge could be appreciated.		N

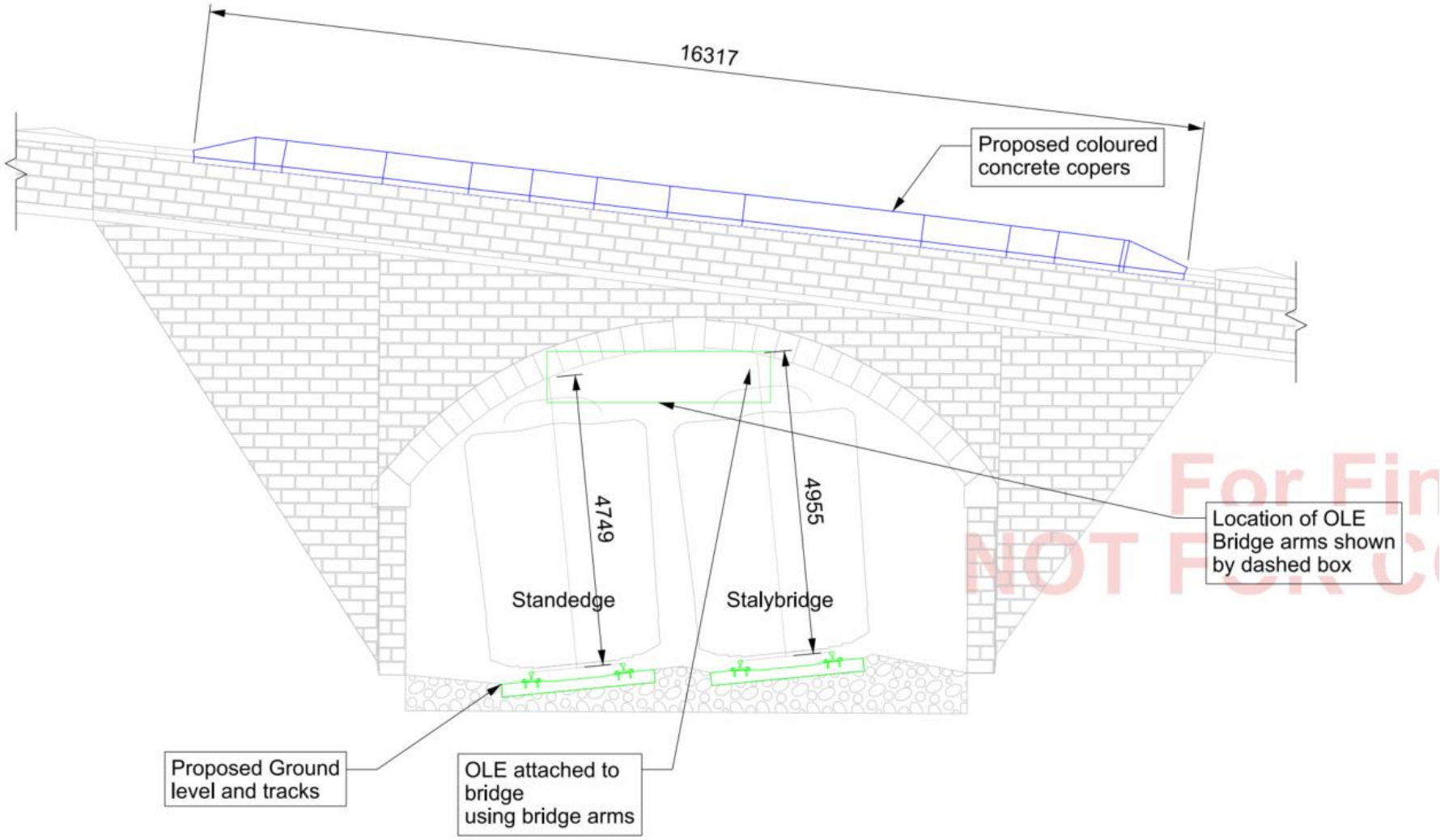
6.3.10 Option 2 (twin track cantilever) would require installation of flashover strips and positioning of the masts in front of both elevations of the bridge, which were as considered to have a greater impact on the significance of Roughtown Road Overbridge (MVL3/17) as this would obscure views of the historic bridge arch. Option 1 (bridge arm) would remove the requirement for the masts. Balancing the minor impact on historic fabric arising from fixing the bracket to the underside of the bridge against the benefits of minimising visual intrusion of OLE on the significance of the bridge, Option 2 (twin track cantilever) was identified as the preferred approach.

6.4 Description of proposals

6.4.1 The track slew under Roughtown Road Overbridge (MVL3/17) would enable the retention of the overbridge in a largely unaltered state. Works are nevertheless required to the bridge to facilitate the electrification of the railway in a manner that complies with the required safety standard for a structure over an electrified line (Insert 6-2 to Insert 6-4).

6.4.2 The alterations would comprise:

- Removal of the existing stone copers.
- Installation of lightweight coloured concrete steeple copers 525 mm tall into the existing stone parapets using stainless steel dowels 250 mm long and 16 mm in diameter to exceed the minimum required parapet height of 1.55 m and achieve the required sloped profile.
- Attachment of an OLE to the underside of the arch barrel using bridge arms.
- Installation of two electrification warning signs on each parapet.



Insert 6-2 Proposed elevation Roughtown Road Overbridge (MVL3/17)

Insert 6-3 Visualisation of Roughtown Road Overbridge (MVL3/17) looking north along the overbridge.

Insert 6-4 Visualisation of Roughtown Road Overbridge (MVL3/17) looking south along the overbridge

Construction Methodology

6.4.3 The proposed works at Roughtown Road Overbridge (MVL3/17) comprise:

- Remove existing copers using on road plant.
- Drill holes into the existing parapet.
- Land copers with cast-in dowls, from the road using lifting straps, into the dowel holes and onto shims.
- Flood grout between copers including the dowel holes.

- Attachment of two electrification warning signs to the interior of each parapet.
- Insertion of resin anchors into the arch barrel for OLE bridge arm attachment.

6.4.4 The proposed works to Roughtown Road Overbridge (MVL3/17) are shown in the following drawings which accompany this application:

- Existing and proposed Plan (167037-TGP-25-MVL3-DRG-T-LP-161702).
- Existing and proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-161703).

7. IMPACT OF PROPOSALS

7.1 Roughtown Road Overbridge (MVL3/17)

7.1.1 The proposed works to grade II listed Roughtown Road Overbridge (MVL3/17) are required to accommodate electrification of the railway line as part of the wider TRU programme. These works would result in minor alteration of the structure comprising addition of light-weight concrete steeple copers and attachment of OLE bracket to the bridge.

7.1.2 The addition of steeple copers to the parapets would alter the appearance of the bridge, raising the height of the parapets by 325 mm, and would be legible as a sensitive alteration of the structure. Although replacement of the existing coping stones with concrete steeple copers would constitute a permanent change to Roughtown Road Overbridge (MVL3/17), the extent of intervention into historic fabric would be limited to the removal of the existing copers and dowelling through the stone parapet to secure the new steeple copers. Whilst the use of lightweight coloured concrete would introduce a modern material into the historic structure, its visual impact would be mitigated as far as possible by carefully colour matching the historic fabric.

7.1.3 The introduction of the new OLE bridge arm would have a localised physical impact on the fabric of the bridge, limited to the soffit of the overbridge. The OLE bridge arm would be visible from the railway line but would not be visible from the bridge deck or adjacent road due to its placement in the centre of the arch soffit. This would have no visual impact on views of the bridge from the adjacent highway.

7.1.4 Whilst resulting in minor alteration of Roughtown Road Overbridge (MVL3/17), these works would have a limited impact on the significance of the structure. The form of the bridge's arched span and wing walls would be maintained, as would architectural features

such as the stringcourse and pilasters, and quality of detailing and construction, which are key aspects of the asset's significance.

7.1.5 The group value of the structure with other bridges designed by A.S. Jee for the Huddersfield and Manchester Railway would be maintained. Whilst the raising of the parapets would result in change to the appearance of the bridge, A. S. Jee's original design would continue to be understood, maintaining the group value of the structure with other Jee designed bridges along the Transpennine route. The alteration of the parapets would be understood as a sensitive alteration required to enable modernisation of the railway line through its electrification, and part of the ongoing use and modernisation of the historic railway network.

7.1.6 These proposals would therefore result in less than substantial harm to the significance of Roughtown Road Overbridge (MVL3/17).

7.2 Other heritage assets

7.2.1 Due to the minor nature of the proposed works, these would not result in any impacts to the surrounding designated or non-designated heritage assets.

7.3 Mitigation

7.3.1 The design proposals for Roughtown Road Overbridge (MVL3/17) have been developed to minimise impacts on the fabric, form and appearance of the overbridge. This has been achieved through a robust process of optioneering, undertaken in consultation with Historic England and TMBC. Measures incorporated into the design to mitigate impacts on the significance of the bridge include:

- Colour matching of the concrete copers to minimise their visual impact and aid their integration with the historic bridge fabric.
- Siting of the OLE Bridge Arm in the centre of the arch barrel, minimising its visibility

7.3.2 During construction of the works, toolbox talks to disseminate best practice for reducing potential impacts in relation to construction activity associated with Roughtown Road Overbridge (MVL3/17) would also be delivered, for example to help avoid accidental damage.

Recommended compensation

7.3.3 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 1 standards in accordance with Historic England guidance (Historic England, 2017). This would provide a permanent record of Roughtown Road Overbridge (MVL3/17) in its current form and be lodged with the Greater Manchester Historic Environment Record.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Roughtown Road Overbridge (MVL3/17). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The works proposed to be undertaken to Roughtown Road Overbridge (MVL3/17) are required to ensure the realisation of the substantial public benefits of the Order Scheme.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The proposed works to increase the parapet height at Roughtown Road Overbridge (MVL3/17) would contribute towards this by ensuring the structure is compliant with Network Rail safety standards, thereby delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds –

Manchester Victoria of 42-43 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including Roughtown Road Overbridge (MVL3/17), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed works to Roughtown Road Overbridge (MVL3/17) would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four 'express', two 'semi-express' services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in 'greener' energy technology. This supports Network Rail's Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the works to Roughtown Road Overbridge (MVL3/17).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant

benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Roughtown Road Overbridge (MVL3/17) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture significance.

8. CONCLUSION

8.1.1 The significance of Roughtown Road Overbridge (MVL3/17) lies primarily in its historic and architectural interest. The bridge is a largely unaltered example of a masonry underbridge dating to the Heroic Age (1841-1850) of railway building. The high quality of the bridge's architecture, including rusticated voussoirs and carriageway band, together with the quality workmanship of the construction is characteristic of A.S. Jee's work for the Huddersfield & Manchester Railway. The bridge also derives significance from this direct historical relationship with notable railway engineer A.S. Jee and the historic railway companies namely the Huddersfield & Manchester Railway and LNWR. The setting of Roughtown Road Overbridge (MVL3/17) makes a minor contribution to the significance of the structure. It also possesses group value as one of a number of A.S. Jee structures on the Transpennine route which share a common design language.

8.1.2 The proposals for alteration of Roughtown Road Overbridge (MVL3/17) have been developed through a robust optioneering process, undertaken in consultation with Historic England and TMBC, and designed to minimise impact on the significance of the listed building as far as possible. The proposed works would comprise:

- The attachment of lightweight coloured concrete steeple copers to the existing parapet;
- Electrification warning signs installed two per parapet; and
- Attachment of an OLE bridge arm to the arch barrel of the bridge.

8.1.3 These works would result in minor alteration of the structure and would preserve key aspects of its significance including its architectural quality, detailing and construction. Whilst the proposals

would introduce modern materials into the fabric of the structure, these works are limited and would be developed to be as visually unobtrusive as possible. The group value of Roughtown Road Overbridge (MVL3/17) with other bridges designed by A.S. Jee for the Huddersfield and Manchester Railway would be maintained.

8.1.4 The proposals would result in less than substantial harm to the significance of Roughtown Road Overbridge (MVL3/17), as defined under the NPPF and as agreed in the 25 June 2024 pre-application response from Historic England (see Appendix C). These impacts are necessary in order to support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution);
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and
- Improving public health and safety in providing safe routes across the railway.

8.1.5 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.6 These substantial public benefits would outweigh the less than substantial harm to the significance of Roughtown Road Overbridge (MVL3/17) as defined in paragraph 215 of NPPF. The proposals would also satisfy the requirements of Policy C5 of the Tameside Unitary Development Plan in relation to the impact on the character of the listed building, and preservation of its architectural style and features. The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to the significance Roughtown Road Overbridge (MVL3/17).

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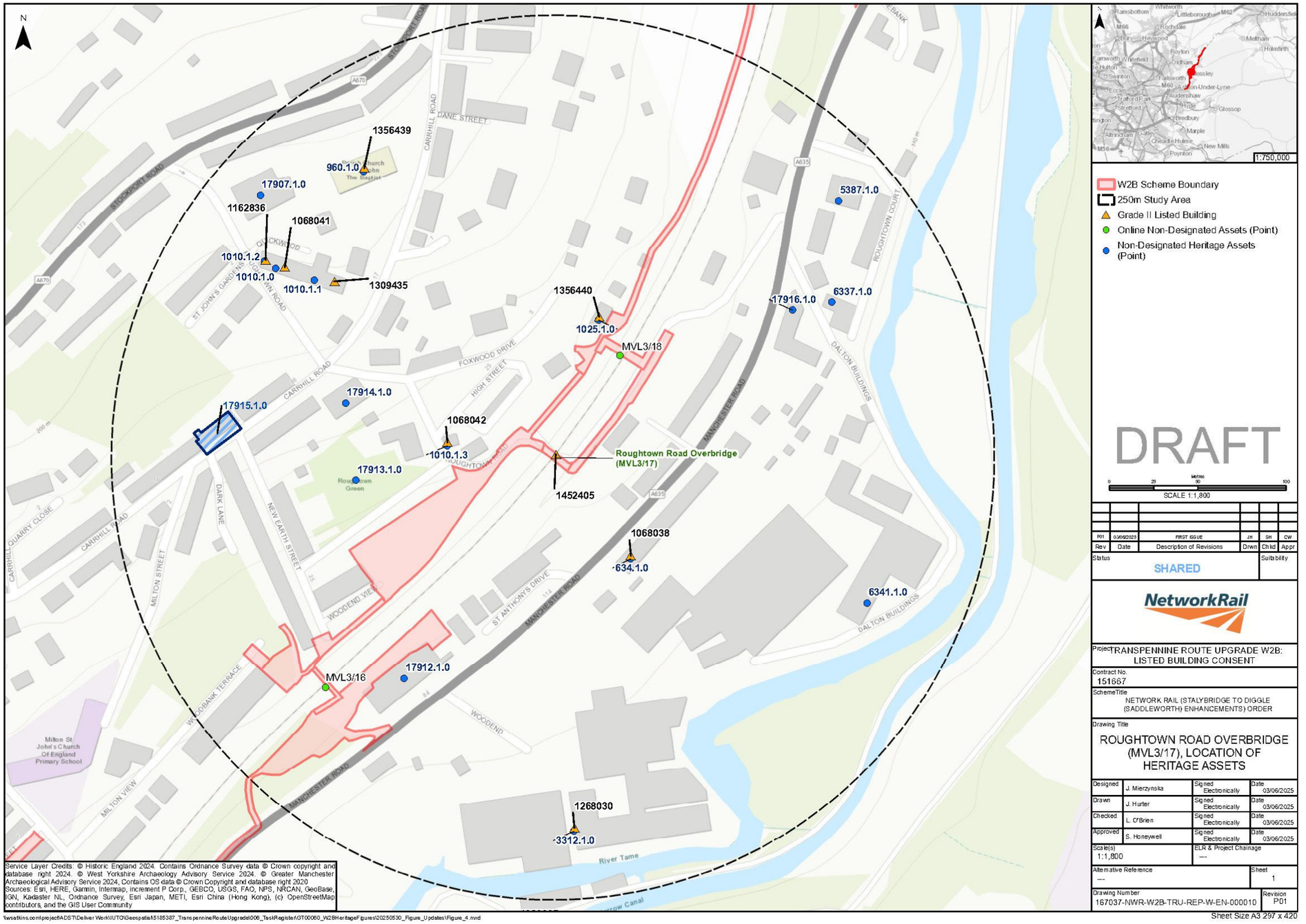
APPENDIX A – LOCATION PLAN



APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1452405
Date first listed:	23-Mar-2018
List Entry Name:	Railway overbridge MVL3/17, Roughtown Road
Location Description:	Higher Newtons, Mossley.

Location

The building or site itself may lie within the boundary of more than one authority.

District:	Tameside (Metropolitan Authority)
Parish:	Mossley
National Grid Reference:	SD9772402832

Summary

Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester railway.

Reasons for Designation

Roughtown Road bridge (MVL3/17), constructed in the mid-late 1840s by AS Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic interest:

* constructed during the heroic age of railway building and a little-altered example of an 1840s overbridge on what is now one of the main railway lines in northern England;

* designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* the bridge is well-detailed with ashlar impost bands and string course, and piers and voussoirs with tooled margins, that lift its design above the purely functional.

Group value:

* with the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed in 1837 to 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the

Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently (2018) owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

This overbridge was built to carry Roughtown Road over the railway. It was designed by AS Jee (1816-1858) and dates from the line's construction between 1845 and 1849. It remains as built, apart from minor parapet repairs and deck resurfacing.

Details

Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.

MATERIALS: buff sandstone.

DESCRIPTION: the bridge carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The bridge comprises a single segmental-arched span recessed between battered abutments to either side of the steep cutting, with a parapet.

The stonework is regular-coursed and quarry-faced. The stone of the arch piers and the voussoirs have tooled margins, the keystone breaking the arch above and below. The impost bands, sloping string course above the arch and the twice-weathered parapet copings are dressed. The abutments curve outwards slightly at all four corners and terminate in slender piers with shallow, pyramidal caps. The arch soffit is narrow-coursed masonry with tooled detailing.

The road surface is tarmac. A short section of parapet copings in the south-west corner has been rendered, and a short cement kerb with modern bollards has been installed next to the inner face of the south-west corner.

Sources

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APPENDIX C – HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

25 June 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the pre-application meetings over the last five months. These have been extremely useful in explaining the significance of the heritage assets, the design team's approach, and in exploring issues and constraints associated with electrifying the track.

This letter covers our advice regarding proposals for change to eight listed railway structures between Stalybridge and Standedge Tunnel, within the Metropolitan boroughs of Tameside and Oldham in Greater Manchester. This section of the railway is referenced as W2B.

Significance

The section of railway between Stalybridge and Standedge Tunnel was constructed in stages between 1844 and 1849. This was at the height of “railway mania”; an intense period of activity when many competing companies formed and were racing to complete sections of railway. The Stalybridge and Standedge Tunnel railway eventually became part of a wider network of sections of track that extends from Selby and York to Manchester Victoria via Leeds.

The W2B route has considerable heritage value. It traverses areas of dramatic landscape and varied geology, and has remained well preserved and largely unaltered since its opening in the 1840s. The wider railway network from the Yorkshire cities to Manchester contributed hugely to the economic and urban development of the North and was a major factor in the industrial revolution and in the development of towns.

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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The tricky geology and terrain of the W2B route presented challenges to the engineers of the 1840s, and many of the most notable surviving features of the railway are the impressively engineered bridge and viaduct structures. These structures are predominantly built from locally sourced stone, meaning they harmonise with the landscape and contribute to local views, adding to the aesthetic value of the route. The significance of the structures also lies in the fact that they survive well and in large numbers. There have been few alterations to bridges, mainly because this section of the line has not been widened as other parts of the wider route have been.

There are eight listed railway structures that will be affected by the proposed electrification works between Stalybridge and Standedge Tunnel; these are:

- Heyrod Hall Overbridge - MVL3/7
- Heyrod Footbridge Overbridge - MVL3/8
- Spring Bank Lane Overbridge - MVL3/9
- Roughtown Road Overbridge - MVL3/17
- Wright's Mill Overbridge - MVL3/20
- Wright's Overbridge - MVL3/23
- Oldham Road Overbridge - MVL3/28
- Saddleworth Viaduct - MVL3/31

All eight of the listed structures were designed by notable railway engineer Alfred Stanistreet Jee, lead engineer for the railway between Huddersfield and Manchester. They were built in the mid-late 1840s and share many architectural characteristics, adding to their group value and enhancing their significance.

Bridges MVL3/7, MVL3/9, MVL3/17, MVL3/20, MVL3/23, and MVL3/28 are all very similar in design. All are made from coursed local sandstone and have segmental arches formed from tooled voussoirs, with larger keystones. Each has dressed ashlar impost bands, sloping string courses above the arch, and parapet copings, with shallow pyramidal caps to the slender piers. They have considerable group value and are easily identifiable in the landscape as bridges associated with the original construction of the railway. The bridges are all well designed and adapted to their individual locations, some being skewed or sloped. High quality workmanship and

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details such as picked and tooled ashlar voussoirs elevate their design above what is purely function, enhancing their significance further.

Heyrod Footbridge (MVL3/8) and Saddleworth Viaduct (MVL3/31) are clearly recognisable as part of the same scheme of work but differ in their form. Heyrod Footbridge features a flat span, and retains its cast-iron edge beams and brick parapets, while Saddleworth Viaduct comprises 23 sandstone arches spanning the River Tame and Huddersfield Narrow Canal.

The structures are all Grade II listed in recognition of their special architectural and historic interest at national level. Saddleworth Viaduct was listed in 1986, while all seven overbridges were listed in 2017 or 2018 after a comprehensive review of the line.

Impacts

The proposals involve demolition and reconstruction of three structures, total removal of one structure, and modifications to four structures. These works are deemed necessary to achieve the clearance required for the OLE (overhead line equipment) and to ensure safety for bridge users. The impacts of proposed works at each structure are discussed below.

Bridges requiring demolition works:

Heyrod Hall Overbridge MVL3/7 carries a short section of private road over the railway to Heyrod Hall. This bridge is in a rock cutting with very hard rock beneath the track, prohibiting track lowering.

Wright's Mill Overbridge MVL3/20 carries the public footpath and bridleway over the railway where it passes through a steep-sided rock cutting. Options to lower the track at this bridge have been investigated but discounted due to the location on the bridge in a rock cutting with very hard rock beneath. Track lowering would also have a knock-on effect to a nearby underbridge.

Oldham Road Overbridge MVL3/28 is a skew overbridge located on the north-east side of Greenfield Station and carries Oldham Road over the track below. There will be

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the addition of a new footbridge alongside the reconstructed road bridge. Options to lower the track at this bridge have been investigated but would be difficult to achieve due to the proximity to the station.

Proposals at these three bridges involves the complete dismantling of each bridge and reconstruction to create a raised, flat deck with sufficient clearance for OLE. Stone would be reclaimed and used to clad the inside faces of parapet walls; however matching stone is likely to be needed to clad the external sides of the parapets. New copers would also be needed to ensure parapets were the correct height.

The demolition and reconstruction of these bridges will cause substantial harm to their significance through the total loss of historic form and loss of much of their original fabric. The proposals will also diminish the group value of the historic bridges on the railway.

Wright's Overbridge MVL3/23 is a footbridge that carries a public footpath from north-west to south-east across the railway. The railway here is in a steep cutting and due to gradients, the bridge slopes down towards the south-east. Proposals involve the total removal of this bridge and diversion of the public right of way across the railway at another point.

The removal of Wright's Overbridge will cause substantial harm to its significance through the total loss of its historic form and all original fabric. Its removal will necessitate the re-routing of a historic public footpath, which is part of a network of paths in the area connecting mills and farms with workers' housing, and contributes to the landscape character of the area and to the setting of the bridge. The proposals will also further diminish the group value of the historic bridges on the railway.

Bridges requiring modifications:

Heyrod Footbridge Overbridge MVL3/8 carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane which are also listed.

Spring Bank Lane Overbridge MVL3/9 (also known as Heyrod Bridge) carries Spring Bank Lane over the railway. Due to the lie of the land the bridge slopes down towards the east. The splayed projecting wing walls are also covered by the listing.

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Roughtown Road Overbridge MVL3/17 carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The projecting wing walls are also covered by the listing.

Minimal interventions are proposed at these three bridges, the most significant changes being the introduction of new triangular copers to ensure the correct and safe parapet heights.

The introduction of triangular copers to raise the parapet heights to 1.5m will result in a low level of less than substantial harm to the significance of the bridges through the changes to their appearance and the loss of original copers. This harm could be further lowed by using stone copers instead of concrete, and by undertaking any other restoration works required such as replacing the recently rendered section of parapet copings in the south-west corner of Roughtown Road Bridge.

Saddleworth Viaduct MVL3/31 (also known as Uppermill Arches and Uppermill Viaduct) carries the railway over a series of roads and lanes, and the River Tame and Huddersfield Narrow Canal. Due to the lack of space available on the viaduct deck, proposals here involve attaching brackets to the exterior of the viaduct for the OLE supports.

The proposed works at Saddleworth Viaduct will result in a low level of less than substantial harm to the significance of the structure through the change to its appearance and in the physical impact on the elevations of the viaduct from the brackets. This harm could be further lowed by ensuring the spacing of the masts responds to the structural and architectural rhythm of the viaduct to lessen their visual impact.

Policy

National policy relating to the conservation and enhancement of the historic environment is articulated in section 16 of the National Planning Policy Framework (NPPF, 2023). These policies state that heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so they can be enjoyed for their contribution to the quality of life of existing and future generations (NPPF para 195). Also, when considering the impact of a proposed development, great weight should be given to an asset's conservation (NPPF para 205).

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Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification (NPPF 206).

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss. In practice this means that less harmful alternative solutions should be explored through the pre-application and application processes.

In addition to section 16 of the NPPF, we refer you to Section 12 'Achieving well-designed and beautiful places' when considering the design for replacement bridge structures. Para 132 states that being sympathetic to local character and history is important, along with a consistent and high-quality standard of design (para 133).

Position

The proposed works to upgrade the W2B section of the Transpennine route network will be the first major programme of work since its construction in the 1840s. The wider public benefits of the upgrade work to this key transport network will be vast and will have positive knock-on effects across the region. The challenging geology and hydrology across the route still present issues to engineers today, and we welcome the work that has gone into investigating alternative options to demolition and reconstruction for the bridges affected.

The proposals will result in substantial harm to the significance of bridges MVL3/7, MVL3/20, MVL3/23, and MVL3/28, with the highest level of harm to bridge MVL3/23 which will be dismantled and not reconstructed. The proposals will cause harm through the loss of the form of the arched bridges and though the loss of historic fabric. There will be the additional harm to the group value of the bridges.

We agree that the bridges are predominantly experienced from the bridge deck, and that re-use of original fabric should be focussed on the inside faces of the parapet walls to ensure the look of the bridge when crossing it is not unacceptably altered, however this re-use of materials does not lower the harm to less than substantial levels. It will be for decision takers to weigh the balance of this substantial harm against the public benefits of the scheme.

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Works to bridges MVL3/8, MVL3/9 and MVL3/17 is largely limited to raising the parapets to ensure they are the safe and correct height. We acknowledge that Network Rail has a legal obligation to take reasonable steps to prevent people from coming into contact with the OLE by ensuring parapets cannot be climbed or walked on. We appreciate the work undertaken to investigate various options for different types of pantographs to limit the height at which the parapets need to be raised to. The use of triangular copers will introduce a change in the appearance of the bridges and cause a low level of less than substantial harm to their significance, but the impact can be lessened by use of stone rather than concrete copers which will be less visually obtrusive. Parapet design should be tailored to the individual circumstances of each bridge to ensure the least harmful solution is used.

There will also be a low level of less than substantial harm at Saddleworth Viaduct from the introduction of brackets to the structure to support the OLE. This can be further lowered by thoughtful spacing of the brackets.

We welcome the detailed options appraisals undertaken during the design of the proposed works to listed structures on the W2B route. We recommend that details are finalised using bespoke designs that respond to the particular character of each structure and its setting.

Next Steps

Thank you for involving us at the pre-application stage of this project. The above advice is the response that we would give if the same proposals were put forward unamended for statutory approval.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

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Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

17 September 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meeting on 27 August to review the proposals for bridges MVL3/7, 8, 17 and 20. It was useful to see the drawings in advance and then talk through the proposals with the team.

The significance of the affected structures has been set out in our letter of 25 June 2024 and won't be repeated here. The impacts of the proposed changes and our comments are detailed below:

MVL3/7 - Heyrod Hall Overbridge
The changes to this bridge involve demolition and reconstruction of the bridge deck and sections of the abutments, resulting in substantial harm to the significance of the bridge. The bridge is built from coursed local sandstone, and the voussoirs have been lightly tooled around the edges to give them definition and add interest to the arch. The proposed changes will result in the total loss of the historic form of this bridge and much of the original fabric.

In order to reduce harm, every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works. We welcome the use of natural cut stone copers.

MVL3/8 - Heyrod/Springbank Lane Footbridge
The appearance of this bridge will change slightly through the introduction of new copers which will increase parapet height. The use of natural stone will help to minimise the appearance of the new copers and mean they were be less obvious. Overall, there will be a very low level of less than substantial harm to this bridge.

MVL3/17 - Roughtown Road Overbridge
This is another bridge where the proposals involve the introduction of new copers

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which will increase parapet height. The changes here will be more noticeable than at MVL3/8 but still constitute a low level of less than substantial harm.

In order to minimise harm, it will be necessary to carefully design the ends of the new sections of coping stones to manage how they interact with the piers of the bridge. The piers are topped by shallow pyramidal caps, which currently form a prominent feature of the bridge's architecture. There is a danger that the definition of these caps will become lost if the new copers butt up to them. This mitigation could be achieved by either terminating the new copers short of the piers, or by raising the height of the pier caps so they remain prominent.

Additional mitigation should involve repairs to the fabric of the parapet walls, including removal of the cement kerb section and bollards, which will no longer be needed once the road is one-way.

MVL3/20 - Wright's Mill Overbridge
The proposals for demolition and reconstruction of this bridge will result in a substantially altered structure and substantial harm to the significance of the listed asset.

The historic form and materials of this bridge are very similar to MVL3/7, and the proposed construction works are also comparable, however the proposed parapet at MVL3/20 will be noticeably taller due to the bridge's use as a bridleway. The proposal drawings show the ends of the new copers sharply sloping down towards the piers of the bridge.

As advised with MVL3/17 above, care should be taken in the design and integration of these copers so they complement the existing structure and do not appear overly obvious. As with MVL3/7, we advise that every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works.

Next Steps

I look forward to reviewing the next series of proposals for other parts of the scheme.

Yours sincerely

Louise Davies

POSITIVE ABOUT DISABLED PEOPLE
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Historic England

Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, Tony Gee and Partners, August 2024

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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

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Historic England

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Wright's Mill Overbridge (MVL3/20) – Heritage Statement

Rule 10(6)(d)

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Conditions 3
1.4 Summary of proposal 5
2. LEGISLATION AND POLICY CONTEXT 6
2.1 Legislation 6
2.2 National Policy 7
2.3 Local planning policy 10
3. ASSESSMENT METHODOLOGY 16
3.1 Research 16
3.2 Significance and setting 16
4. CONSULTATION 17
5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE 27
5.1 History of the W2B Transpennine Route 27
5.2 Wright's Mill Overbridge (MVL3/20) 29
5.3 Surrounding heritage assets 38
6. PROPOSALS 41
6.1 Background to proposals 41
6.2 Design development and justification 42
6.3 Development of Preferred Option 44
6.4 Description of proposals 50
7. IMPACT OF PROPOSALS 54
7.1 Wright's Mill Overbridge (MVL3/20) 54
7.2 Other heritage assets 55

7.3 Mitigation 55

7.4 Public benefit 57

8. CONCLUSION 59

9. REFERENCES 62

APPENDIX A – LOCATION PLAN 64

APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION 65

APPENDIX C -HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS 68

List of Tables

Table 4-1 Consultation for Wright's Mill Overbridge (MVL3/20) 17

Table 6-1 Optioneering for Wright's Mill Overbridge (MVL3/20) 43

Table 6-2 Summary of bridge deck design optioneering 46

Table 6-3 Summary of parapet design options 48

Table 6-4 Coping stone optioneering 49

List of Inserts

Insert 1-1 Wright's Mill Overbridge (MVL3/20) lower mileage (south) elevation 4

Insert 1-2 Wright's Mill Overbridge (MVL3/20), water seepage visible on arch soffit. 4

Insert 1-3 Wright's Mill Overbridge (MVL3/20), spalling on soffits. 5

Insert 1-4 Wright's Mill Overbridge (MVL3/20), open joints and vegetation to southern parapet 5

Insert 5-1 1:10,560 County Series 1899-1904 Map showing Wright's Mill Overbridge (MVL3/20) 30

Insert 5-2 1905 Historic Line Plans produced by LNWR showing Wright's Mill Overbridge (MVL3/20) 30

Insert 5-3 1:10,560 County Series Map 1904-1907 showing Wright's Mill Overbridge (MVL3/20) 31

Insert 5-4 1:10,560 County Series Map 1923 showing Wright's Mill Overbridge (MVL3/20) 31

Insert 5-5 1:10,560 County Series Map 1938 showing Wright's Mill Overbridge (MVL3/20) 32

Insert 5-6 1:10,560 County Series Map 1956 showing Wright's Mill Overbridge (MVL3/20)..32

Insert 5-7 1:10,560 County Series Map 1982 showing Wright's Mill Overbridge (MVL3/20)..33

Insert 5-8 Wright's Mill Overbridge (MVL3/20), south elevation (Network Rail, 2022). 34

Insert 5-9 Wright's Mill Overbridge (MVL3/20), north elevation (Network Rail, 2022). 34

Insert 5-10 View east across the deck of Wright's Mill Overbridge (MVL3/20). 35

Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level.....41

Insert 6-2 Visualisation of Wright's Mill Overbridge (MVL3/20) looking across the bridge deck. 51

Insert 6-3 Visualisation of Wrights Mil Overbridge (MVL3/20) from aerial perspective 51

Insert 6-4 Proposed Elevation Wright's Mill Overbridge (MVL3/20).....52

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancement) Order extends from Stalybridge Tunnel in the west, through to the western portal of Standedge Tunnel (the "Scheme"). This section of the Transpennine Route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a listed building.

The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to 'call-in' for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade ll listed Wright's Mill Overbridge (MVL3/20) (NHLE 1452406). Wright's Mill Overbridge (NGR SD9786003652) is located in Mossley on the border of Oldham Borough Metropolitan Council (OMBC) and Tameside Borough Metropolitan Council (TMBC), approximately 1.6km to the south of Greenfield Station. A location plan is provided in Appendix A. Due to the structure straddling the boundary of two Local Planning Authorities, identical applications for listed building consent are being submitted to both OMBC and TMBC.

1.1.7 The Historic England list description (included in full in Appendix B) names the listed building as "Railway Overbridge MVL3/20 Wright's". Throughout this Heritage Statement the structure is referred to as "Wright's Mill Overbridge (MVL3/20)".

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for this assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF 2025), specifically paragraph 207, which seeks an assessment proportionate to the importance of the affected heritage asset and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail's requirement to provide an objective assessment of the heritage value of assets that may be affected by the Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;
- Present the design requirements of the Scheme at the structure;
- Present the process of development and optioneering which has led to the design proposal for the Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Scheme weighed against the impact on the significance of the structure, in line with the NPPF, the Tameside Unitary Development Plan (2004), and the Oldham Local Development Framework (2011).

1.3 Current Conditions

1.3.1 Wright's Mill Overbridge (MVL3/20) is a mid to late 1840s masonry overbridge, designed by Alfred Stanistreet (A.S.) Jee for the Huddersfield and Manchester Railway (Insert 1-1). The overbridge is situated in the Roaches / Quick area to the north of Mossley, c. 6.7 km east of Oldham and comprises a single segmental-arched bridge, currently carrying a footpath over the Transpennine Route.

Insert 1-1 Wright's Mill Overbridge (MVL3/20) lower mileage (south) elevation

1.3.2 The structure was subject to detailed examination as part of the Network Rail's maintenance regime in August 2017, which identified that structure is in fair condition albeit with minor defects. A more recent visual inspection was undertaken in July 2022 identified no change in the overall condition of the structure. Minor defects identified in the detailed report include:

- Open joins, seepage and soot staining on the arch soffits (Insert 1-2);
- General weathering on the arch wing, abutments, bedstones, cills and wingwalls;.
- Scraped stonework on the upside haunch of the arch soffit;
- Isolated open joints on the parapets and spandrel walls (Insert 1-4);
- Signs of waterproof failure and seepage to the soffit and down the abutment; and
- General weathering, isolated joints, and dense vegetation on the wing walls.

Insert 1-2 Wright's Mill Overbridge (MVL3/20), water seepage visible on arch soffit.

Insert 1-3 Wright's Mill Overbridge (MVL3/20), spalling on soffits.

Insert 1-4 Wright's Mill Overbridge (MVL3/20), open joints and vegetation to southern parapet

1.4 Summary of proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the Route is required. This would require the alteration of a number of existing bridges, including Wright's Mill Overbridge (MVL3/20) to accommodate OLE, higher line speed and increased freight trains. Following optioneering, it has been determined to be necessary to reconstruct Wright's Mill Overbridge (MVL3/20). The works will therefore enable the implementation of the Order Scheme.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) ("Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'*In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—*

a) any object or structure fixed to the building;

b) any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

'(1) Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

(2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving and enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

(3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates listed building consent that conditions attached may include those with respect to:

a) ' the preservation of particular features of the building, either as part of it or after severance from it;

b) the making good, after the works are completed, of any damage caused to the building by the works; [and]

c) the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.

2.1.5 It is also defined in s.17 (2) that a condition '*may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him*'.

2.1.6 The Act also states in s.66 (1):

'*In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'*.

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective 'to protect and enhance our natural, built and historic environment'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' which includes guidance on plan making, managing Historic Environment Records; how to determine proposals affecting the historic environment; and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance.'*
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance*.'
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

    a) Grade II listed buildings, or grade II registered parks and gardens, should be exceptional.'

    b) Assets of the highest significance, notably scheduled monuments, protected wrecks, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.*

- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

    a) the nature of the heritage asset prevents all reasonable uses of the site; and

    b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

    c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

d) the harm or loss is outweighed by the benefit of bringing the site back into use.'

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.'*
- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*
- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably*.'

Planning Practice Guidance

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that 'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

2.3.1 Oldham Joint Core Strategy and Development Management Policies

2.3.2 Local planning policy for Oldham Metropolitan Borough Council (OMBC) is provided by the Joint Core Strategy and Development Management Policies of the Oldham Local Development Framework, adopted in November 2011, and a small number of retained policies from the Unitary Development Plan (2006).

2.3.3 Policy 24 relates to the Historic Environment and is reproduced in full below:

Policy 24 Historic Environment

'Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

- National and local guidance and policies on the historic environment.
- Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.
- Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.
- Conservation Area Appraisals and Management Plans, where appropriate.

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

a) Listed buildings.

b) Conservation areas.

c) Registered parks and gardens (their historic character and setting).

d) Scheduled ancient monuments (their archaeological value and interest).

e) Significant archaeological remains.

2.3.4 *Locally significant buildings, structures, areas or landscapes of architectural or historic interest (including non-designated locally significant assets identified in the local lists compiled by the council).*

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional. Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.*

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

Significant archaeological remains.

Locally significant buildings, structures, areas or landscapes of architectural or historic interest'.

Tameside Unitary Development Plan

2.3.5 The Tameside Unitary Development Plan is part of the statutory Local Plan policies for the Tameside Metropolitan Borough Council (TMBC) which provides the set of planning policies which make up the current local plan.

2.3.6 The Tameside Unitary Development Plan sets out local planning policies that 'provide a framework for development and conservation over the whole of the Tameside area, to set out the main considerations on which planning applications in the Borough are determined, and to guide land use decisions by the Council and other agencies'.

2.3.7 Policies within the framework which are relevant to this Heritage Statement are outlined below.

Policy C Conservation and Enhancement of the Built Environment.

Policy C1 Townscape and Urban Form

In considering proposals for built development, the Council will expect the distinct settlement pattern, open space features, topography, townscape and landscape character of specific areas of the Borough to be understood, and the nature of the surrounding fabric to be respected. The relationship between buildings and their setting should be given particular attention in the design of any proposal for development.

Urban design frameworks will be produced for particular areas and corridors in the Borough, as supplementary planning guidance, setting out fundamental principles which should be followed and from which detailed design may be interpreted.

The Council will establish a strategy to secure the retention and enhancement of landmark buildings which form a distinctive element of the local skyline or townscape, and which represent a unique part of the heritage of the area. Re-use and conversion of such buildings which become redundant will be permitted, subject to other relevant policies.

Policy C5 Alternative Uses, Alterations and Additions for Listed Buildings

Whilst continuation of the use for which the building was designed is most desirable, the Council will permit alternatives uses for Listed Buildings where evidence demonstrates that the existing or original use is unlikely to support the maintenance and preservation of the building.

The Council will require that proposed new uses, or other alterations and additions to Listed Buildings, should not adversely affect the essential character of the building, should be in keeping with its architectural style and features, and should harmonise with its surroundings. The effect of the proposals on any protected species which may be using the Listed Building should also be taken into account.

Such development must be of a high standard of design. The external appearance, design and materials will be expected to match as near as possible those of the existing building and, where appropriate, new internal features should also harmonise with the existing.

Extensions and additions should be secondary in scale, design and location to the principal building and standard solutions or modern features which fail to relate to the character of the building will not be permitted

Policy C6: Setting of Listed Buildings

New development, including any proposed as a result of a new use for a Listed Building, which fails to preserve, or detracts from, the setting of a Listed Building or structure will not be permitted.

Policy C8 Demolition of Listed Buildings

The Council will not recommend the demolition of Listed Buildings, apart from in exceptional circumstances after the following considerations have been assessed:

the condition of the building and the cost of repairing and maintaining it in relation to its importance and to the value derived from its continued use, and

the adequacy of efforts that have been made to retain the building in its present use or to find compatible alternative uses, and

the merits of alternative proposals for the site.

In such circumstances the Council will also need to be satisfied that an acceptable alternative form of development can go ahead on the site as soon as practical following demolition, that any use of the building by protected species has been taken into account, and that provision can be made to record the detail of the building prior to demolition

Places for Everyone

2.3.8 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Tameside and Oldham, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

Setting out a clear vision that recognises and embeds the role of heritage in place-making;

Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;

Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;

Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and

Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are

protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.9 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (2019).

2.3.10 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the 'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance' (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.11 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an

asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.12 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Wright's Mill Overbridge (MVL3/20). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a walkover survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 of May 2024.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England. Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in Annex 2 of the NPPF

as historical interest, archaeological interest, artistic interest, and architectural interest. In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence; and
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England, Oldham Metropolitan Borough Council (OMBC) and Tameside Metropolitan Borough Council (TMBC) have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of TRU.

4.1.2 Regular meetings with both Historic England, OMBC and TMBC have been held to discuss design development of the proposals in relation to Wright's Mill Overbridge (MVL3/20). Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall route and design development for all listed structures within Route Section W2B.

4.1.3 The design development of the Scheme in relation to Wright's Mill Overbridge (MVL3/20) was discussed during meetings with the statutory stakeholders on the dates outlined in Table 4 1

Table 4-1 Consultation for Wright's Mill Overbridge (MVL3/20)

Date	Stakeholder in attendance	Key agreements/items discussed
2 March 2021	• OMBC • Historic England	• An overview of the optioneering for MVL3/23 which also included some optioneering for MVL3/20. • Presentation of options to stakeholders comprising: o Track Lower and retention of bridge with raised parapets; o Footbridge reconstruction; and o Bridge reconstruction.

Date	Stakeholder in attendance	Key agreements/items discussed
2 March 2021	• TMBC	• Overview of structures at GRIP 3 stage including Wright's Mill Overbridge (MVL3/20) and presentation of preferred option which included: o Sympathetic reconstruction of arch, while retaining existing parapets. Use of bridge as a bridleway will be taken into consideration with the parapet heights.
26 May 2021	• Historic England • OMBC • TMBC • Kirklees Council	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II overbridges and underbridges which are noted for their inherent significance, particularly as essential railway structures. The group value of the bridges was identified as a key contributor to significance. • Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. The proposed reconstruction of MVL3/20 was presented, due to the potential level of impact this structure was flagged as red on a RAG scale. Reassurance was provided to the councils that they will be involved in the GRIP 3 design process which will be used within the detailed design development of GRIP 4 (Single Option Development). Clarification was also provided on the sustainable heritage initiatives. • Historic England stated that they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
2 February 2024	• TMBC	• This meeting was used to outline to members of the Local Planning Authority the significance of MVL3/20, along with site specific constraints and the feasibility study of potential options. • The principle for reconstructing the bridge as the preferred option was established.

Date	Stakeholder in attendance	Key agreements/items discussed
		• Discussion took place regarding the proposed form of the reconstructed deck, with a filler beam being the preferred option. • The options for parapet construction were presented. However, given that MVL3/20 is an active bridleway it is acknowledged that the height of the parapet will need to be 1.8 m.
6 February 2024	• Historic England	• Details of the challenges of the electrification of the route in relation to listed overbridges were presented. Design measures under consideration for addressing these challenges noted to include: o Reduced voltage clearances; o Development of scheme-specific pantograph, reducing electrical clearances to a minimum; o Site specific risk assessments of bridges due to reduced overhead wire heights; o Electrical protection works; and o Risk-based approach to raising parapets. Where safe to do so, 1.5 m height parapets may be employed, rather than standard 1.8 m height. • This approach has been embedded in designs for W2B. • The design approach for electrification across / under existing railway bridges was noted to have agreed in principle by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage. • The approach to bridge reconstruction was outlined, with key design aspects discussed including: o Retention of existing approach walls; o Visibility of new concrete elements to be minimised through the use of masonry cladding; o Stringcourse detail incorporated into the form of the edge beam; o Reclaimed stone used to clad interior of parapet; natural stone used to clad exterior; o Coursing of cladding to tie in with existing stonework as far as reasonably practicable; and

Date	Stakeholder in attendance	Key agreements/items discussed
		○ Where reclaimed stone cannot be reused, natural stone of matching size and colour will be used. Confirmation that the design optioneering will be undertaken in consultation with Historic England.
5 March 2024	• Historic England	• Presentation of information on the background and optioneering process for Wright's Mill Overbridge (MVL3/20) including the justification for the preferred option. • Network Rail presented discussion about parapet height given that the bridge is used by equestrians which would require the parapet to be 1.8 m however seeking opportunity to reduce height to 1.5m to minimise visual impact.
9 April 2024	• Historic England	• Presentation of information on proposals for the bridge, identifying that works to Wright's Mill Overbridge (MVL3/20) would require a reconstruction.
15 April 2024	• Historic England	• Letter provided to Historic England summarising outcome of meetings on 5th March and 6th April 2024 which discussed proposals for MVL3/20 and sets out the matters agreed. • Agreement that MVL3/20 is not suitable for retention due to existing constraints and challenges, and the identification of reconstruction as the preferred option being agreed with Historic England.
7 May 2024	• Historic England	• Agreement in principle with Historic England on the principle of reconstruction at Wright's Mill Overbridge (MVL3/20).
14 May 2024	• TMBC	• Presentation of approach for copers for MVL3/20. As part of the reconstruction of the bridge, the new copers will be designed to tie in with the existing approach walls. • Preferred solution for new copers is coloured concrete which was in support by Historic England.
24 May 2024	• TMBC	• This meeting was used to outline to members of the Local Planning Authority (following changes in personnel) the significance of Wright's Mill Overbridge (MVL3/20), along with site specific constraints and the feasibility study of potential options.

Date	Stakeholder in attendance	Key agreements/items discussed
		• Overview of listed structures subject to listed building consent, including MVL3/20 Wright's Mill Overbridge and the electrification challenges. • Confirmed that the bridge is not clear for electrification or freight and track lowering is not a viable option given the shallow depth of bedrock and proximity of underbridge and therefore reconstruction design was progressed. • Identification of reconstruction constraints including site access. • Council expressed preference for use of stone on the underside of the bridge, and the retention of as much original material as possible
24 June 2024	• OMBC	• Presentation of optioneering of Wright's Mill Overbridge (MVL3/20). Challenges and considerations taken into account included the existing electrical clearance, which was found to be foul on both lines, desire to accommodate freight clearance and the geological challenges. ○ Option 1: Reconstruction: - Standard solution for all listed structures and agreed in principle with Historic England. The approach walls would be retained, and the arch span reconstructed as a flat span for better gauge clearance. Stone will be reclaimed and reused were possible for cladding, and matching stonework will be used where this is not possible. - Works would be undertaken track side using railway crane. - Council expressed intention to mitigate potential impacts and to ensure the new construction is as close as possible to the existing. Though there was a desire to retain the string course, it was deemed unsafe by Network Rail standards. ○ Option 2 Track Lowering: - This option would require significant rock removal, extensive track works, as well as reconstruction of Midge Hall Underbridge (MVL3/19). However, this is not acceptable to Network Rails' stakeholders. ○ Option 3 – Footbridge reconstruction:

Date	Stakeholder in attendance	Key agreements/items discussed
		- Replace the existing overbridge with a footbridge made of metallic components similar to elsewhere on the railway line. ○ Option 4 – Removal: - This would require significant diversion of the bridleway. • It was concluded that option 1 was the preferred option and outstanding question for whether LBC is required for both councils.
25 June 2024	• Historic England	• Pre-application advice letter from Historic England identifies that the reconstruction of MVL3/20 would result in substantial harm to the significance of the bridge (Appendix C.1). • Historic England summarised that substantial harm would arise from the loss of the form of the arched bridges and through the loss of historic fabric, with additional harm identified to the group value of the bridges. • It was agreed that reclaimed stone should be focussed on the inside faces of the parapet to minimise the degree to which the alteration of the bridge is experienced from the deck. • Historic England concluded that it will be for the decision taker to weigh the balance of the identified substantial harm against the public benefit of the Scheme.
8 July 2024	• TMBC	• Written response from TMBC on proposed alteration of listed railway bridges identifying the following requirements: ○ Proposed works to listed bridges should be kept to the minimum necessary to facilitate the Scheme and ensure their continued use and enjoyment, whilst retaining as much as practicable of their individual character and appearance. ○ Any replacement stonework and/or new stonework (copings, for example) should be in natural stone.

Date	Stakeholder in attendance	Key agreements/items discussed
		○ Internal elevations of the bridge should be 'clad' or constructed with natural stone. ○ All new stonework at bridge level should respect the colour, texture, form to the existing and follow the same coursing pattern. ○ Any application for listed building consent should be supported by a Heritage Statement prepared in accordance with the NPPF. • Listed building consent drawings to clearly identify on plan and in a methodology / specification details of works including repair work, fencing, and the extent of reconstruction of MVL3/7 and MVL3/20.
27 August 2024	• Historic England	• This meeting was used to present the draft listed building consent drawings to Historic England and to discuss the proposals presented in the drawings for MVL3/20. • It was confirmed that the approach to MVL3/20 would take on a similar approach to MVL3/7 which would use natural stone for the cladding and coping of the proposed concrete elements (other than the edge beam which needs to be visible for inspection). Efforts would be made to tie the coursing of cladding in with the retained sections as best as possible, informed by point cloud data held for the existing structure. • There was discussion of potential methodology for bridge demolition and how this may impact on the level of masonry able to be salvaged. • The parapet height for MVL3/20 would need to be 1.8 m given that it remains in active use as a bridleway.
3 September 2024	• TMBC	• Presentation of visualisations of the structures, including MVL3/20. • Parapet height for the bridge will be required to be 1.8 m to meet the safety requirements given it remains in use as a bridleway.
17 September 2024	• Historic England	• In their pre-application advice letter Historic England confirmed demolition and reconstruction of Wright's Mill Overbridge (MVL3/20) would result in substantial harm to the significance of the bridge (see Appendix C.2). • Careful retention and reuse of stonework for reuse in order to reduce harm was highlighted. Where new stone is required, it was noted that this should

Date	Stakeholder in attendance	Key agreements/items discussed
		be as close a match as possible to the original fabric. • Coursing should match existing fabric to minimise the visual impact of the works. • The use of natural stone cut copers would be welcomed.
28 March 2025	• TMBC	• Consultation to go over the draft Heritage Statements. Comments raised, during this meeting and have since been actioned include: • Request for inclusion of Historic England feedback in appendix to the Heritage Statements • Request for condition surveys subject to Network Rail's approval • Request for further emphasis of public engagement in the reports • Given that Wright's Mill Overbridge lies within the jurisdiction of both TMBC and OMBC, it was suggested by OMBC that a single local authority take on the LBC application in which TMBC agreed.
2 April 2025	• OMBC	• Presentation of overview of the aims and objectives of TRU to OMBC heritage officers, with emphasis on the historic context of Route Section W2B and the 12 listed building consents applications which are being prepared for the various works to the grade II listed bridges and viaduct along the route section. • Presentation of overview of electrification challenges caused by the existing arch profile of a number of existing bridges and have developed bespoke solutions for these to achieve the required clearance. • Overview of the current status of each structure within OMBC's jurisdiction, including the reconstruction of Wright's Mill Overbridge (MVL3/20). • Network Rail explained that the current structure is not clear for electrification or freight, and track lower is not viable at its location, as such the removal and reconstruction of the structure is the preferred option. The design for the new would tie into the existing wing walls and have parapet heights of 1.8m given that it is a bridleway.

Date	Stakeholder in attendance	Key agreements/items discussed
4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits. • Historic England were content with the assessment of significance for all structures, and noted that the optioneering tables were helpful. Historic England requestion for further details on the heritage interpretation as part of the heritage benefits.
12 May 2025	• OMBC	• Presentation of proposals for Wrights Overbridge (MVL3/20) to OMBC heritage officers which were noted to be justified and required. • Level of harm to the structure noted to be substantial, but weighed against the substantial public benefits delivered by the Scheme. • Need for protection of reclaimed stone during demolition and transport noted by OMBC, along with the need for sample panels to demonstrate quality of pointing for reconstruction. • Position of the bridge on the boundary of Tameside and Oldham Metropolitan Councils noted to potentially require submission of consent applications to both councils.
24 June 2025	• OMBC	• Pre-application advice letter received from OMBC outlining local planning authority advice following review of the draft listed building consent application material. • OMBC found that the reconstruction of Wright's Mill Overbridge (MVL3/20) would result in substantial harm through the loss of its historic form and much of the original fabric. • OMBC highlight that clear and convincing justification will be required for any harm arising to designated heritage assets, with substantial benefits required to outweigh substantial harm. • A high level of harm was also found to the group value of the bridges designed by A.S Jee on the TransPennine Route, due to the proposed demolition of Wright's Overbridge (MVL3/23) and reconstruction of four other bridges (including Wright's Mill Overbridge (MVL3/20), and a limited

Date	Stakeholder in attendance	Key agreements/items discussed
		level of harm to group value arising from the alteration of three other structures.
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs under Wright's Mill Overbridge (MVL3/20) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age (1841-50) of railway building (Historic England, 2017). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774km to 11,703km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after its authorisation (Alan Baxter Associates, 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is 'indisputably significant as a major engineering achievement' (Alan Baxter associates, 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Wright's Mill Overbridge (MVL3/20) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at over three miles long was one of the longest and most difficult in

England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine Route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine Route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine Route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associated, 2019). This was produced to characterise the overall heritage significance of the Transpennine Route as a whole.

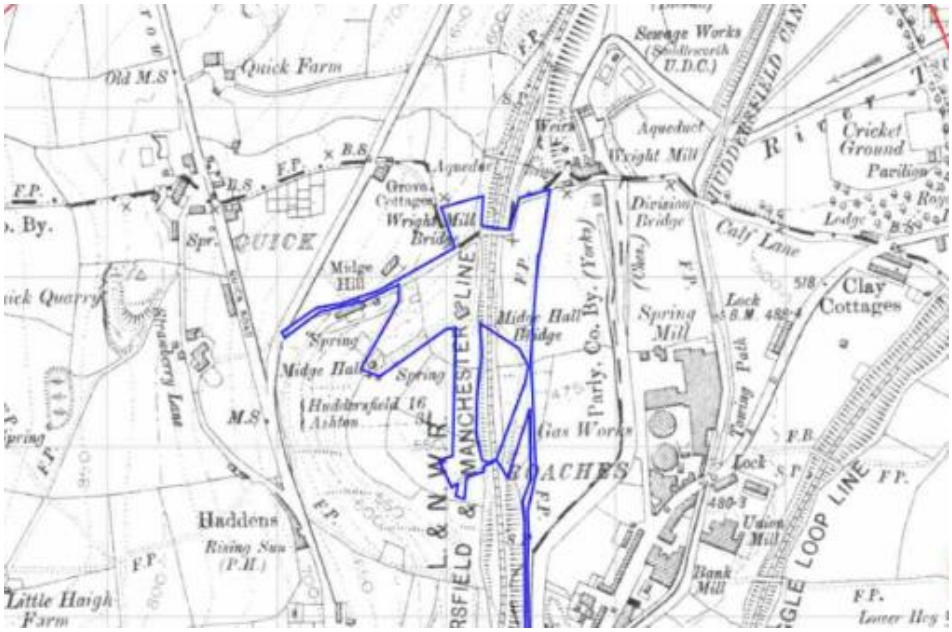
5.2 Wright's Mill Overbridge (MVL3/20)

History

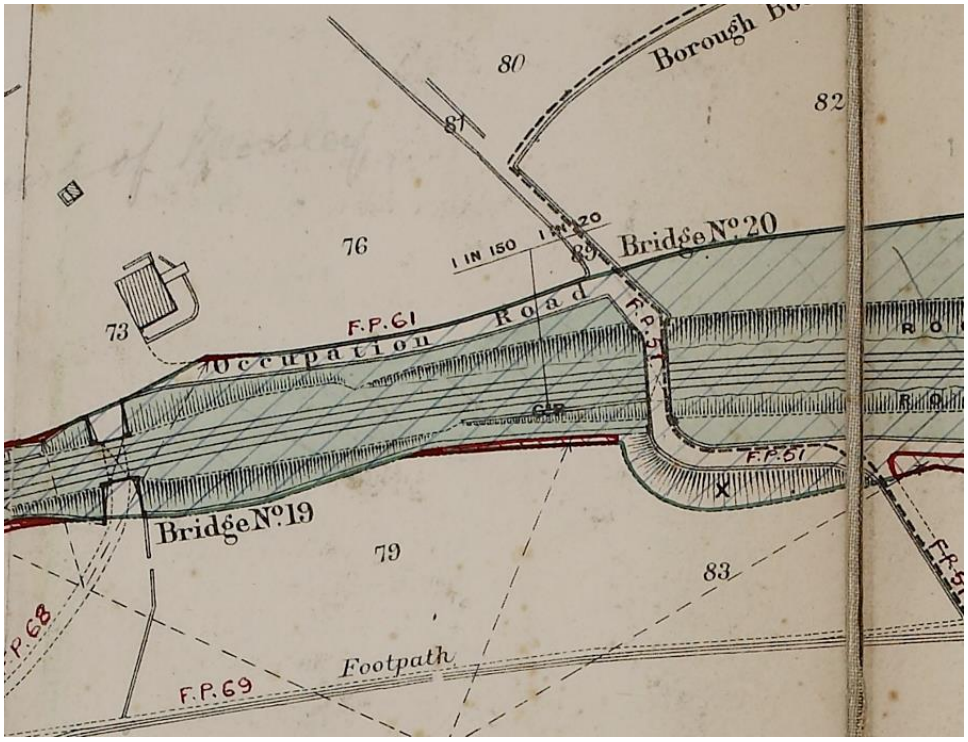
5.2.1 Wright's Mill Overbridge (MVL3/20) was constructed between 1845 and 1849 during the Heroic Age of railway building. The single-span bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway and is situated on the historic county boundary which today forms the boundary between Tameside and Oldham.

5.2.2 The bridge is shown carrying a track labelled as Quick Mill Bridge on OS map of 1854 (not reproduced here), likely due to its proximity to Quick Mills, a small cotton mill to the north east of the overbridge, and some development along Midge Hill. At this time, the overbridge was named Quick Mill Bridge. It was located within a predominantly rural environment with dispersed settlement and some small scale industrialisation which forms part of the wider industrial character of the area. A similar situation is shown on the County Series Map of 1899 (Insert 5-1), when the bridge is labelled as Wright Mill Bridge, due to its proximity to the woollen mill to the east of the bridge which is now labelled as Lower Quick or Wright Mill.

5.2.3 Subsequent map editions reveal a similar morphology, with industrial development and gravel extraction focussed along the valley bottom, adjacent to the River Tame and the Huddersfield Narrow Canal, and the surrounding hills remaining as enclosed fields with a dispersed pattern of farms and houses (see Insert 5-3Insert 5-3 1:10,560 County Series Map 1904-1907 showing Wright's Mill Overbridge (MVL3/20) to Insert 5-7). By the early 21st century, the industrial sites along the valley bottom were largely redeveloped with housing, with the building of Wright's Mill to the east of the bridge converted to residential use. Wright's Mill Overbridge (MVL3/20) is shown to have remained in use carrying a bridleway over the railway line.

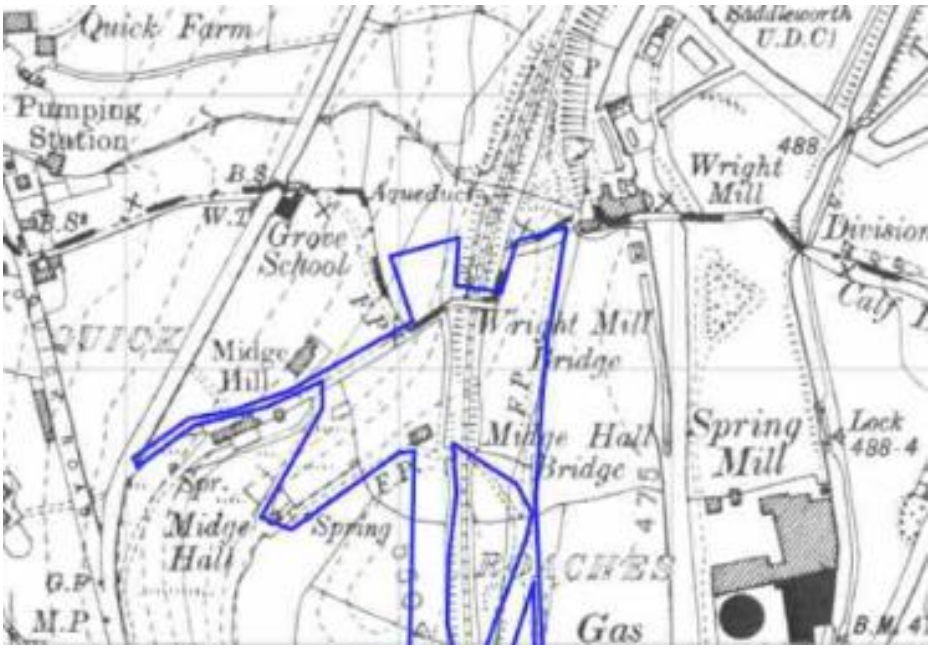


Insert 5-1 1:10,560 County Series 1899-1904 Map showing Wright's Mill Overbridge (MVL3/20)

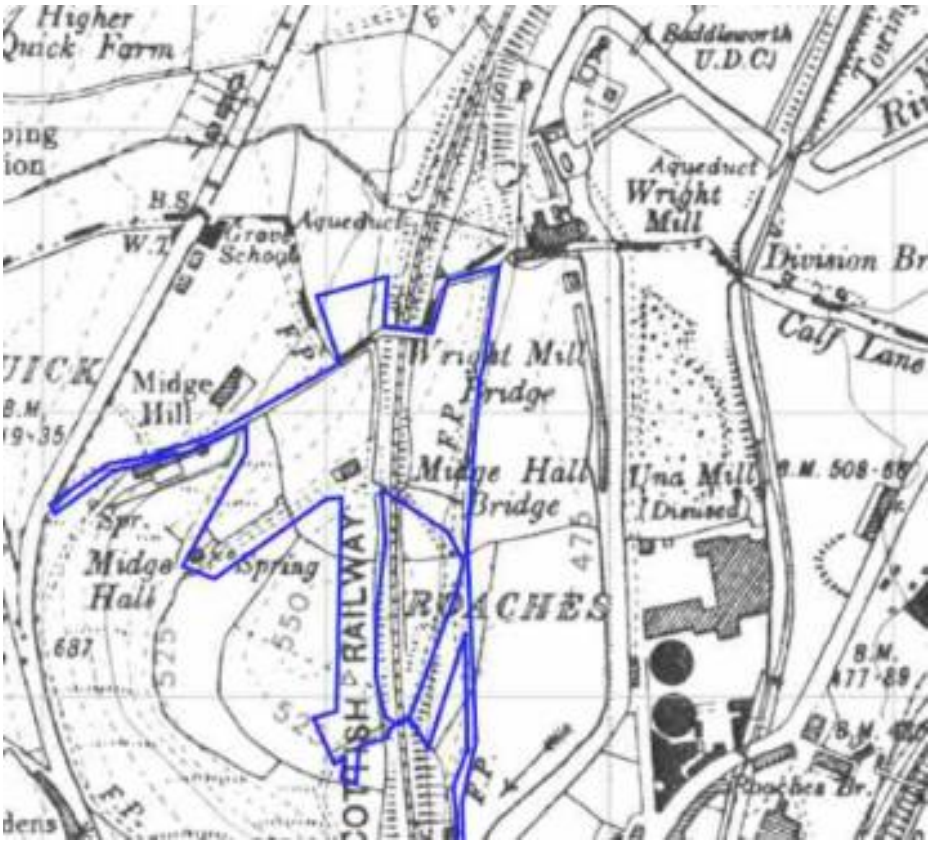


Insert 5-2 1905 Historic Line Plans produced by LNWR showing Wright's Mill Overbridge (MVL3/20)

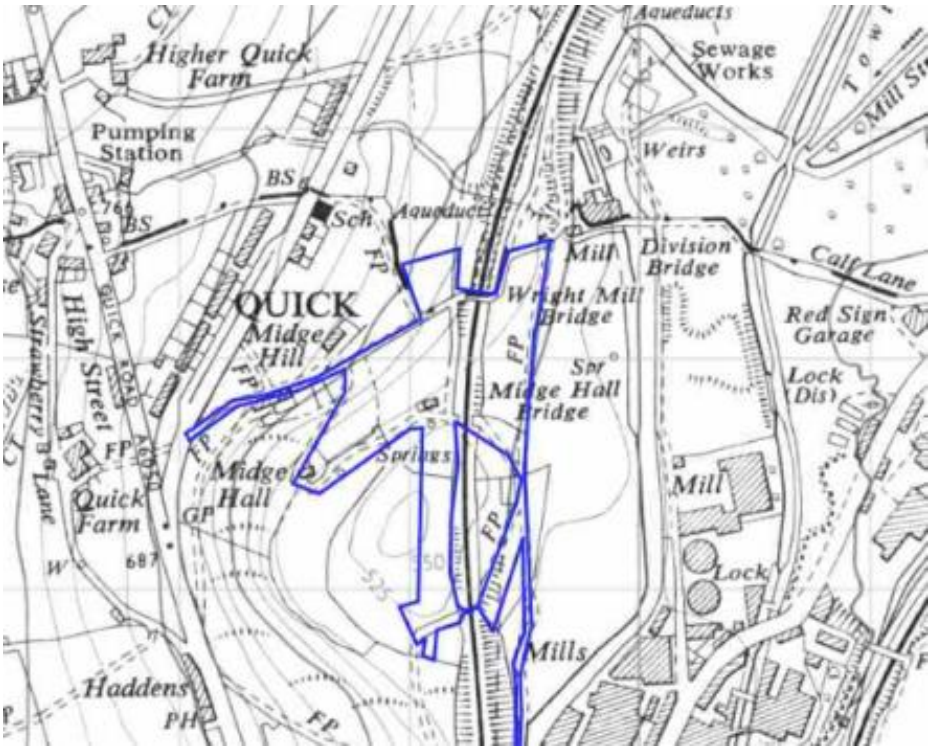
Insert 5-3 1:10,560 County Series Map 1904-1907 showing Wright's Mill Overbridge (MVL3/20)



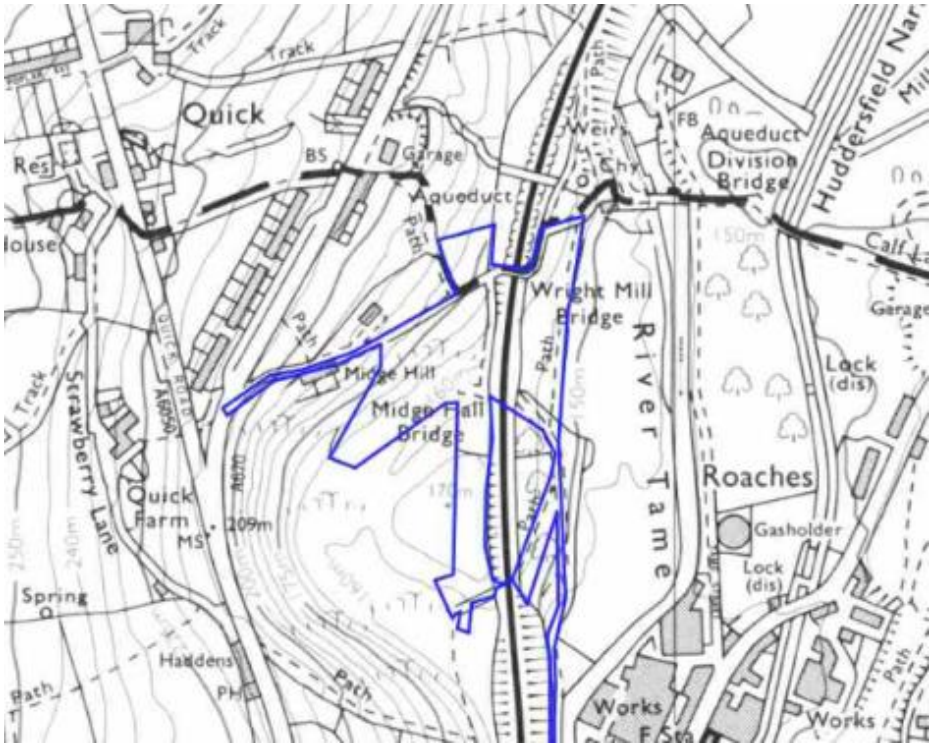
Insert 5-4 1:10,560 County Series Map 1923 showing Wright's Mill Overbridge (MVL3/20)



Insert 5-5 1:10,560 County Series Map 1938 showing Wright's Mill Overbridge (MVL3/20)



Insert 5-6 1:10,560 County Series Map 1956 showing Wright's Mill Overbridge (MVL3/20)



Insert 5-7 1:10,560 County Series Map 1982 showing Wright's Mill Overbridge (MVL3/20)

Description

5.2.4 Wright's Mill Overbridge (MVL3/20) comprises a single segmental-arched bridge with battered abutments. The overbridge is aligned east to west, sloping downwards towards the east due to the gradient of the local topography, and spans the two-track railway line which is set within a steep cutting. The bridge survives in its original form, with limited evidence of alteration.

5.2.5 The overbridge is constructed in regular-coursed, quarry-faced buff sandstone. It is formed by a segmental arch, which springs from ashlar impost bands. The arch is formed by rusticated v-jointed gritstone voussoirs the keystone of which breaks the line of the arch both above and below, a common design feature with bridges on this route. The voussoirs continue as quoins to each corner of the abutments. The abutments are raked with squared and coursed quarry-faced spandrels. Above the segmental arch is a squared ashlar string course with coped parapet. The abutments terminate in shallow piers with pyramidal caps. The bridge deck is now much overgrown with vegetation (Insert 5-10).

5.2.6 The setting of Wright's Mill Overbridge (MVL3/20) has undergone some change since it was first constructed. The overbridge would have historically been associated with Wright's Mill as per their shared name. However, the removal of the mill in the mid-20th

century, and subsequent development along Midge Hill would have removed some of the historic integrity of its setting. That being said, the overbridge continues to provide a historic linkage between Calf Lane and Midge Hill over the railway and retains its historic use as a bridleway/footbridge. Views to and from the bridge also enable for an appreciation of its rural setting and location within a cutting of the Pennine landscape. Views north and south from the bridge deck also enabled an appreciation of its relationship with the historic railway.

Insert 5-8 Wright's Mill Overbridge (MVL3/20), south elevation (Network Rail, 2022).

Insert 5-9 Wright's Mill Overbridge (MVL3/20), north elevation (Network Rail, 2022).

Insert 5-10 View east across the deck of Wright's Mill Overbridge (MVL3/20).

Significance

5.2.7 Wright's Mill Overbridge (MVL3/20) was designated as a grade II listed building in March 2018. The Historic England List Entry description identifies the bridge to be of special interest for to the following reasons:

- Historic interest:
    - Constructed during the Heroic Age of railway building and a little-altered example of an 1840s overbridge on what is now one of the main railway lines in northern England.
    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - The bridge is well-detailed with ashlar impost bands and string course, and piers and voussoirs with tooled margins, that lift its design above the purely functional.
- Group value:
    - With the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

5.2.8 Wright's Mill Overbridge (MVL3/20) is of significance as a largely unaltered example of an 1840s overbridge, dating from the Heroic

Age (1841–50) of railway building and the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield & Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route (see paragraphs 5.2.11 to 5.2.14), give the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.9 Wright's Mill Overbridge (MVL3/20) derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. Architectural elements such as the ashlar impost bands and string course as well as piers and voussoirs with tooled margins and the quality of workmanship across the structure are notable features of Jee's design which elevates the structure above the purely functional. The design language used is consistent with other bridges along this section of the Huddersfield & Manchester Railway, contributing to the understanding of the group value of these related structures. The bridge survives in its original form, with limited evidence of intervention or alteration, and remains in use for its original purpose. The structure still reveals Jee's original design intent and this is a strong contributing factor to its significance.

5.2.10 Wright's Mill Overbridge (MVL3/20) does not derive particular significance from its setting. Its relationship with the railway is a key component of its setting given that the bridge continues to span the railway cutting, retaining a close physical and functional relationship with the railway. Given it location within a deep cutting, views of the bridge are limited, however it is an active bridleway and footpath which enables appreciation of its relationship with the railway looking north and south. To this effect, the setting of Wright's Mill Overbridge (MVL3/20) makes a minor contribution to its overall significance.

Group value

5.2.11 As identified in the list description, Wright's Mill Overbridge (MVL3/20) is recognised to be of group value with other listed structures designed by A.S. Jee on the Huddersfield & Manchester Railway[1]. These comprise:

[1] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade, and will be demolished and replaced with a new structure (ref

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Spring Bank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wrights Overbridge (MVL3/23) (grade II listed, NHLE 1452409);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Overbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Saddleworth Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 1223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641);and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[2].

2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

[2] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

5.2.12 Of these bridges, four are of particularly similar form to Wright's Mill Overbridge (MVL3/10). These bridges comprise segmental arched bridges of stone construction, which are similarly detailed architecturally. These four overbridges comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242).
- Spring Bank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241).
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405).
- Wrights Overbridge (MVL3/23) (grade II listed, NHLE 1452409).

5.2.13 The group value which Wright's Mill Overbridge (MVL3/20) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age of railway building (1841-50) more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it) as coherent features of a single historic route.

5.2.14 Masonry railway bridges across the historic Huddersfield & Manchester Railway route have been characterised as being of local or regional interest, depending on their architectural quality, contribution to wider historical interest of the route, and their group value. It has been noted however that, as a group, they are not of substantial national interest due to their dating from a period of railway development when thousands of similar structures were erected (Alan Baxter Associates, 2019).

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated heritage assets

5.3.2 A total of two listed buildings are present within 250m of Wright's Mill Overbridge (MVL3/20). These comprise:

- 7, 9, 11 and 11A, Midge Hill (grade II listed, NHLE 1162827), a terrace of three, polite three-storey houses built in the late 18th century, located c.160m to the south-west.
- Huddersfield Narrow Canal Division Bridge (grade II, NHLE 1309462), a roving canal bridge built between 1794 and 1797

to the design of the engineer Benjamin Outram, located c.240m west.

- Numbers 7, 9, 11 and 11A, Midge Hill (NHLE 1162827) are located on the bridleway to the west of Wright's Mill Overbridge (MVL3/20).

5.3.3 The houses do not draw any contribution to their significance from the presence of the bridge. Predating the railway by c. 50 years, views from their principal elevations look to the south, away from the bridge.

5.3.4 The setting of the Huddersfield Narrow Canal Division Bridge (NHLE 1309462) is defined by its position on the canal, and it does not have any visual relationship with the railway bridge. As such, these structures do not have any relationship with Wright's Mill Overbridge (MVL3/20) and do not contribute to each other's significance.

Non-designated heritage assets

5.3.5 The Greater Manchester Historic Environment Record (HER) records six non-designated heritage assets within 250m of Wright's Mill Overbridge (MVL3/20), two of which duplicate the listed buildings identified under Designated Assets above. The remaining asset comprise the following:

- Wright Mill (6045.1.0) is located c. 130 m north-east of the overbridge. This mill complex has largely been demolished and the remaining structures converted to residential use. It does however have a historic relationship with the railway bridge given that it was named after the mill, likely due to their proximity.
- Midge Hall (site of) (17442.1.0) is located c. 210 m to the south west of the overbridge. The hall was first identified on OS Map of 1854 and appears in subsequent maps throughout the 20th century. The structure, however was cleared in the late 1970s to early 80s and remains an undeveloped site.
- Grove Sunday School (former) (17909.1.0) is located c. 150 m to the north west of the overbridge. The structure was established in 1843 to accommodate the New Connexion Methodists Sunday School until 1845 when the building was sold and converted to residential accommodation. The structure is two storeys with attic and stone slate roof and its main entrance fronts onto Mosley Road facing north.
- County boundary stone (former) (17910.1.0) is located c.175m to the north west of the overbridge. It would have been established in 1885 by Mossley Borough Council to identify the boundary between Lancashire and Yorkshire and featured

inscriptions which identified this. The stone was defaced in the Second World War. The boundary stone remains in-situ, though its inscriptions are not as visible.

5.3.6 Midge Hall (17442.1.0), Grove Sunday School (former) (17909.1.0) and The County Boundary Stone (former) (17910.1.0) do not retain a historic relationship with the railway or Wright's Mill Overbridge (MVL3/20). Though glimpses of the bridge can be seen, the overbridge does not make any contribution to its setting given the intervening landscape features and distance between these.

5.3.7 In addition to the non-designated assets recorded by the Greater Manchester HER, two additional non-designated heritage assets have been identified on the Transpennine route. These comprise:

- Midge Hall Underbridge (MVL3/19) is located over the railway alignment c. 100 m to the south of Wright's Mill Overbridge (MVL3/20). The underbridge consists of semi-circular arch which is stepped with rusticated quarry-faced voussoirs with a continuous tooled margin. The soffits have been line with concrete, and modern railings were added to the ashlar parapets. The underbridge remains visible from the setting of Wright's Mill Overbridge and contributes towards the legibility of the historic railway.
- Water Trough (MVL3/21) is located c. 90m to the north of Wright's Mill Overbridge (MVl3/20). The water trough was established in the c. 1900 and was rebuilt in c. 2005 with a steel replacement. The water trough remains visible within the setting of the overbridge.

5.3.8 Midge Hall Underbridge (MVL3/19) and the Water Trough (MVL3/21) are located along the railway and contribute towards the legibility of the historic railway alignment. Though both structures have limited significance given that they been subject to unsympathetic works, their retention within the landscape and operational use as part of the contemporary railway network contributes towards the legibility of the historic railway.

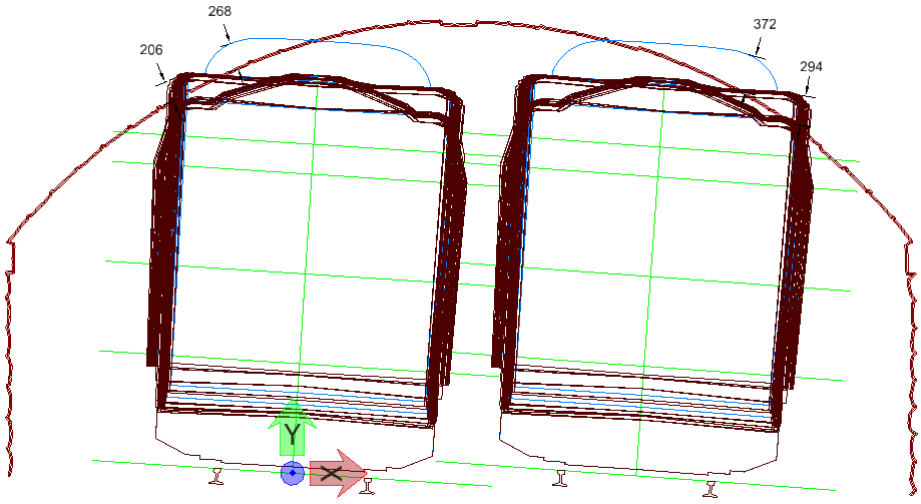
6. PROPOSALS

6.1 Background to proposals

6.1.1 In order to achieve the TRU Programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. This necessitates the installation of overhead lines along Route Section W2B.

6.1.2 Inadequate clearances to safely install OLE has been recognised as a challenge across much of TRU, preventing the installation of overhead lines below some existing overbridges. To reduce the requirement for intervention into the structures along the route as far as possible, a Scheme-specific pantograph has been developed which enables the use of reduced overhead line wire height under structures, subject to site-specific risk assessment. A number of structures along the route also do not provide adequate gauge clearance for the required freight trains on the route, the requirement for which has been considered as part of the design development process.

6.1.3 Insert 6-1 shows that even with use of the Scheme-specific pantograph, there would still be significant clash between OLE and Wright's Mill Overbridge (MVL3/20). Similarly, the bridge does not have the required freight gauge clearance. A process of design optioneering to identify the optimal solution has been undertaken.



Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level.

6.2 Design development and justification

6.2.1 Design development for Wright's Mill Overbridge (MVL3/20) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has also involved engagement with Historic England, TMBC and OMBC. This iterative and robust process ensured the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultees.

6.2.2 Based on Network Rail's extensive experience delivering comparable schemes, six options were identified for further consideration. As introduced in 6.1, the option of retaining the structure without undertaking any works would prevent the delivery of the TRU Scheme. This option was therefore discounted at an early stage. The remaining five options comprised:

1. Track lower: lowering the height of the track to achieve the required headroom while retaining the existing bridge.

2. Bridge jacking: increasing the height of the bridge through structurally lifting the arch barrel up from the abutments. This would require diagonal cuts to be made to separate the arch barrel from the abutments, lifting the arch, infilling of the resulting gaps and refacing.

3. Bridge reconstruction: removal of the bridge arch and replacement with a deck providing sufficient clearance

4. Footbridge reconstruction: replacing the existing overbridge with a basic footbridge to meet Network Rail standards.

5. Bridge removal. Demolition of the existing bridge and divert the footpath/bridgeway from Midge Hill to the west to Calf Lane to the east.

6.2.3 A summary of the optioneering undertaken for these options is summarised in Table 6-1 Optioneering for Wright's Mill Overbridge (MVL3/20).

Table 6-1 Optioneering for Wright's Mill Overbridge (MVL3/20)

Option	Key Considerations	Advantages	Disadvantages	Preferred
1) Track lower	• Sufficient clearance needs to be achieved to enable electrification of the line and allow freight gauge clearance. • Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service. • The bridge spans a railway cutting with a steep hillside on its eastern extent and is only accessible from narrow lanes and pedestrian/bridleway paths. This would restricts the accessibility of construction vehicles and the delivery of materials / components getting to the site. • Ground investigation has revealed rock to be present at shallow depth within the railway cutting. There is currently no functional track drainage at this location. • Lowering of ground level within the cutting has the potential to undermine the bridge foundations and cutting retaining walls or to necessitate significant engineering works to ensure their stability. • The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Buildings & Conservation Areas) Act 1990.	• Lowering of the track would enable retention of the bridge with raising of the parapets undertaken prevent access to OLE.	• To achieve the required vertical minimum clearance of 4665mm, the track would have to be lowered by 500mm for a distance of 260m. Due to the shallow depth of rock at this location, this is a substantial engineering operation. • Underpinning of the bridge and stabilisation of the retaining wall would be required due to the shallow depth of their foundations. Underpinning may present risks to the listed building due to changes to the structural performance of the historic structure. • These interventions would require lengthy line possessions to remove the rock, underpin the bridge and stabilise the retaining walls. This would result in significant disruption to the railway and incur considerable public expenditure.	N
2) Bridge jacking		• This option would enable the retention of the listed bridge. The abutments, deck and parapet would be retained, although in altered form.	• Bridge jacking for masonry arch bridges is a relatively untested methodology, having been delivered on very few historic structures to date. The feasibility of jacking masonry arch structures relies on optimal site conditions, where a high level of control can be achieved and long timescales allowed for implementation. The long-term viability of this option is currently unknown.. • Bridge jacking would incur extensive disruption to railway users, requiring all works be delivered on site and little scope for off-site construction. • The location of the bridge over a cutting with limited access has significant limitations for execution of a bridge jacking operation. • Raising of the bridge arch would impact the form and appearance of the structure, interrupting architectural features such as the stringcourse and the stone coursing pattern across the parapet, detracting from its architectural value and integrity.	N
3) Bridge Removal		• Removal of the bridge would minimise disruption to the railway network and provide a cost effective solution	• This option would result in the complete removal of the bridge and the loss of a grade II listed structure. • Removal of the bridge would permanently remove road access between Midge Hill and Calf Lane and would necessitate the provision of new road access across the railway.	N
4) Footbridge replacement		• Reconstruction of the existing arch span with a basic footbridge to meet Network Rail standards which would enable continued use pedestrian use over the railway in this location. • Historic masonry can be reclaimed from removal of the bridge arch and parapets and reuse on the new footbridge aiding integration of historic and modern fabric and reduce the visual impact of the reconstruction works. • Reconstruction as a footbridge can be delivered substantially from track level. This would minimise the need for construction access by road at this constrained site.	• Reconstruction of the bridge would result in the loss of the historic bridge arch. Though a footbridge would be built in its place which would retain the historic alignment of the bridge this would not be a contributing element of the historic railway. • Would not be suitable to be used as a bridleway (which is its current use) given the narrow width of the standardised LMZ bridge form and the natural surface suitable for horses would also be removed. • Would result in a difference in form and legibility.	N
5) Bridge Reconstruction		• Reconstruction of the bridge would enable the preservation of some elements of the historic structure, through the retention and reuse of the bridge abutments in conjunction with the new bridge deck. • Historic masonry can potentially be reclaimed from removal of the bridge arch and parapets and reuse on the reconstructed structure aiding integration of historic and modern fabric and reduce the visual impact of the reconstruction works. • Reconstruction of the bridge can be delivered substantially from track level. This would minimise he need for construction access by road at this constrained site. • The installation of a preconstructed deck would minimise railway possession time and disruption to the railway network.	• Reconstruction of the bridge would result in the loss of the bridge arch and a portion of the parapets and abutments. This would result in the removal of a significant proportion of the historic bridge, substantially altering its form and appearance, and negatively impacting the integrity of the structure.	Y

6.2.4 Option 1 track lower, and option 2 bridge jacking would both have enabled retention of the maximum amount of historic fabric. However, these options were discounted due to the difficulty of delivering these at this constrained site and due to the significant cost and disruption required. Additionally, option 2 was also discounted given the uncertainties around the long term viability and largely untested nature of this method. Option 3 bridge removal was discounted on account of the negative impact on the significance of the listed overbridge, the equestrian and pedestrians users, as well as its group value. Option 4 footbridge replacement was discounted due to the impact on heritage significance as a result of the loss of the historic arch span and form. This option was also deemed unsuitable/unsafe for use as a bridleway given that the deck would be too narrow for equestrians and require higher parapet and natural surfacing. As such, Option 5 bridge reconstruction, was identified as the preferred option to achieve the required clearance of Wright's Mill Overbridge (MVL3/20). Whilst this option would result in significant alterations to the listed bridge, it was found to represent the most deliverable solution. This took into account the constrained nature of the site; the aims of the TRU Scheme; minimising disruption to the railway network and enabling retention of historic fabric as far as possible.

6.3 Development of Preferred Option

6.3.1 Design development was subsequently undertaken to mitigate as much as possible the potential impact of reconstruction on the heritage significance of Wright's Mill Overbridge (MVL3/20).

6.3.2 The sympathetic approach taken to bridge reconstruction during the restoration of the Huddersfield Narrow Canal prior to its reopening in 2001 was considered as a 'Reference Design'. The reconstructed masonry canal bridges are in proximity to Route Section W2B of the Transpennine route and successfully integrated reconstructed bridges within the historic character of the canal corridor. It was recognised by heritage stakeholders that the reconstruction of these canal bridges had successfully achieved designs which respond to the significance of the historic bridges.

Form of Replacement Deck

6.3.3 A number of constraints which had the potential to influence the feasible options for the replacement deck design were identified. These have shaped the choice of the form of the proposed replacement deck. These constraints can be summarised as follows:

- Geometric constraints

- Gauge clearance – the minimum distance of clearance required between the soffit of the deck and the proposed OLE.
    - Narrow deck width - the width of the deck is dictated by the bridge abutments and alignment of the highway.
- Construction constraints
    - Lift limit <30t – due to the layout of the site which has limited highway access and its constraints within a cutting, there is limited access for a large capacity crane at road level, therefore all bridge components are proposed to be delivered from the track and installed with use of a railway crane, with a maximum lift weight capacity of 30t.
- Minimisation of disruption to pedestrians and bridleway users .
    - Minimisation of disruption to railway users caused by railway line closures. Shift hours are limited by the window within which work can be safely completed while minimising impact on railway users.

6.3.4 Three forms of bridge deck were considered as potential options for the reconstruction of Wright's Mill Overbridge (MVL3/20):

- Network Rail standard Conarch.
- Portal deck; and
- Filler beam construction.

6.3.5 These are presented in the Table 6-2 below.

Table 6-2 Summary of bridge deck design optioneering

Option	Assessment	Preferred	Indicative Photo
1 – Standard Conarch	A standard Conarch is a portal bridge consisting of standardised precast concrete frames which conform with Network Rail's specification. Where the specification requirements are met, these precast units can be transported to site and installed quickly and efficiently to form a portal overbridge, with deck cast *in-situ* to form a continuous structure. The use of standardised Network Rail Conarch bridge (precast concrete arch) is not considered feasible at this site and was discounted at an early stage, primarily due to its geometric constraints. The required narrow deck and retention of the alignment of the footpath would not allow Network Rail technical standards to be met. The lifting capacity limitations due to the use of a railway crane also discounted the use of standard Conarch edge beams due to their weight.	N	
2 – Portal	A portal bridge consists of a series of precast concrete frames which are then transformed to site and installed, with deck cast *in-situ* to form a continuous structure. Unlike a standard Conarch, portal bridge can be designed to bespoke dimensions, allowing site specific geometry to be accommodated. A portal would accommodate site geometry and its form would to a degree reference the form of the existing arch form. However, lift weight limitations and the requirement for a separate parapet beam for this option would impact the level of the bridleway and reduce verge width. The portal would result in a larger area of visible concrete, reducing the degree to which they could be sensitively integrated with the retained masonry elements of the structure. Portal structures would also require bespoke beam design at each site, reducing standardisation between the proposed new bridge decks on Route Section W2B, increasing costs of the publicly funded works.	N	
3 – Filler beam	A filler beam deck consists of a concrete slab with longitudinal reinforced steel beams. This form of construction accommodates site geography, minimises the required lift weights, maximises the extent of works that can be undertaken off-site, and standardises the beam design between sites. The potential standardisation offered by sympathetically integrated filler beam decks along Route Section W2B would maintain a degree of consistency of design between the structures. This consistent design response to the challenge of electrifying the route could be viewed as part of the next chapter for the management of this section of the Transpennine route.	Y	

6.3.6 The filler beam deck was selected as the preferred design option, and further consideration was given to ensuring the proposed works would be sympathetic to the existing aesthetic of the structure.

6.3.7 In order to visually integrate the proposed precast concrete riser unit with the retained masonry abutments, it is proposed to clad their external faces with natural stone. The underside of the new deck would not be clad, the benefit of cladding this element would be extremely limited given the lack of visibility of the underside of the deck. Cladding would also present a number of safety risks namely, the introduction elements that may fall onto the railway corridor should they fail over time, the obscuring of critical structural elements that require routine inspection, and the introduction of an additional construction activity that would be undertaken at height and within the railway corridor. Similarly, it is proposed that the new filler beam deck includes a feature line which would tie in with the stringcourse of the existing structure. These integrated design elements respond to specific features of the existing structure that contributes to its character and architectural interest.

Parapet design

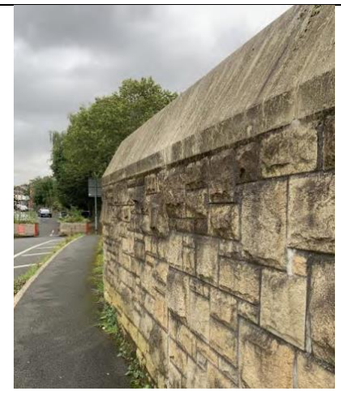
6.3.8 The new parapet design required a height of 1.8 m given that the overbridge remains in active use by pedestrians and horse riders and would need to adhere to Network Rail's safety standards whilst responding to the significance of the existing bridge. Numerous options for the proposed new parapet design were considered, these options are summarised in Table 6-3.

6.3.9 Further optioneering was then undertaken to identify a suitable material for the bridge copers, as set out in Table 6-4.

Table 6-3 Summary of parapet design options

Option	Core	Road Facing Elevation	Track Facing Elevation	Assessment	Preferred	Indicative photo
1	Concrete	Concrete with liner finish	Concrete with liner finish	• Pre-cast concrete parapet with exposed concrete liner on both sides of parapet. • This option would not be considered to result in a sensitive addition, with extensive amounts of concrete visible in views of and across the bridge.	N	
2	Concrete	Natural stone cladding	Concrete with liner finish	• Pre-cast concrete parapet with exposed concrete liner on track facing elevation and stone cladding installed to highway-facing elevation. • This option would not be considered to result in a sensitive addition, with extensive amounts of concrete visible in views of the bridge.	N	
3	Concrete	Reclaimed stone cladding (as far as possible), newly quarried natural stone cladding where required	Natural Stone cladding	• Pre-cast concrete parapet with natural stone pre-cast into track-facing parapet off-site and natural stone cladding installed on bridleway side. Stone reclaimed from the existing bridge could be used to clad footpath-facing elevation as far as reasonably practicable. • This option is considered to represent the optimum balance between constructability, safety and a design sensitive to the significance of the structure.	**Y**	
4	Steel framework	Natural stone	Natural stone	• This option comprises natural stone blocks built up in courses with joints reinforced by a stainless steel framework which is cast into the concrete edge beam. • Due to the time limitation and safety implications of working in an active railway corridor coupled with the minor difference in appearance between Option 3 and 4, this option has not been progressed.	N	
5	Masonry	Rebuilt from original stone	Rebuilt from original stone	• Due to the time limitation and safety implications of working in an active railway corridor coupled with the minor difference in appearance between Option 3 and 5, this option has not been progressed. The quantity and quality of the stone able to be reclaimed from the site is also considered a limiting factor.	N	

Table 6-4 Coping stone optioneering

Option	Advantages	Disadvantages	Indicative image	Preferred
Option 1 – Natural Stone	• Natural stone would be sympathetic to the historic character of Wright's Mill Overbridge (MVL3/20), in keeping with its architectural interest. • Natural stone copers would represent an honest intervention, with the form of the stones readable as a response to the electrification challenge, while sympathetically integrating with the existing and historic character of the bridge. • Over time, this material would weather to further integrate with the existing and proposed masonry elements.	• Natural stone is the heaviest of the three options with a density of 25 kN/m3, requiring consideration in the design of the structural elements of the parapet units and connection with deck. • The weight of natural stone also requires special consideration be given to manual handling safety protocols. • This option is determined to be the most expensive of the three options due to costs for quarrying and fees for masonry contractors.		**Y**
Option 2 – Coloured Concrete	• Lighter material than natural stone with a density of 18 kN/m3. • Concrete can be coloured to achieve a close visual match to the adjacent masonry coping stones • This material would weather over time, increasing the similarity in appearance between coloured concrete and the existing masonry • Coloured concrete copers would be relatively cost effective, reducing the cost of this publicly funded project	• Introduction of modern material, would represent a departure from the materials historically used for coping stones. • While relatively sympathetic this material would risk negatively impacting on the architectural interest of the Wright's Mill Overbridge (MVL3/20).		N
Option 3 – Glass Reinforced Plastic (GRP)	• Lighter material than natural stone. • Cost effective material, reducing the cost of this publicly funded project.	• There would be a stark visual disparity between the GRP copers and historic fabric, detracting from the architectural interest of Wright's Mill Overbridge (MVL3/20). • GRP copers would not weather or soften in the way natural stone or concrete would, with the difference in material continuing to detract from the character of the historic bridge. • Of the options considered, GRP copers would result in the highest level of harm to the character of the bridge		N

6.3.10 Option 3 parapet design presented in Table 6-3 was selected as the preferred option and progressed to design given that it would ensure the proposed parapets visually integrate with the retained elements of the existing bridge, while enabling a degree of off-site construction and has been progressed to detail design. This approach would realise safe working for operatives constructing the Scheme at this location by avoiding working at height over the railway line. It would also successfully reduce the time required for line possession compared to other options, thereby minimising disruption to railway users. This option also presents the opportunity to use reclaimed stone on the bridleway-facing elevations where possible, which would to a degree, mitigate adverse impacts arising from the work.

6.3.11 Option 1 – Natural Stone was determined as the preferred option for the coping stones. As summarised in Table 6-4, the specification of natural stone copers would contribute to the high-quality finish forming one of the factors embedded into the design which partially mitigates against the high level of harm arising from reconstruction. The use of natural stone copers and cladding would provide visual consistency for the reconstructed span and help to integrate the retained masonry structure with the proposed new span.

6.3.12 The recommended minimum parapet height required for bridleway bridges over electrified railway is generally 1.8 m. Whilst deviation from this standard can be achieved based on a site-specific risk assessment, due to the narrow width of Wright's Mill Overbridge (MVL3/20) and the height of horse riders crossing the bridge, a parapet height of 1.8 m has been identified to be required at this structure to ensure the safety of bridge users.

6.3.13 During removal of the existing arch, retention of historic fabric will be maximised as far as possible. Masonry reclaimed from the removal of bridges along the W2B Route will be assessed for its suitability for reuse as cladding.

6.4 Description of proposals

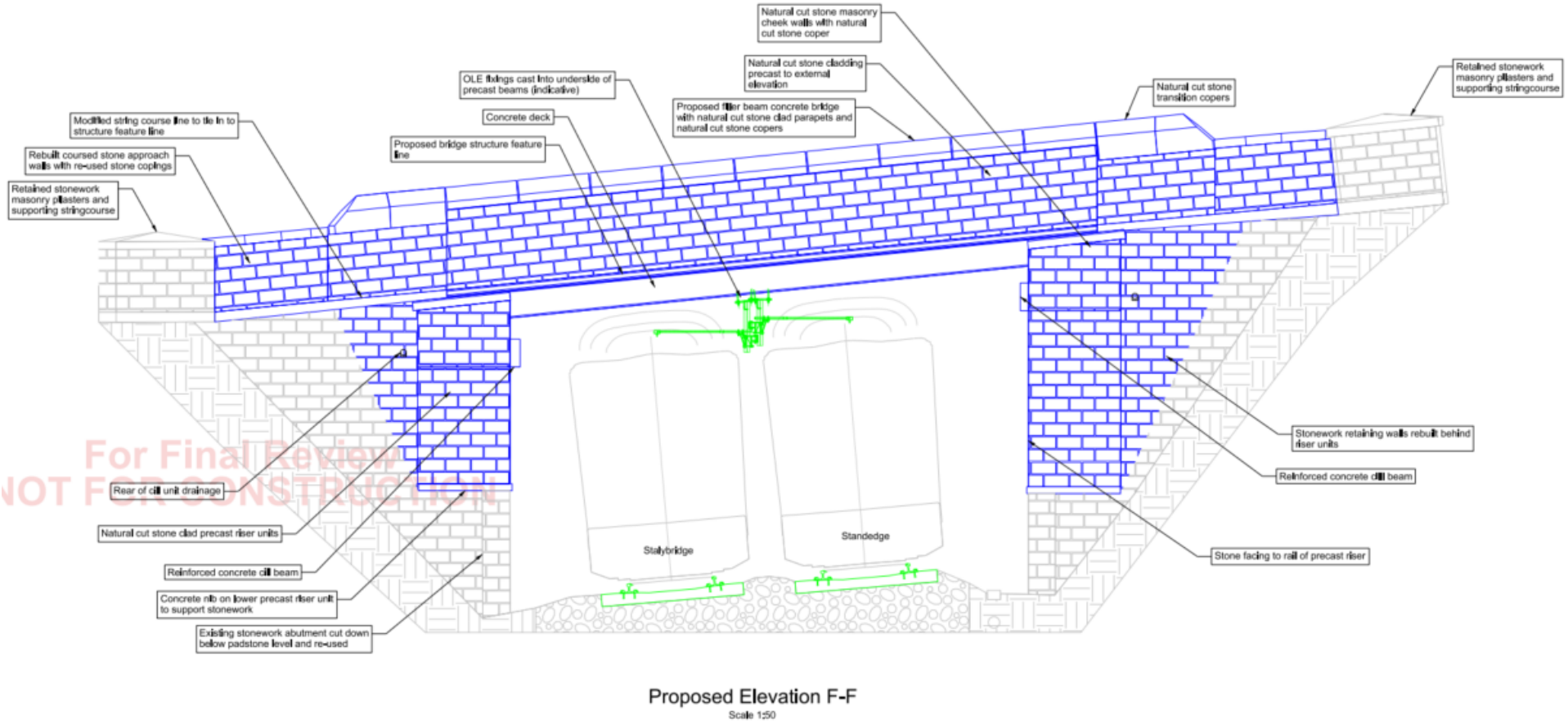
6.4.1 It is proposed to remove the existing deck, parapet and arch span of the grade II listed Wright's Mill Overbridge (MVL3/20) and reconstruct the bridge using a new filler beam span, with both the new parapets and structural elements designed in a style which responds to the architectural significance of the existing historic structure.

6.4.2 Removal of the existing masonry deck, arch and parapet would be undertaken, minimising the extent of demolition as far as possible and retaining any suitable fabric for reuse as far as possible.

6.4.3 The reconstructed bridge would consist of retained masonry abutments beneath the level of the existing impost bands, above which natural stone-clad precast concrete risers would be installed to support the stonework. A concrete filler beam deck would be installed on bearings supported by a concrete cill beam. The deck slab would be cast in-situ using permanent formwork situated between weathering steel bottom flanges of the new steel beams. The precast concrete edge beams of the replacement deck would have integral parapets clad with natural stone with natural stone copers. The external parapet elevation would be clad off site with natural stone masonry cast into its fabric. The internal elevation will be clad with masonry in-situ using stone reclaimed from the existing historic bridge as far as reasonably practicable. Two electrification hazard signs would be attached to the inside face of each parapet, along with a bridge strike sign. External and internal elevations of the parapet would match the colouring, size and coursing pattern of the existing fabric as far as possible. The edge beam design also includes a horizontal feature line which will tie in with the modified and retained existing string course. The footpath would be resurfaced using a granular material.

Insert 6-2 Visualisation of Wright's Mill Overbridge (MVL3/20) looking across the bridge deck.

Insert 6-3 Visualisation of Wrights Mil Overbridge (MVL3/20) from aerial perspective



Insert 6-4 Proposed Elevation Wright's Mill Overbridge (MVL3/20)

Construction Methodology

6.4.4 The proposed works relating to the reconstruction of the overbridge would comprise:

- Locally break down approach walls and excavate behind deck ends in advance of demolition.
- Careful demolition of the existing masonry arch span by removing the masonry arch and cutting down the abutment to underside of springing stone level.
- Reclamation of historic masonry as far as possible with transportation and secure storage at the site construction compound. Stone will be subject to preliminary rapid assessment for potential reuse and then palletised ready for transportation back to site where it will be redressed and used as appropriate.
- Installation of new bridge elements including precast riser units, cill units, bearings, with materials transported to site by rail.
- Install prefabricated beam pair sections for filler beam deck, including edge beams with integral parapets.
- Cast in-situ concrete between beam pairs and topping slab for the bridge deck.
- The stone wingwalls and approach walls will be rebuilt where taken down locally to enable removal of the deck,
- Install deck waterproofing and protective finishes.
- Build in situ stone-facing to interior of the parapets using reclaimed stone as far as possible and install coper units.
- Backfill with engineered fill behind the structure and on approaches up to underside of footpath formation.
- The approach stone walls will be rebuilt, stone copers installed. and the new footpath will be surfaced.

6.4.5 The proposed works to Wright's Mill Overbridge (MVL3/20) are shown in the following drawings which accompany this application:

- Existing and Proposed Plan (167037-TGP-25-MVL3-DRG-T-LP-162013)
- Existing and Proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-162014)
- Existing and Proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-162015)

- Existing and Proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-162016)

7. IMPACT OF PROPOSALS

7.1 Wright's Mill Overbridge (MVL3/20)

7.1.1 The proposed works to the grade II listed Wright's Mill Overbridge (MVL3/20) are required in order to accommodate electrification of the Transpennine route as part of the wider TRU Programme. In order to construct the Scheme, the proposed works would require the removal of most of Wright's Mill Overbridge (MVL3/20) and its reconstruction. This will result in the loss of the majority of the structure, with the extent of retained fabric confined to the abutments, portions of the wingwalls, and pilasters at each end of the bridge parapets.

7.1.2 The proposed works would largely erode the historic and architectural value of Wright's Mill Overbridge (MVL3/20) through its substantial removal. The proposed works would retain the pilasters and portions of the wing wall abutments, maintaining an isolated element of the structure's overall architectural interest, however, their context as part of a little altered structure would be lost.

7.1.3 The proposed intervention will mean the substantial removal of a historic bridge that is part of the infrastructure associated with the Heroic Age (1841-50) of railway construction. It is not only a loss in its own right but also detrimental to the historic character and group value that this structure contributes to as part of the Transpennine railway line.

7.1.4 The proposed reconstruction of the structure would have an impact on the group value of the bridges designed by A.S. Jee on the Transpennine route. The loss of Wright's Mill Overbridge (MVL3/20) would remove one element of this group of 18 bridges designed by A.S. Jee and one of the five bridges which share a common design language. Given that these bridges derive a degree of significance from their group value with each other, the significance of each of the other bridges will therefore be slightly diminished by the removal of Wright's Mill Underbridge (MVL3/20). The impact of these demolitions would amount to less than substantial harm to the retained structures arising from a weakening of the extent to which group value contributes to their significance.

7.1.5 These proposals would therefore result in substantial harm to the significance of Wright's Mill Overbridge (MVL3/20). The development of the design has embedded details to mitigate against this harm wherever possible. Reclaimed masonry cladding and

natural stone copers would visually integrate the new fabric of the proposed deck and parapets with the retained pilasters and approach walls. This consistency of material and finish will reduce the degree to which the proposed change is experienced when moving across the bridge and would realise an opportunity for the sustainable reuse of historic fabric on the reconstructed bridge. Similarly, the inclusion of a stringcourse detail in the proposed concrete edge beam would visually integrate the new structural element with the altered masonry stringcourse. The level of harm arising from the works would remain as substantial, but the careful consideration given to the visual relationship between the proposed and existing elements of the structure would to a small degree offset the potential harm to Wright's Mill Overbridge (MVL3/20).

7.2 Other heritage assets

7.2.1 The proposals would have no direct physical impact on the designated and non-designated assets within the 250m study area around Wright's Mill Overbridge (MVL3/20). Though the reconstruction of the bridge would result in a, albeit minor, change in the setting of 7, 9, 11 and 11A Midge Hill (grade II, NHLE 1162827), such change would not have an appreciable impact given intervisibility is minimal and the bridge would continue to provide bridleway/pedestrian access.

7.2.2 The reconstruction of Wright's Mill Overbridge (MVL3/20) would impact the settings of the non-designated assets of Midge Hall Underbridge (MVL3/19) and the Water Trough (MVL3/21), detracting to a limited extent the legibility of the historic railway in relation to these assets.

7.3 Mitigation

7.3.1 Design proposals were developed through an iterative process which has robustly sought to avoid or reduce the impact on the significance of Wright's Mill Overbridge (MVL3/20). Additional information with respect to these elements of design development is included above in Section 6.2.

7.3.2 Regular consultation with historic environment stakeholders and the design team were held throughout the new bridge's design development process (see Section 4). Historic environment stakeholders, including Historic England, OMBC and TMBC, have been involved in the development of the design mitigation described below.

7.3.3 The design development process has resulted in mitigation being embedded within the design of reconstruction of Wright's Mill Overbridge (MVL3/20). The following design considerations have

been taken into account in response to the magnitude of proposed alteration:

- The use of natural stone cladding to minimise the areas of visible concrete, reflecting the materiality of both the original bridge and many of the other retained structures along the Transpennine route. This approach would ensure natural stone remains the dominant material of the exterior faces of the bridge.
- Salvaged stone from the demolished span will also be considered for reuse on the bridleway-facing elevations of the parapet where feasible.
- The proposed feature line in the precast edge beam would help integrate the newly inserted concrete beam with the portions of string course on the retained pilasters.
- A common approach has been taken to the design of both bridge reconstructions of Heyrod Hall Overbridge (MVL3/7), Wright's Mill Overbridge (MVL3/20) and Oldham Road Overbridge (MVL3/28). It is considered that progressing comparable designs in tandem would enable a coherent approach and would provide a visible reference to the new phase of design upgrades taking place in the 21st century. This is another chapter in the story of the railway's development and improvement.

7.3.4 During construction of the works, toolbox talks to disseminate best practice for reducing potential impacts in relation to construction activity associated with Wright's Mill Overbridge (MVL3/20) would also be delivered, for example to help avoid accidental damage.

Recommended Compensation

7.3.5 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 3 standards in accordance with Historic England guidance (Historic England 2016). This would provide a permanent record of Wright's Mill Overbridge (MVL3/20) in its current form and be lodged with the Greater Manchester Historic Environment Record. This building recording would help to compensate for the harm to significance resulting from the demolition by providing the opportunity to document the structure which will be largely lost as a result of the proposed works. The historic building recording would include:
    - Drawings.

  - Photography.
  - Written account.

- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Wright's Mill Overbridge (MVL3/20). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The reconstruction of Wright's Mill Overbridge (MVL3/20) and resulting substantial harm is considered justified to ensure the realisation of the substantial public benefits of the Order Scheme, in accordance with paragraph 214 of the NPPF.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The reconstruction of Wright's Mill Overbridge (MVL3/20) would directly facilitate the achievement of these aims by creating sufficient clearance beneath the bridge to accommodate electrification and the use of larger gauge trains, delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along

the Route, including reconstruction of Wright's Mill Overbridge (MVL3/20), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed reconstruction would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four 'express', two 'semi-express' services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in 'greener' energy technology. This supports Network Rail's Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the reconstruction of Wright's Mill Overbridge (MVL3/20).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Wright's Mill Overbridge (MVL3/20) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Wright's Mill Overbridge (MVL3/20) lies primarily in its historical and architectural interest. The bridge is a largely unaltered example of a masonry underbridge dating to the Heroic Age (1841-1850) of railway building. The high quality of the bridge's architecture together with the quality workmanship of the construction is characteristic of A.S. Jee's work for the Huddersfield & Manchester Railway. The bridge also derives significance from this direct historical relationship with notable railway engineer A.S. Jee and the historic railway companies namely the Huddersfield & Manchester Railway and LNWR. The setting of Wright's Mill Overbridge (MVL3/20) makes a minor contribution to the significance of the structure. It also possesses group value as one of a number of A.S. Jee structures on the Transpennine route which share a common design language.

8.1.2 A number of design options were pursued to achieve the clearance required for the OLE. The OLE is a fundamental part of the Scheme to deliver a faster service (reduced journey time) and to make provision for electrification and the operation of a 'greener' transport solution. The development of a Scheme-specific pantograph which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment, has not resolved the clash between proposed OLE and the listed structure.

8.1.3 The first range of options were focused on the retention of the bridge and employing engineering solutions to facilitate the Scheme within the current physical confines of the structure. These options included:

- Adjusting the vertical rail alignment through track lowering to provide adequate clearance for the required OLE through the arch of the structure;
- Bridge jacking to increase the height of the arches over the lines to provide sufficient clearances; and

- Footbridge reconstruction with a basic footbridge to meet Network Rail standards, maintaining pedestrian access over the railway in this location.

8.1.4 However, as outlined in Section 6.2, these options did not meet with safety regulations, operational drivers and buildability. Local geology, topography, requirements of the bridleway and access constraints limit the feasibility of delivering the other options considered within the context of the operational railway corridor.

8.1.5 Options were then pursued which accepted the loss of the historic bridge and made attempts to achieve an optimum reconstructed bridge design solution that retained the relationship with the railway and to an extent compensated for the removal of the existing structure. This was done through material choices (use of natural stone cladding referencing the character of the existing bridge); ambition to salvage masonry from the demolished span for use to clad elements of the reconstructed bridge, formation of a horizontal feature line in the concrete edge beams to tie in with the retained section of stringcourse.

8.1.6 The design process has been undertaken in a strongly collaborative manner and has sought historic environment professional support from the outset. The desire to maximise heritage benefits and limit harm was the primary position. Every effort was made to retain this historic structure as part of TRU. However, this was unachievable within the operational parameters set. Regular consultation with historic environment stakeholders and the design team were held throughout the design development process and several mitigation measures have been considered to attempt to avoid or reduce the impact on the significance of Wright's Mill Overbridge (MVL3/20). Historic England, TMBC and OMBC have accepted that the approach of reconstructing the structure is necessary to deliver the proposed Scheme, and that alternative approaches are not viable. The design development process, including engagement with historic environment stakeholders, resulted in mitigation being embedded within the design of the reconstruction as well as compensation measures being agreed, to be secured as conditions of the LBC (see Section 7.3).

8.1.7 With the reconstruction of Wright's Mill Overbridge (MVL3/20), the Scheme can achieve key improvement objectives as outlined in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy

vehicles on the highway network causing traffic issues and contributing to air pollution);

- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and
- Improving public health and safety in providing safe routes across the railway.

8.1.8 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.9 The substantial loss of Wright's Mill Overbridge (MVL3/20), which is a grade II listed building, would result in substantial harm to the significance of the listed building and should be considered exceptional. This will mean the loss of an irreplaceable piece of railway infrastructure, dating to the Heroic Age (1841-50) of railway building. It is also a loss to the collection of A.S. Jee bridges that are located along this section of the Transpennine route.

8.1.10 Whilst the reconstruction of Wright's Mill Overbridge (MVL3/20) is regrettable its loss would be outweighed by the substantial public benefits that accrue from enabling the Transpennine programme to be achieved. The proposals therefore meet the requirements of the NPPF (paragraph 214) in relation to the justification for substantial harm, complies with policy C5 of the Tameside Unitary Development Plan and policy 24 of the Oldham Joint Core Strategy and Development Management Policies. It would also satisfy Policy JP-P2 contained within Greater Manchester Combined Authority's Places for Everyone (2024). The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to the significance of Wright's Mill Overbridge (MVL3/20).

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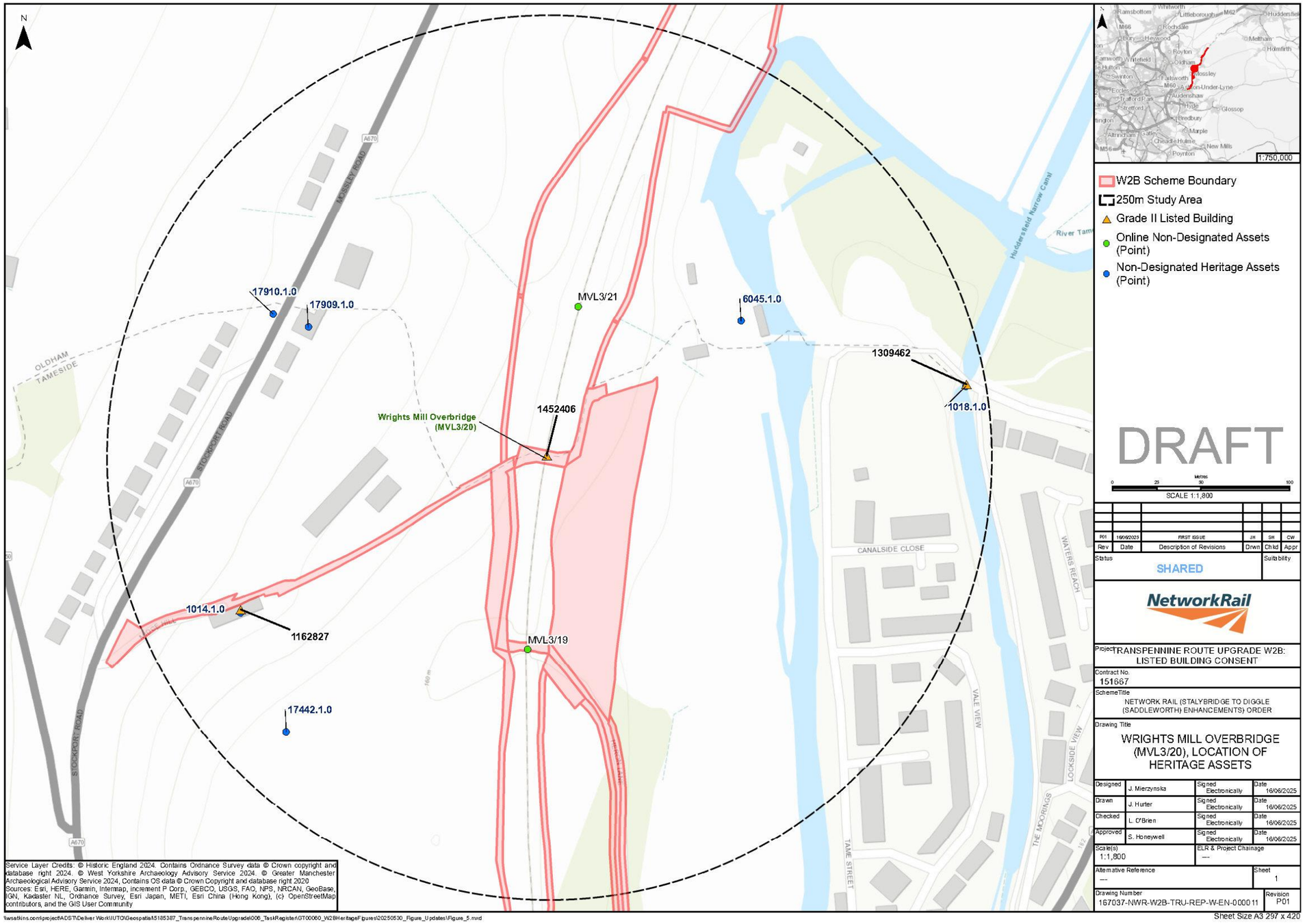
APPENDIX A – LOCATION PLAN



APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1452406
Date first listed:	23-Mar-2018
List Entry Name:	Railway overbridge MVL3/20, Wright's Mill
Location Description:	Footpath from Midge Hill Farm to Calf Lane, Mossley.

Location

The building or site itself may lie within the boundary of more than one authority.

District:	Oldham (Metropolitan Authority)
Parish:	Saddleworth
District:	Tameside (Metropolitan Authority)
Parish:	Mossley
National Grid Reference:	SD9786003652

Summary

Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.

Reasons for Designation

Wright's Mill Bridge (MVL3/20), constructed in the mid-late 1840s by AS Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic interest:

* constructed during the heroic age of railway building and a little-altered example of an 1840s overbridge on what is now one of the main railway lines in northern England;

* designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* the bridge is well-detailed with ashlar impost bands and string course, and piers and voussoirs with tooled margins, that lift its design above the purely functional.

Group value:

* with the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed between 1837 and 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its

structures and track are currently (2018) owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

This overbridge was built to carry the footpath from Midge Hill Farm to Wright's Mill over the railway. It was designed by AS Jee (1816-1858) and dates from the line's construction between 1845 and 1849. It remains as built.

Details

Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.

MATERIALS: buff sandstone.

DESCRIPTION: the bridge carries the footpath from east-west across the railway. Due to gradients it slopes down towards the east. The bridge comprises a single segmental-arched span recessed between battered abutments to either side of the steep cutting, with a parapet.

The stonework is regular-coursed and quarry-faced. The stone of the arch piers and the voussoirs has tooled margins, the keystone breaking the arch above and below. The impost bands, sloping string course above the arch and the chamfered-and-weathered parapet copings are dressed. The abutments curve outwards slightly at all four corners and terminate in slender piers with shallow, pyramidal caps. The arch soffit is narrow-coursed masonry with tooled detailing. The road surface was much overgrown at the date of survey (2017).

Sources

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APPENDIX C -HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

25 June 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the pre-application meetings over the last five months. These have been extremely useful in explaining the significance of the heritage assets, the design team's approach, and in exploring issues and constraints associated with electrifying the track.

This letter covers our advice regarding proposals for change to eight listed railway structures between Stalybridge and Standedge Tunnel, within the Metropolitan boroughs of Tameside and Oldham in Greater Manchester. This section of the railway is referenced as W2B.

Significance

The section of railway between Stalybridge and Standedge Tunnel was constructed in stages between 1844 and 1849. This was at the height of "railway mania"; an intense period of activity when many competing companies formed and were racing to complete sections of railway. The Stalybridge and Standedge Tunnel railway eventually became part of a wider network of sections of track that extends from Selby and York to Manchester Victoria via Leeds.

The W2B route has considerable heritage value. It traverses areas of dramatic landscape and varied geology, and has remained well preserved and largely unaltered since its opening in the 1840s. The wider railway network from the Yorkshire cities to Manchester contributed hugely to the economic and urban development of the North and was a major factor in the industrial revolution and in the development of towns.

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The tricky geology and terrain of the W2B route presented challenges to the engineers of the 1840s, and many of the most notable surviving features of the railway are the impressively engineered bridge and viaduct structures. These structures are predominantly built from locally sourced stone, meaning they harmonise with the landscape and contribute to local views, adding to the aesthetic value of the route. The significance of the structures also lies in the fact that they survive well and in large numbers. There have been few alterations to bridges, mainly because this section of the line has not been widened as other parts of the wider route have been.

There are eight listed railway structures that will be affected by the proposed electrification works between Stalybridge and Standedge Tunnel; these are:

- Heyrod Hall Overbridge - MVL3/7
- Heyrod Footbridge Overbridge - MVL3/8
- Spring Bank Lane Overbridge - MVL3/9
- Roughtown Road Overbridge - MVL3/17
- Wright's Mill Overbridge - MVL3/20
- Wright's Overbridge - MVL3/23
- Oldham Road Overbridge - MVL3/28
- Saddleworth Viaduct - MVL3/31

All eight of the listed structures were designed by notable railway engineer Alfred Stanistreet Jee, lead engineer for the railway between Huddersfield and Manchester. They were built in the mid-late 1840s and share many architectural characteristics, adding to their group value and enhancing their significance.

Bridges MVL3/7, MVL3/9, MVL3/17, MVL3/20, MVL3/23, and MVL3/28 are all very similar in design. All are made from coursed local sandstone and have segmental arches formed from tooled voussoirs, with larger keystones. Each has dressed ashlar impost bands, sloping string courses above the arch, and parapet copings, with shallow pyramidal caps to the slender piers. They have considerable group value and are easily identifiable in the landscape as bridges associated with the original construction of the railway. The bridges are all well designed and adapted to their individual locations, some being skewed or sloped. High quality workmanship and

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details such as picked and tooled ashlar voussoirs elevate their design above what is purely function, enhancing their significance further.

Heyrod Footbridge (MVL3/8) and Saddleworth Viaduct (MVL3/31) are clearly recognisable as part of the same scheme of work but differ in their form. Heyrod Footbridge features a flat span, and retains its cast-iron edge beams and brick parapets, while Saddleworth Viaduct comprises 23 sandstone arches spanning the River Tame and Huddersfield Narrow Canal.

The structures are all Grade II listed in recognition of their special architectural and historic interest at national level. Saddleworth Viaduct was listed in 1986, while all seven overbridges were listed in 2017 or 2018 after a comprehensive review of the line.

Impacts

The proposals involve demolition and reconstruction of three structures, total removal of one structure, and modifications to four structures. These works are deemed necessary to achieve the clearance required for the OLE (overhead line equipment) and to ensure safety for bridge users. The impacts of proposed works at each structure are discussed below.

Bridges requiring demolition works:

Heyrod Hall Overbridge MVL3/7 carries a short section of private road over the railway to Heyrod Hall. This bridge is in a rock cutting with very hard rock beneath the track, prohibiting track lowering.

Wright's Mill Overbridge MVL3/20 carries the public footpath and bridleway over the railway where it passes through a steep-sided rock cutting. Options to lower the track at this bridge have been investigated but discounted due to the location on the bridge in a rock cutting with very hard rock beneath. Track lowering would also have a knock-on effect to a nearby underbridge.

Oldham Road Overbridge MVL3/28 is a skew overbridge located on the north-east side of Greenfield Station and carries Oldham Road over the track below. There will be

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the addition of a new footbridge alongside the reconstructed road bridge. Options to lower the track at this bridge have been investigated but would be difficult to achieve due to the proximity to the station.

Proposals at these three bridges involves the complete dismantling of each bridge and reconstruction to create a raised, flat deck with sufficient clearance for OLE. Stone would be reclaimed and used to clad the inside faces of parapet walls; however matching stone is likely to be needed to clad the external sides of the parapets. New copers would also be needed to ensure parapets were the correct height.

The demolition and reconstruction of these bridges will cause substantial harm to their significance through the total loss of historic form and loss of much of their original fabric. The proposals will also diminish the group value of the historic bridges on the railway.

Wright's Overbridge MVL3/23 is a footbridge that carries a public footpath from north-west to south-east across the railway. The railway here is in a steep cutting and due to gradients, the bridge slopes down towards the south-east. Proposals involve the total removal of this bridge and diversion of the public right of way across the railway at another point.

The removal of Wright's Overbridge will cause substantial harm to its significance through the total loss of its historic form and all original fabric. Its removal will necessitate the re-routing of a historic public footpath, which is part of a network of paths in the area connecting mills and farms with workers' housing, and contributes to the landscape character of the area and to the setting of the bridge. The proposals will also further diminish the group value of the historic bridges on the railway.

Bridges requiring modifications:

Heyrod Footbridge Overbridge MVL3/8 carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane which are also listed.

Spring Bank Lane Overbridge MVL3/9 (also known as Heyrod Bridge) carries Spring Bank Lane over the railway. Due to the lie of the land the bridge slopes down towards the east. The splayed projecting wing walls are also covered by the listing.

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Roughtown Road Overbridge MVL3/17 carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The projecting wing walls are also covered by the listing.

Minimal interventions are proposed at these three bridges, the most significant changes being the introduction of new triangular copers to ensure the correct and safe parapet heights.

The introduction of triangular copers to raise the parapet heights to 1.5m will result in a low level of less than substantial harm to the significance of the bridges through the changes to their appearance and the loss of original copers. This harm could be further lowed by using stone copers instead of concrete, and by undertaking any other restoration works required such as replacing the recently rendered section of parapet copings in the south-west corner of Roughtown Road Bridge.

Saddleworth Viaduct MVL3/31 (also known as Uppermill Arches and Uppermill Viaduct) carries the railway over a series of roads and lanes, and the River Tame and Huddersfield Narrow Canal. Due to the lack of space available on the viaduct deck, proposals here involve attaching brackets to the exterior of the viaduct for the OLE supports.

The proposed works at Saddleworth Viaduct will result in a low level of less than substantial harm to the significance of the structure through the change to its appearance and in the physical impact on the elevations of the viaduct from the brackets. This harm could be further lowed by ensuring the spacing of the masts responds to the structural and architectural rhythm of the viaduct to lessen their visual impact.

Policy

National policy relating to the conservation and enhancement of the historic environment is articulated in section 16 of the National Planning Policy Framework (NPPF, 2023). These policies state that heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so they can be enjoyed for their contribution to the quality of life of existing and future generations (NPPF para 195). Also, when considering the impact of a proposed development, great weight should be given to an asset's conservation (NPPF para 205).

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Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification (NPPF 206).

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss. In practice this means that less harmful alternative solutions should be explored through the pre-application and application processes.

In addition to section 16 of the NPPF, we refer you to Section 12 'Achieving well-designed and beautiful places' when considering the design for replacement bridge structures. Para 132 states that being sympathetic to local character and history is important, along with a consistent and high-quality standard of design (para 133).

Position

The proposed works to upgrade the W2B section of the Transpennine route network will be the first major programme of work since its construction in the 1840s. The wider public benefits of the upgrade work to this key transport network will be vast and will have positive knock-on effects across the region. The challenging geology and hydrology across the route still present issues to engineers today, and we welcome the work that has gone into investigating alternative options to demolition and reconstruction for the bridges affected.

The proposals will result in substantial harm to the significance of bridges MVL3/7, MVL3/20, MVL3/23, and MVL3/28, with the highest level of harm to bridge MVL3/23 which will be dismantled and not reconstructed. The proposals will cause harm through the loss of the form of the arched bridges and though the loss of historic fabric. There will be the additional harm to the group value of the bridges.

We agree that the bridges are predominantly experienced from the bridge deck, and that re-use of original fabric should be focussed on the inside faces of the parapet walls to ensure the look of the bridge when crossing it is not unacceptably altered, however this re-use of materials does not lower the harm to less than substantial levels. It will be for decision takers to weigh the balance of this substantial harm against the public benefits of the scheme.

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Works to bridges MVL3/8, MVL3/9 and MVL3/17 is largely limited to raising the parapets to ensure they are the safe and correct height. We acknowledge that Network Rail has a legal obligation to take reasonable steps to prevent people from coming into contact with the OLE by ensuring parapets cannot be climbed or walked on. We appreciate the work undertaken to investigate various options for different types of pantographs to limit the height at which the parapets need to be raised to. The use of triangular copers will introduce a change in the appearance of the bridges and cause a low level of less than substantial harm to their significance, but the impact can be lessened by use of stone rather than concrete copers which will be less visually obtrusive. Parapet design should be tailored to the individual circumstances of each bridge to ensure the least harmful solution is used.

There will also be a low level of less than substantial harm at Saddleworth Viaduct from the introduction of brackets to the structure to support the OLE. This can be further lowered by thoughtful spacing of the brackets.

We welcome the detailed options appraisals undertaken during the design of the proposed works to listed structures on the W2B route. We recommend that details are finalised using bespoke designs that respond to the particular character of each structure and its setting.

Next Steps

Thank you for involving us at the pre-application stage of this project. The above advice is the response that we would give if the same proposals were put forward unamended for statutory approval.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

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Appendix C.2 17 September 2024

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

17 September 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meeting on 27 August to review the proposals for bridges MVL3/7, 8, 17 and 20. It was useful to see the drawings in advance and then talk through the proposals with the team.

The significance of the affected structures has been set out in our letter of 25 June 2024 and won't be repeated here. The impacts of the proposed changes and our comments are detailed below:

MVL3/7 - Heyrod Hall Overbridge
The changes to this bridge involve demolition and reconstruction of the bridge deck and sections of the abutments, resulting in substantial harm to the significance of the bridge. The bridge is built from coursed local sandstone, and the voussoirs have been lightly tooled around the edges to give them definition and add interest to the arch. The proposed changes will result in the total loss of the historic form of this bridge and much of the original fabric.

In order to reduce harm, every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works. We welcome the use of natural cut stone copers.

MVL3/8 - Heyrod/Springbank Lane Footbridge
The appearance of this bridge will change slightly through the introduction of new copers which will increase parapet height. The use of natural stone will help to minimise the appearance of the new copers and mean they were be less obvious. Overall, there will be a very low level of less than substantial harm to this bridge.

MVL3/17 - Roughtown Road Overbridge
This is another bridge where the proposals involve the introduction of new copers

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which will increase parapet height. The changes here will be more noticeable than at MVL3/8 but still constitute a low level of less than substantial harm.

In order to minimise harm, it will be necessary to carefully design the ends of the new sections of coping stones to manage how they interact with the piers of the bridge. The piers are topped by shallow pyramidal caps, which currently form a prominent feature of the bridge's architecture. There is a danger that the definition of these caps will become lost if the new copers butt up to them. This mitigation could be achieved by either terminating the new copers short of the piers, or by raising the height of the pier caps so they remain prominent.

Additional mitigation should involve repairs to the fabric of the parapet walls, including removal of the cement kerb section and bollards, which will no longer be needed once the road is one-way.

MVL3/20 - Wright's Mill Overbridge
The proposals for demolition and reconstruction of this bridge will result in a substantially altered structure and substantial harm to the significance of the listed asset.

The historic form and materials of this bridge are very similar to MVL3/7, and the proposed construction works are also comparable, however the proposed parapet at MVL3/20 will be noticeably taller due to the bridge's use as a bridleway. The proposal drawings show the ends of the new copers sharply sloping down towards the piers of the bridge.

As advised with MVL3/17 above, care should be taken in the design and integration of these copers so they complement the existing structure and do not appear overly obvious. As with MVL3/7, we advise that every care should be taken when demolishing the bridge so as much original undamaged stonework as possible can be retained for re-use. Where new stonework is needed, this should be as close a match as possible to the original stone, and courses should match up to minimise the visual impact of the works.

Next Steps

I look forward to reviewing the next series of proposals for other parts of the scheme.

Yours sincerely

Louise Davies

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
historicEngland.org.uk

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Historic England

Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, Tony Gee and Partners, August 2024

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Wright's Overbridge (MVL3/23) – Heritage Statement

Rule 10(6)(d)

Author	Network Rail
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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Conditions 3
1.4 Summary of proposal 4
2. LEGISLATION AND POLICY CONTEXT 4
2.1 Legislation 4
2.2 National Policy 6
2.3 Local planning policy 9
3. ASSESSMENT METHODOLOGY 14
3.1 Research 14
3.2 Significance and setting 14
4. CONSULTATION 15
5. HERITAGE ASSETS AND THEIR SIGNIFICANCE 23
5.1 History of the W2B Transpennine Route 23
5.2 Wright's Overbridge (MVL3/23) 25
5.3 Surrounding heritage assets 31
6. PROPOSALS 33
6.1 Background to proposals 33
6.2 Design development and justification 34
6.3 Preferred option design development 39
6.4 Description of proposals 39
7. IMPACT OF PROPOSALS 42
7.1 Wright's Overbridge (MVL3/23) 42
7.2 Other heritage assets 42

7.3 Mitigation 43

7.4 Public benefit 44

8. CONCLUSION 46

9. REFERENCES 49

APPENDIX A – LOCATION PLAN 51

APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION 52

APPENDIX C - HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER 55

List of Tables

Table 4-1 Consultation for Wright's Overbridge (MVL3/23) 15

Table 6-1 Optioneering for Wright's Overbridge (MVL3/23) 35

List of Inserts

Insert 1-1 View north across the west elevation of Wright's Overbridge (MVL3/23) showing parapet out of plumb 4

Insert 5-1 Wright's Overbridge (MVL3/23) from the historic line plans held by Network Rail (1905). 26

Insert 5-2 Wright's Overbridge (MVL3/23), south-west elevation. 27

Insert 5-3 Wright's Overbridge (MVL3/23), north-east elevation. 27

Insert 5-4 View south-west across the deck of Wright's Overbridge (MVL3/23). 28

Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level 33

Insert 6-2 Proposed reprofiled railway cutting following removal of Wrights Bridge Overbridge (MVL3/23 41

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the "Order Scheme"). This section of the Transpennine route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure); reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any

proposed works that would affect the character of a listed building. The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade II listed Wright's Overbridge (MVL3/23) (NHLE 1452409). This bridge is located in Saddleworth (NGR SD9810704133) Oldham. A location plan is provided in Appendix A.

1.1.7 Wright's Overbridge (MVL3/23) lies c. 130 m north of the Wright's Mills Conservation Area. The Historic England list description (included in full in Appendix B) names the listed building as "Railway Overbridge MVL3/23, Wright's". Throughout this Heritage Statement the structure is referred to as "Wright's Overbridge (MVL3/23)" in accordance with Network Rail's naming of the structure.

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF, revised 2025) specifically paragraph 207, which seeks an assessment proportionate to the assets' importance and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail's requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;

- Present the design requirements of the Order Scheme at the structure;
- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the National Planning Policy Framework, 2024 and the Oldham Local Development Framework, 2011.

1.3 Current Conditions

1.3.1 Wright's Overbridge (MVL3/23) (Insert 1-1) is a mid to late 1840s masonry overbridge, designed by Alfred Stanistreet (A. S.) Jee for the Huddersfield and Manchester Railway. The overbridge is situated on the western edge of the village of Friezland, c. 6 km east of Oldham and comprises a single segmental-arched bridge, currently carrying a footpath over the Transpennine route.

1.3.2 The structure was subject to a detailed examination as part of Network Rail's maintenance regime in April 2017, which identified it to be in fair condition; a more recent visual inspection undertaken in April 2023 identified no change in the overall condition of the structure since the detail inspection was carried out. A number of small defects were identified, including:

- The low mileage parapet to be out of plumb to 25 mm (Insert 1-1) and
- Vegetation present along the inside face of the parapets.

Insert 1-1 View north across the west elevation of Wright's Overbridge (MVL3/23) showing parapet out of plumb

1.4 Summary of proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the Route is required. This would require the alteration of a number of existing bridges, including Wright's Bridge Overbridge (MVL3/23) to accommodate OLE, higher line speed and increased freight trains. Following optioneering, it has been determined necessary to remove Wright's Bridge Overbridge (MVL3/23) to enable implementation of the Order Scheme.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) (the "Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—

a. any object or structure fixed to the building;

b. any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the LPA or the Secretary of State:

1) 'Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) the preservation of particular features of the building, either as part of it or after severance from it;

b) the making good, after the works are completed, of any damage caused to the building by the works; [and]

c) the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.

2.1.5 It is also defined in s.17 (2) that a condition '*may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him*'.

2.1.6 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.1.7 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) also governs duties of the local planning authority relating to conservation areas, particularly Sections 69, 72 and 74.

- Section 69 requires local planning authorities to define as conservation areas any '*areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance'*.
- Section 72 confers a general duty '*with respect to any buildings or other land in a conservation area… special attention shall be paid to the desirability or preserving or enhancing the character or appearance of that area'*.
- Section 74 defines that demolition of a building in a conservation area is not permitted '*without the consent of the appropriate authority'*.

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective 'to protect and enhance our natural, built and historic environment'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' which includes guidance on assessment of

significance of the heritage assets and their setting that may be affected by the proposed works and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – *'In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance.*'
- Paragraph 212 – *'When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance.'*
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

  a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

  b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

- Paragraph 214 – *'Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

  a) the nature of the heritage asset prevents all reasonable uses of the site; and

b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

d) the harm or loss is outweighed by the benefit of bringing the site back into use.'

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.'*
- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*
- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.'*

Planning Practice Guidance

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take into account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance

or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that 'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

Oldham Joint Core Strategy and Local Development Framework

2.3.1 Local planning policy for Oldham is provided by the Joint Core Strategy and Development Management Policies of the Oldham Local Development Framework, adopted in November 2011, and a small number of retained policies from the Unitary Development Plan (2009).

2.3.2 Policy 24 of the Local Development Framework relates to the Historic Environment and is reproduced in full below:

Policy 24 Historic Environment

'Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

- National and local guidance and policies on the historic environment.
- Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.
- Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.
- Conservation Area Appraisals and Management Plans, where appropriate.

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

a. *Listed buildings.*

b. *Conservation areas.*

c. *Registered parks and gardens (their historic character and setting).*

d. *Scheduled ancient monuments (their archaeological value and interest).*

e. *Significant archaeological remains.*

f. *Locally significant buildings, structures, areas or landscapes of architectural or historic interest (including non-designated locally significant assets identified in the local lists compiled by the council).*

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional. Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.*

Conservation Areas

Development within or affecting the setting of a conservation area, including views in or out, must serve to preserve or enhance the character or appearance of the area. Proposals for all new development, including alterations and extensions to buildings and their re-use, must have a sensitive and appropriate response to context and good attention to detail. Proposals must not adversely affect important architectural or historic features or distinctive local features or structures unless it can be demonstrated that the development brings substantial benefits to the community. Proposals for the demolition of a building in a conservation area must demonstrate that it is unrealistic for the building to continue in its existing use and a suitable alternative use cannot be found, or the building is in poor structural condition and the cost of repairing and maintaining it would be disproportionate to its importance and value and the demolition would preserve or enhance the character or appearance of the conservation area. In exceptional circumstances, the fact that a demolition would bring substantial benefits to the local community may outweigh the balance in favour of the preservation of the building.

Registered Parks and Gardens

Development which would lead to the loss of, or cause harm to, the historic character or setting of any part of registered park and garden will not be permitted.

Scheduled Monuments

Development which would lead to the loss of, or cause harm to, scheduled ancient monuments should be wholly exceptional.

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

- Significant archaeological remains.
- Locally significant buildings, structures, areas or landscapes of architectural or historic interest'.

Places for Everyone

2.3.3 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Oldham, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning

policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.4 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.5 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the *'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance'* (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.6 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.7 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Wright's Overbridge (MVL3/23). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a survey undertaken by suitably qualified and experienced heritage specialists on 27 August 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England. Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest.

3.2.2 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence; and
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and Oldham Metropolitan Borough Council (OMBC) have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of TRU.

4.1.2 Regular meetings with Historic England and OMBC have been held to discuss design development of the proposal in relation to Wright's Overbridge (MVL3/23). Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall route and design development for all structures along Route Section W2B.

4.1.3 The design development of the Order Scheme in relation to Wright's Overbridge (MVL3/23) was discussed during meetings with the statutory stakeholders on the dates outlined in Table 4-1 below:

Table 4-1 Consultation for Wright's Overbridge (MVL3/23)

Date	Stakeholder in attendance	Key agreements/items discussed
15 February 2021	• OMBC	• The challenge of electrifying the route introduced alongside an overview of the structures within OMBC area was presented. • MVL3/23 was introduced as a structure requiring intervention and arrangements made for a meeting to discuss in detail the optioneering for this structure.
02 March 2021	• OMBC	• An introduction to the heritage significance of the structure was given, alongside various details of the

Date	Stakeholder in attendance	Key agreements/items discussed

	• Historic England	bridge and its surroundings (confirmation that there are no utilities on the bridge deck, details of existing parapet height, overview of required drainage works).
		• Presentation of options to stakeholders comprising:
		  ○ Track Lower and retention of bridge with raised parapets;
		  ○ Bridge reconstruction; and
		  ○ Removal of bridge and re-routing footpath.
		• Track lower identified as the preferred option for both Historic England and OMBC, due to the limited impact required to the listed structure.
		• Historic England suggested considering standardising detail of works to structures where there would be comparable scope in order to better retain group value (e.g. similar approach to parapet raise)
		• Historic England raised the potential for establishment of a historical trail including interpretation in order to maintain or enhance understanding of the group value of the structures in the area.

26 May 2021	• Historic England • OMBC • Kirklees Council	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II overbridges and underbridges which are noted for their inherent significance, particularly as essential railway structures. The group value of the bridges was identified as a key contributor to significance.

Date	Stakeholder in attendance	Key agreements/items discussed
		• Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs.[1] • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. • Reassurance was provided to the councils that they will be involved in the GRIP 3 design process which will be used within the detailed design development of GRIP 4 (Single Option Development). Clarification was also provided on the sustainable heritage initiatives. • Historic England stated that they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
6 February 2024	• Historic England	• Details of the challenges of the electrification of the route in relation to listed overbridges were presented. Design measures under consideration for addressing these challenges noted to include: • Reduced voltage clearances o Development of scheme-specific pantograph, reducing electrical clearances to a minimum. o Site specific risk assessments of bridges due to reduced overhead wire heights • Electrical protection works

[1] At the time of consultation in 2021, the delivery of railway investment programmes was managed by Network Rail as a staged process through use of the GRIP (Governance for Railway Investment Projects) process. GRIP 3 comprised option selection and GRIP 4 (Single Option Development). This has since been replaced by PACE (Project Acceleration in a Controlled Environment).

Date	Stakeholder in attendance	Key agreements/items discussed
		○ Risk-based approach to raising parapets. Where safe to do so, 1.5m height parapets may be employed, rather than standard 1.8m height. ○ This approach has been embedded in designs for Route Section W2B. • Example images of recently installed steeple copers were shared, and the potential for colouring of the concrete copers was noted. • The design approach for electrification across / under existing railway bridges was noted as having already been agreed in principle by Network Rail following consultation with the Local Authorities & Historic England at the preceding design stage.
5 March 2024	• Historic England	• Presentation of the optioneering undertaken for Wright's Overbridge (MVL3/23) and the rationale for the change in preferred option to Bridge Removal. • Historic England were asked what supporting information would be expected to accompany an application to remove the bridge, this was summarised as: ○ Overview of considered options and rationale for proposed works; and ○ Details regarding change in historic use as an access and of its current level of use. • Network Rail confirmed the re-routing of the Public Right of Way would need to be explored further with OMBC and local ramblers' groups.
22 April 2024	• OMBC	• Presentation of proposed works to the structures within Oldham, in which the proposal for Wright's Overbridge (MVL3/23) is to be confirmed.

Date	Stakeholder in attendance	Key agreements/items discussed
7 May 2024	• Historic England	• Agreement in principle with Historic England on the requirement for the removal of Wright's Overbridge (MVL3/23). • Proposals for the removal of Wright's Overbridge (MVL3/23) is the preferred option due to the limited use of the structure, construction constraints in its location and the carbon investment required. • The local authority are in support of the proposals presented and further consultation with the stakeholders is ongoing.
25 June 2024	• Historic England	• Pre-application advice letter from Historic England identifies the substantial harm to the significance of Wright's Overbridge (MVL3/23) arising from the total loss of historic form and all original fabric (Appendix C.1). • Historic England also identified that the proposal would diminish the group value of the historic bridges on the railway. • The removal of Wright's Overbridge (MVL3/23) was identified as the element of the Order Scheme resulting in the highest level of harm to a heritage asset.
27 August 2024	• Historic England	• Clarification was provided to Historic England that the proposed removal of Wright's Overbridge (MVL3/23) would involve the removal of the entirety of the structure, including the abutments. The retention of isolated sections of abutment would preserve little of the bridge's significance, while requiring ongoing maintenance of freestanding masonry structures next to the railway.

Date	Stakeholder in attendance	Key agreements/items discussed
		• The ambition of reclaiming masonry from the demolished structure for use on other works on Route Section W2B was also outlined by Network Rail.
06 November 2024	• Historic England	• The draft listed building consent drawings were shared prior to the meeting, with feedback requested from Historic England on the works shown in the drawings. Discussion also took place regarding the justification for proposed works. • The change from the initially preferred track lower to a proposed bridge removal was presented, alongside the constraints and justification for this change in position. • Historic England recognised the drivers behind the change in preferred option and requested that justification be clearly set out in the heritage statement.
29 November 2024	• Historic England	• Formal pre-application advice letter received from Historic England following the circulation of draft listed building consent drawings and the follow-up discussion (Appendix C.2). • The letter re-iterated the substantial harm that would arise from the proposed demolition of Wright's Overbridge (MVL3/23). The requirement for thorough justification to be presented in the documentation supporting the application for listed building consent was outlined.
2 April 2025	• OMBC (including heritage professionals from Growth Lancashire)	• Presentation of overview of the aims and objectives of TRU, with emphasis on the historic context of Route Section W2B and the 12 listed building consents applications which are being prepared for the various

Date	Stakeholder in attendance	Key agreements/items discussed
		works to the grade II listed bridges and viaduct along the route section. • Network Rail requested for the draft Heritage Statement to be reviewed by the Council for comment and feedback. • Presentation of overview of electrification challenges caused by the existing arch profile of a number of existing bridges and have developed bespoke solutions for these to achieve the required clearance. • Overview of the current status of each structure within OMBC's jurisdiction, including the reconstruction of Wright's Overbridge (MVL3/23). Network Rail explained that the current structure is not clear for electrification or freight, and track lower is not viable at its location, as such the removal and reconstruction of the structure is the preferred option.
4 April 2025	• Historic England	• Meeting to go over the draft Heritage Statements with Historic England. • Historic England were content with the assessment of significance for all structures, and noted that the optioneering tables were helpful. Historic England requestion for further details on the heritage interpretation as part of the heritage benefits.
12 May 2025	• OMBC (including heritage professionals from Growth Lancashire)	• Proposals and justification for demolition of Wright's Overbridge (MVL3/23) were presented to OMBC Heritage officers and the loss of the structure was identified to be clearly justified. Historic England were satisfied with the approach to the assessment of significance,

Date	Stakeholder in attendance	Key agreements/items discussed
2 June 2025	• Historic England	• Following receipt of the draft heritage statement for Wright's Overbridge (MVL3/23) Historic England confirmed that sufficient justification was provided for demolition of the structure.
24 June 2025	• OMBC (including heritage professionals from Growth Lancashire)	• Pre-application advice letter received from OMBC outlining local planning authority advice following review of the draft listed building consent application material. • OMBC found that the removal of Wright's Overbridge (MVL3/23) would result in the total loss of significance of the bridge, through the removal of its historic and architectural significance. • OMBC highlight that clear and convincing justification will be required for any harm arising to designated heritage assets, with substantial benefits required to outweigh substantial harm. • A high level of harm was also found to the group value of the bridges designed by A.S Jee on the TransPennine Route, due to the proposed demolition of Wright's Overbridge (MVL3/23) and reconstruction of four other bridges and a limited level of harm to group value arising from the alteration of three other structures.
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore

Date	Stakeholder in attendance	Key agreements/items discussed
		alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs under Wright's Bridge Overbridge (MVL3/23) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age of railway building (Historic England 2017). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774km to 11,703km) (Alan Baxter Associates 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after the railway's authorisation (Alan Baxter Associates 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is *'indisputably significant as a major engineering achievement'* (Alan Baxter Associates 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the

canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Wright's Overbridge (MVL3/23) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise (Institution of Civil Engineers: Obituaries, 1859). He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from

this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

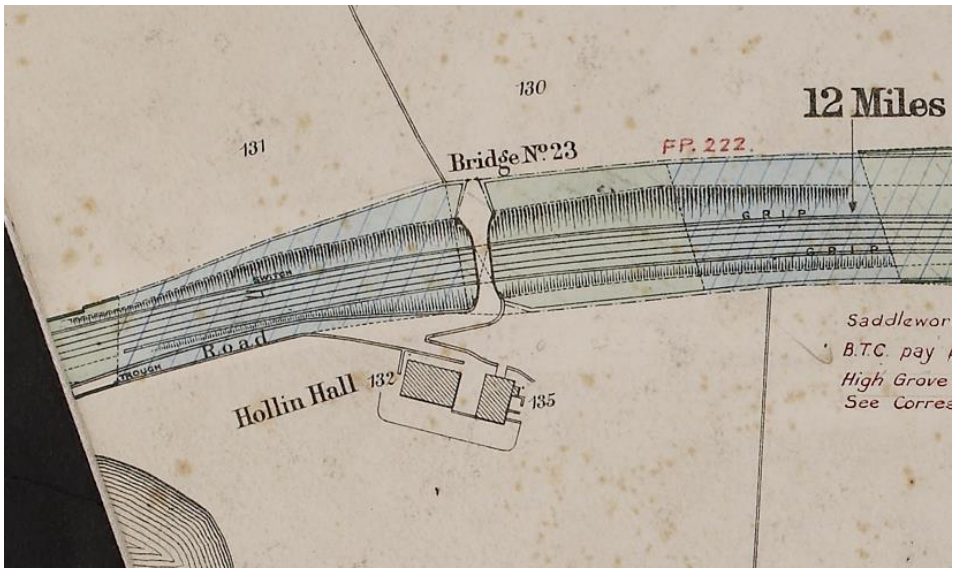
5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter, 2019). This was produced to characterise the overall heritage significance of the Transpennine route as a whole.

5.2 Wright's Overbridge (MVL3/23)

History

5.2.1 Wright's Overbridge (MVL3/23) was constructed between 1845 and 1849 during the Heroic age of railway building. The single-span bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway. Labelled as Hollin Hall Bridge on the 1st edition 1:10,560 Ordnance Survey map of 1854, the bridge provided access across the railway line to and from Hollin Hall. Hollin Hall is depicted on the 1st edition Ordnance Survey map as a square-plan building located directly to the south-west of the railway bridge. The bridge may have been constructed as an accommodation bridge for Hollin Hall, providing access to land on the opposite side of the railway line. Now known as Wright's Overbridge, the name may indicate a historic connection with the nearby Wright's Mill, located c.450 m to the south-west, however no firm evidence for this association has been identified in the course of this study.

5.2.2 The line plans held by Network Rail (Insert 5-1) show the historic relationship between Wright's Overbridge (MVL3/23) and Hollin Hall. This access between the hall and route over the railway bridge no longer exists.



Insert 5-1 Wright's Overbridge (MVL3/23) from the historic line plans held by Network Rail (1905).

Description

5.2.3 Wright's Overbridge (MVL3/23) comprises a single segmental-arched bridge with battered abutments and slightly curved wing walls (Insert 5-2 and Insert 5-3). The railway crossing is aligned north-west to south-east, sloping downwards towards the south-east due to the gradient of the local topography, and spans the two-track railway line which is set within a cutting with sloping sides.

5.2.4 The footbridge is constructed in regular-coursed, quarry-faced buff sandstone and features large sections of unadorned stone walling within the north-eastern and south-western façades. Of architectural interest, the arch piers and voussoirs have tooled margins, with the keystone breaking the line of the arch both above and below, a common design feature with A. S. Jee's bridges on this route. An impost band, sloping string course and parapet with chamfered coping rise above the arch of the bridge and are also faced with coursed ashlar stonework, the parapets terminating in slender piers with pyramidal caps. The bridge deck has vegetation growing to either side of a central path, surfaced with roughly compacted stone (Insert 5-4).

5.2.5 The setting of Wright's Overbridge (MVL3/23) has evolved since the bridge was first constructed. Originally known as Hollin Hall Bridge, the bridge provided access from Hollin Hall across the railway to the land to the north. Fencing now prevents access between the hall and the bridge. Residential development took place on the land associated with Hollin Hall in the late 20th century, with rear garden fencing bounding the footpath on the south-east side of the bridge. Vegetation growth along on the approaching footpaths and on the

bridge deck limit visibility of the of the bridge from the wider area and create a sense of wildness, with the historic connection with Hollin Hall not readily apparent when approaching or crossing the structure.

Insert 5-2 Wright's Overbridge (MVL3/23), south-west elevation.

Insert 5-3 Wright's Overbridge (MVL3/23), north-east elevation.

Insert 5-4 View south-west across the deck of Wright's Overbridge (MVL3/23).

Significance

5.2.6 Wright's Overbridge (MVL3/23) was designated as a grade II listed building in March 2018. The Historic England List Entry description (Appendix B) identifies the bridge to be of special interest for the following principal reasons:

- Historic interest:
  - Constructed during the heroic age of railway building and a little-altered example of an 1840s overbridge on what is now one of the main railway lines in northern England;
  - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
  - The bridge is well-detailed with ashlar impost bands and string course, and piers and voussoirs with tooled margins, that lift its design above the purely functional.
- Group value:
  - With the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

5.2.7 The bridge's original construction between 1845 and 1849 places it within the Heroic Age (1841-50) of railway development and links it to the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield and Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route, give the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.8 The bridge derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. The considered use of features such as rusticated voussoirs, impost bands and stringcourses, as well as the quality of craftsmanship seen in its detailing elevate the bridge above a purely functional design. The bridge survives in its original form, with no evidence of significant intervention or alteration, and continues to provide access across the railway. The structure still reveals Jee's original design intent, and this is a strong contributing factor to its significance.

5.2.9 The setting of Wright's Overbridge (MVL3/23) makes a minor contribution to the significance of the structure. Its intrinsic relationship with the railway is a key component of its setting given that the bridge continues to span the railway cutting, retaining a close physical and functional relationship with the railway. Views from the bridge north-east and south-west along the railway evidence this relationship. However, there is very limited visibility of the bridge elevations, due to its position within the cutting. The historic connection between the bridge and Hollin Hall is no longer immediately evident due to intervening fencing, rerouting of the historic approach and limited visual link between the structures.

Group value

5.2.10 As identified in the list description, Wright's Overbridge (MVL3/23) is recognised to be of group value with other structures designed by A.S. Jee on the Huddersfield & Manchester Railway[2]. These comprise:

[2] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537**)** was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade, and will be demolished and replaced with a new structure (ref

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wright's Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Overbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Uppermill Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 1223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and

2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[3].

5.2.11 Of these bridges, four are of particularly similar form, comprising segmental arched bridges of stone construction, which are similarly detailed architecturally. These overbridges comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405); and
- Wright's Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406).

5.2.12 The group value which Wright's Overbridge (MVL3/23) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age (1841-1850) of railway building more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it) as coherent features of a single historic route.

5.2.13 Masonry railway bridges across the historic Huddersfield & Manchester Railway route have been characterised as being of local or regional interest, depending on their architectural quality, contribution to wider historical interest of the route, and their group value. It has been noted however that, as a group, they are not of substantial national interest due to their dating from a period of railway development when thousands of similar structures were erected (Alan Baxter Associates 2019).

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

[3] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

Designated heritage assets

5.3.2 There is one listed building within a 250m study area surrounding Wright's Overbridge (MVL3/23). This comprises the grade II listed Royal George Canal Bridge (NHLE 1390053), a canal bridge constructed in 1798 as part of the Huddersfield Narrow Canal, which is located *c*. 200 m south-east of Wright's Overbridge (MVL3/23). The intervening distance, undulating topography, vegetation and development prohibits any spatial relationship between the canal bridge and Wright's Overbridge (MVL3/23). Moreover, the lack of direct historical association further diminishes any interrelationship between the two bridges.

5.3.3 The Royal George Mills Conservation Area is focussed to the south of the Huddersfield Narrow Canal centred on Royal George Mill to the west of Well-I-Hole Road (B6175). The conservation area is characterised by the historic industrial development of the Royal George Mills within a rural landscape between the canal and the River Tame, being located within the low-lying ground of the valley, with largely uninterrupted views towards the Pennines. Despite the location of the conservation area within 150m of the overbridge, intervening modern development, undulating topography and vegetation prevents any visual relationship between the two assets. The assets do not enjoy any historic or visual relationship and therefore do not contribute to each other's significance.

Non-Designated Heritage Assets

5.3.4 The local Historic Environment Record (HER) records four non-designated heritage assets within the 250m study area, comprising:

- The location of the former Royal George Mills site (6046.1.0);
- Canal Lock 18W (19033.1.0);
- Canal Lock 19W (19034.1.0); and
- Friezland School (19058.1.0).

5.3.5 With the exception of Friezland School (19058.1.0), these assets are located between *c.* 150 m and 250 m east of Wright's Overbridge (MVL3/23). As with the related conservation area (see above), the locks, mill site and railway bridge do not enjoy a historic or visual relationship and do not contribute each other's significance. The remaining non-designated heritage asset, Friezland School (19058.1.0), is sited *c.* 230 m north-east of the overbridge and similarly does not share any historic or visual relationship with Wright's Overbridge (MVL3/23), with no shared contribution to the significance of either heritage asset.

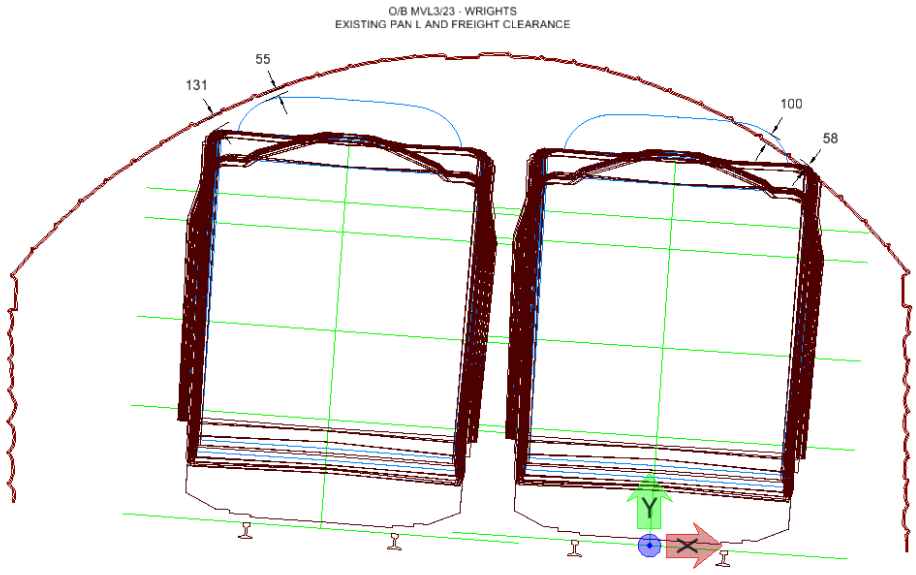
6. PROPOSALS

6.1 Background to proposals

6.1.1 In order to achieve the TRU Programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. Works to the underbridges along the route are required to accommodate the resulting additional loadings on the structures resulting from increased line speeds and increased train loading.

6.1.2 Inadequate clearances to safely install OLE has been recognised as a challenge across much of TRU, preventing the installation of overhead lines below some existing overbridges. To reduce the requirement for intervention into structures along the route as far as possible, a scheme-specific pantograph has been developed which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment. A number of structures along the route also do not provide adequate gauge clearance for the required freight trains on the route, the requirement for which has been considered as part of the design development process.

6.1.3 Insert 6-1 shows that even with use of the scheme-specific pantograph, there would still be a clash between OLE and Wright's Overbridge (MVL3/23). Similarly, the bridge does not have the required freight gauge clearance. A process of design optioneering to identify the optimal solution has been undertaken.



Insert 6-1 Drawing showing the clash between existing structure and proposed pantograph level

6.2 Design development and justification

6.2.1 Design development for Wright's Overbridge (MVL3/23) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has also involved engagement with Historic England and OMBC (as detailed above in Section 4). This iterative and robust process ensures the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultees.

ES3 optioneering

6.2.2 Based on Network Rail's extensive experience delivering comparable schemes, five options were identified for further consideration at the ES3 design stage in 2021[4]. As introduced in Section 6.1, the option of retaining the structure without undertaking any works would prevent the delivery of the Order Scheme. This option was therefore discounted at an early stage. The remaining four options considered at ES3 comprised:

1. Track lower - Lowering the height of the track to achieve the required headroom while retaining existing bridge;
2. Bridge jacking - Increasing the height of the bridge through structurally lifting the arch barrel up from the abutments. This would require diagonal cuts to be made to separate the arch barrel from the abutments, lifting of the arch, infilling of the resulting gaps and refacing;
3. Bridge reconstruction – Removal of the bridge arch and replacement with a deck providing sufficient clearance; and
4. Bridge removal – demolition of the existing bridge, making good the embankments and re-routing of the existing footpath.

6.2.3 A summary of the ES3 optioneering process is summarised in Table 6-1 below.

[4] The delivery of railway investment programmes is managed by Network Rail through the use of PACE (Project Acceleration in a Controlled Environment). This provides a flexible control framework for the delivery of rail projects. Under PACE, ES3 comprises optioneering and identification of a single design option, whilst ES4 is approval of design in principle.

Table 6-1 Optioneering for Wright's Overbridge (MVL3/23)

Option	Key Considerations	Advantages	Disadvantages	Preferred
1) Track Lower	• Sufficient clearance needs to be achieved to enable electrification of the line and allow freight gauge clearance. • Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service. • The bridge spans a railway cutting, is not readily accessible from the highway network and is in a relatively isolated location. This restricts the accessibility of construction vehicles and the delivery of materials / components getting to the site. • Ground Investigation has revealed rock to be present at shallow depth within the railway cutting. There is currently no functional track drainage at this location. • The foundation depths of the bridge and cutting retaining walls are a consideration in the development of proposals for Wright's Overbridge (MVL3/23). Lowering of ground level within the cutting has the potential to undermine these foundations or necessitate significant engineering works to ensure their stability. • The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Buildings & Conservation Areas) Act 1990.	• Lowering of the track would enable retention of the bridge with raising of the parapets undertaken prevent access to OLE.	• To achieve the required clearance, the track would have to be lowered by 115mm for 210m on the east-bound line and 135mm for a distance of 320m on the west-bound line. Due to the shallow depth of rock at this location, this is a substantial engineering operation. • The feasibility of the track lower relies on a reduced electrical clearance, which would be subject to a site-specific risk assessment • The required drainage works at this location would have to be undertaken through bedrock should the track be lowered.	Y
2) Bridge Jacking		• This option would enable the retention of the listed bridge. The abutments, deck and parapet would be retained, although in altered form.	• Bridge jacking for masonry arch bridges is a relatively untested methodology, having been delivered on very few historic structures to date. The feasibility of jacking masonry arch structures relies on optimal site conditions, where a high level of control can be achieved and long timescales allowed for implementation. The long-term viability of this option is currently unknown. • Bridge jacking would incur extensive disruption to railway users, requiring all works to be delivered on site and little scope for off-site construction. • The location of the bridge over a cutting with severely limited access has significant limitations for execution of a bridge jacking operation. • Jacking of the bridge would raise the level of the footpath across the bridge and require a greater intervention to parapet height across the structure. • Raising of the bridge arch would impact the form and appearance of the structure, interrupting architectural features such as the stringcourse and the stone coursing across the parapets, detracting from its architectural value and integrity.	N
3) Bridge Reconstruction		• Reconstruction of the bridge would enable the preservation of some elements of the historic structure, through the retention and reuse of the bridge abutments in conjunction with the new bridge deck. • Historic masonry could potentially be reclaimed from removal of the bridge arch and parapets for reuse on the reconstructed structure, aiding integration of historic and modern fabric and reduce the visual impact of the reconstruction works. • Reconstruction of the bridge could be delivered substantially from track level. This would minimise the need for construction access by road at this constrained site. • The installation of a preconstructed deck would minimise railway possession time and disruption to the railway network.	• Reconstruction of the bridge would result in the loss of the bridge arch and a portion of the parapets and abutments. This would result in the removal of a significant proportion of the historic bridge, substantially altering its form and appearance, and negatively impacting the integrity of the structure. • Due to site topography and no access by road, construction activities would be very restricted resulting in additional cost, programme and disruption to the locals to create a suitable route to the structure to enable a reconstruction. It is expected that temporary land take and disruption to the nearby residents rear gardens would be required.	N
4) Bridge Removal		• Removal of the bridge would minimise disruption to the railway network and provide a cost effective solution. • Removal of the bridge and re-routing of the footpath represents a constructable solution at a severely constrained site. • Historic masonry can be reclaimed from removal of the bridge arch and parapets and reused at other sites on Route Section W2B.	• This option would result in the complete removal of the bridge and the loss of a grade II listed structure. • Demolishing the bridge would require the re-routing of an established public right of way.	N

6.2.4 Option 1 Track Lower, was progressed as the preferred option primarily because it would allow the retention of the listed structure in an altered form. Option 2 Bridge Jacking was discounted due to the difficulty of delivering a novel engineering intervention at this constrained site and the as yet unproven long-term viability of this structural intervention. Option 3 Bridge Reconstruction and Option 4 Bridge Removal were discounted because the less impactful option of track lowering was considered to be feasible.

6.2.5 After the ES3 design process, Option 1 Track Lower was progressed as the preferred option. Further detailed analysis of the proposals would be undertaken as part of the ES4 design process, informed by additional survey, ongoing design input from each of the relevant engineering disciplines and incorporating feedback from a partnered construction contractor.

6.2.6 During the ES3 development for MVL3/23 the requirement for freight clearances was not part of the Order Scheme remit. Freight clearances were introduced at a later stage in ES3 which resulted in an increase to the magnitude of track lower to 170mm. The conclusion of the ES3 option development was not changed but site investigation was procured to investigate the level of rock and drainage provision at the site.

ES4 review

6.2.7 At the commencement of the ES4 design stage in 2023, a comprehensive review was undertaken of the preferred options identified across the whole Route Section W2B as part of a validation exercise. This review identified a number of issues around constructability, access and disruption to the railway network in the area.

6.2.8 As part of this process, additional survey of the track bed at Wright's Bridge (MVL3/23) was undertaken to inform the progression of detailed design. The result concluded the rock level was higher than anticipated. Survey of the existing track drainage revealed routes provided by channels dug into the rock in both cesses, comprising inflows from springs and the former High Grove Mill reservoir and an outflow to the former Lower Grove Mill reservoir.

6.2.9 An ES4 site inspection and point cloud survey of the bridge identified that both bridge parapets were leaning significantly, this is likely due to the dense vegetation on the structure. The parapets would need to be broken down and rebuilt vertical to allow them to be raised to provide electrical protection.

6.2.10 The conclusion of this reappraisal was that the previously designed track lower would not achieve the minimum required track formation without significant excavation of rock along the length of the track lower. In order to provide adequate drainage, the channels in the cess would need to be dug deeper. These findings necessitated more detailed examination of the optioneering and preferred option for Wright's Overbridge (MVL3/23).

6.2.11 This assessment found that track lowering would significantly increase the cost of construction and extend the duration of the line closure, resulting in unacceptable disruption to railway users.

6.2.12 To inform this process and to ensure the deliverability of the preferred option, input from a construction contractor was sought. This highlighted the difficulties of reconstructing the bridge in this location due to limited access via road and limited access adjacent to the structure to enable off track construction works. Temporary land take was highlighted as a requirement with a proposed access route through a housing estate and properties driveways/gardens. This would have resulted in significant disruption to locals, and increased construction costs and programme duration. Reconstruction was also found to significantly increase the duration of line possession (closure of the railway line) required for construction, resulting in unacceptable delay and disruption to railway users.

6.2.13 A survey of pedestrian usage of the existing footpath was undertaken to provide an understanding of the public benefit currently afforded by the bridge and the degree of impact likely to arise from a temporary or permanent re-routing of the public right of way. This survey found the bridge to be very lightly used on a daily basis with only 11 individuals crossing the bridge on the day of the survey.

6.2.14 A whole life costing exercise was undertaken to understand the relative cost to public funds of Option 3- Reconstruction and Option 4 – Bridge Removal. Comparison of these options revealed between the approaches shows a significant difference in the whole life cost of construction, inspection and maintenance over the anticipated design life of a reconstructed overbridge. This assessment identified that Option 3 - Reconstruction would cost c. £3.1m to reconstruct and maintain an overbridge at this location. This was compared with the estimated cost for Option 4 – Bridge Removal, which was assessed to cost c. £400,000. This cost allowed for site setup and track possession, removal of the bridge, diversion of the public right of way (including drainage requirements), making good the embankments and ongoing inspections and maintenance over 125 years. Overall, it is estimated that the whole life cost of removing the

structure would be approximately £2.7m less than if it were to be reconstructed. This assessment demonstrated that Option 4 Bridge Removal would bring considerable benefits in terms of future public spending compared to the cost required to maintain and eventually replace a reconstructed bridge.

6.2.15 Based on consideration of this more detailed information, Option 1 Track Lower was found to be unfeasible from an engineering and cost perspective. Option 3 – Reconstruction was found to result in high levels of disruption to railway users and a high level of cost for a structure which is lightly used by pedestrians with suitable alternative routes nearby. Option 4 - Bridge Removal was found to bring considerable benefits in terms of future public spending compared to the cost required to maintain and eventually replace a reconstructed bridge. Option 4 - Bridge Removal was therefore identified to be the preferred option. The increased impact on the significance of the listed building was, however, recognised.

6.2.16 Comparison of Option 3 Bridge Reconstruction and Option 4 Bridge Removal on the significance of Wright's Overbridge (MVL3/23) found both options to result in substantial harm to the structure.[5] Option 3 Bridge Reconstruction would result in the reconstruction of the majority of the structure, retaining a small amount of historic fabric as part of a reconstructed bridge and the continued legibility of a historic access route across the railway in this location, whilst Option 4 Bridge Removal would result in the complete removal of the structure.

6.2.17 Considered on balance, the substantial harm to Wright's Bridge (MVL3/23) arising from Option 4 Bridge Removal was found to be justified due to:

- The site-specific constraints limiting constructability;
- The limited use of the structure as a public right of way for which an alternative route can be provided; and
- The high level of public spending which would be required for reconstruction.

6.2.18 Option 4 Bridge Removal was therefore selected as the preferred option following the ES4 design.

[5] Planning Practice Guidance identifies that the substantial harm includes total loss of significance (paragraph 18a-018-20190723). The tests outlined in National Planning Policy Framework paragraph 214 apply for substantial harm or total loss. It is therefore considered that reconstruction and removal of the bridge would both result in substantial harm, with the level of harm being marginally greater in the case of removal.

6.3 Preferred option design development

6.3.1 Following identification of Option 4 Bridge Removal as the preferred option, design development was subsequently undertaken with the aim of mitigating the potential impact of the electrification of the line on the heritage significance of the structure as far as reasonably practicable.

6.3.2 Consideration has been given to the feasibility of retaining and consolidating the abutments *in-situ* following the removal of the arched span. This option would retain sections historic fabric *in situ*. However, the limited amount of historic fabric remaining would not retain any of the historic structure's significance and would incur an ongoing maintenance and safety liability presented by a freestanding masonry structure adjacent to an electrified railway line. This would pose an ongoing risk and would require regular structural condition assessments and maintenance, and the attendant costs of this, for structural remains with no practical function sited in proximity to the railway corridor. The delivery of surveys and maintenance of the abutments would also result in safety risks to Network Rail staff to undertake these works and require periodic line possessions to enable safe working. The retained abutments would also present a risk as a potential point from which the railway corridor could be accessed. It is likely that security fencing would need to be introduced to any retained section of the abutments, impacting the degree to which any residual architectural interest could be appreciated. For this reason, the option of removal the bridge in its entirety and reprofiling the embankments was selected as the preferred option.

6.3.3 It is anticipated there will be an opportunity to reuse masonry from the demolished structure for works on the wider route. During demolition of the bridge, retention of historic fabric will be maximised as far as possible. Any suitable masonry reclaimed from the removal of bridges along the Route Section W2B will be used for cladding.

6.4 Description of proposals

6.4.1 It is proposed to demolish grade II listed Wright's Overbridge (MVL3/23). The structure would be broken down to 500mm below ground level. Reprofiling works are then proposed on both sides of the railway to tie in with the existing embankments to either side of the existing bridge (Insert 6-2). The public right of way would be re-routed under nearby Hobbe Hole Underbridge (MVL3/22), requiring minor surfacing works and vegetation clearance which lie outside the scope of this application for listed building consent.

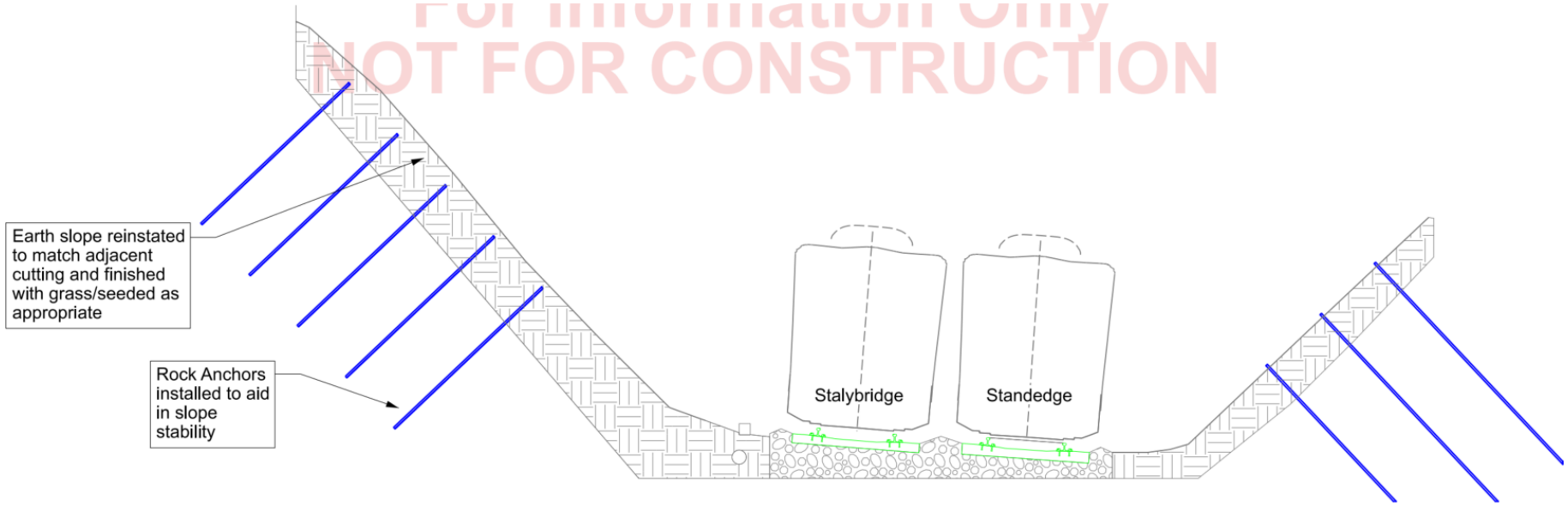
Construction Methodology

6.4.2 Due to the limited space at track level and lack of highway access, the proposed methodology would require all plant to arrive on track. Road rail vehicles would be used to remove arisings from demolition. Reclamation of historic masonry would be undertaken as far as possible with transportation and secure storage at the site construction compound. Stone will be subject to preliminary rapid assessment for potential reuse and then palletised ready for transportation to sites along the wider project route where it will be redressed and used as appropriate.

6.4.3 The proposed works to Wright's Overbridge (MVL3/23) are shown in the following drawings which accompany this application:

- Existing and Proposed Plan (167037-TGP-25-MVL3-DRG-T-LP-162312); and
- Existing and Proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-162313).

For Information Only
NOT FOR CONSTRUCTION



Insert 6-2 Proposed reprofiled railway cutting following removal of Wrights Bridge Overbridge (MVL3/23

7. IMPACT OF PROPOSALS

7.1 Wright's Overbridge (MVL3/23)

7.1.1 As identified above; in order to construct the Order Scheme, demolition of Wright's Overbridge (MVL3/23) is proposed. This would result in the total loss of the structure. The proposed works would remove the historic and architectural value of the structure.

7.1.2 The loss of this asset will mean the removal of a historic bridge that is part of the physical infrastructure associated with the Heroic Age (1841-50) of railway construction. It is not only a loss in its own right, but also detrimental to the historic character and group value that this structure contributes to as part of the Transpennine railway line.

7.1.3 The proposed demolition of the structure would have an impact on the group value of the bridges designed by A.S. Jee on the Transpennine route. The loss of Wright's Overbridge (MVL3/23) would remove one element of this group of 18 designated bridges designed by A.S. Jee (see paragraph 5.2.10) and one of the five bridges which share a common design language (see paragraph 5.2.11). The other bridges designed by Jee derive part of their value from their group relationship. The significance of each of the other bridges will therefore be slightly diminished by the removal of one of their number. The impact of this demolition would amount to less than substantial harm to the retained structures arising from a weakening of the extent to which group value contributes to their significance.

7.1.4 These proposals would therefore result in the total loss of the asset and substantial harm to the significance of Wright's Overbridge (MVL3/23). As discussed in paragraphs 6.2.7 to 6.2.15, detailed consideration has been given to the option of reconstructing the listed overbridge. However, this would still result in substantial harm to its significance. The issues of site-specific topography constraining potential construction methodology, demonstrated limited use of the structure with a viable alternative public right of way to be provided, and high whole life cost were felt to outweigh the minor benefit of retaining a small portion of historic fabric *in-situ*.

7.2 Other heritage assets

7.2.1 The proposals would have no impact on any other surrounding designated or non-designated heritage assets.

7.3 Mitigation

7.3.1 Proposals to reclaim and reuse masonry from the grade II listed Wright's Overbridge (MVL3/23) have been embedded as an integral part of the proposed Order Scheme. This fabric would be utilised for reuse as cladding of structures elsewhere on the Route Section W2B as far as possible. The reuse of this fabric would partly compensate adverse impacts arising from the work.

7.3.2 During construction of the works, toolbox talks would be implemented. These would disseminate best practice for reducing potential impacts in relation to construction activity associated with Wright's Overbridge (MVL3/23), for example to ensure the approach taken to maximising masonry for reclamation is communicated.

Recommended Compensation

7.3.3 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 3 standards in accordance with Historic England guidance (Historic England 2016). This would provide a permanent record of Wright's Overbridge (MVL3/23) in its current form and be lodged with the Greater Manchester Historic Environment Record. This building recording would help to compensate for the harm to significance resulting from the reconstruction by providing the opportunity to document the structure which will be largely lost as a result of the proposed works. The historic building recording would include:
    - Drawings;
    - Photography; and
    - Written account.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Wright's Overbridge (MVL3/23). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The works proposed to be undertaken to Wright's Overbridge (MVL3/23) are required to ensure the realisation of the substantial public benefits of the Order Scheme, in accordance with paragraph 214 of the NPPF.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The demolition of Wright's Overbridge (MVL3/23) would directly facilitate the achievement of these aims by resolving the insufficient clearance beneath the bridge to accommodate electrification and the use of larger gauge trains, thereby allowing increases in line speed to be delivered, and capacity and resilience to be enhanced.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including the demolition of Wright's Overbridge (MVL3/23), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed demolition would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling.

7.4.7 Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four 'express', two 'semi-express' services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.8 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in 'greener' energy technology. This supports Network Rail's Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.9 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the demolition of Wright's Overbridge (MVL3/23).

7.4.10 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.11 To this effect, the proposals at Wright's Overbridge (MVL3/23) are therefore essential in achieving the overall substantial public benefits of the Order Scheme and wider objectives of the TRU Programme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Wright's Overbridge (MVL3/23) lies primarily in its historical and architectural interest. The bridge is a largely unaltered example of an 1840s overbridge, dating from the Heroic Age (1841–50). The high quality of the bridge's architecture, including segmental arches with rusticated voussoirs and keystones, together with the high-quality workmanship of its construction is characteristic of A.S. Jee's work for the Huddersfield & Manchester Railway. The bridge also derives significance from this direct historical relationship with notable railway engineer A.S. Jee and the historic railway companies namely the Huddersfield & Manchester Railway and LNWR. The setting of Wright's Overbridge (MVL3/23) makes a minor contribution to the significance of the structure, it also possesses group value as one of a number of A.S. Jee structures on the Transpennine route which share a common design language.

8.1.2 A number of design options were pursued to achieve the clearance required for the OLE. The OLE is a fundamental part of the Order Scheme to deliver a faster service (reduced journey time) and to make provision for electrification and the operation of a 'greener' transport solution. The development of a scheme-specific pantograph which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment, has not resolved the clash between proposed OLE and the listed structure.

8.1.3 A full and robust optioneering process was undertaken in consultation with the LPA and Historic England to develop proposals for Wright's Overbridge (MVL3/23). This reviewed options comprising track lowering, bridge jacking, bridge reconstruction and bridge removal, and considered these against a range of factors comprising:

- Local geology including the shallow depth of rock within the railway cutting;
- The topography of the site;
- Accessibility for construction;
- Buildability within the constraints of working on an active railway network;
- Safety requirements;
- Use of the structure as a public right of way; and
- Comparative whole life costs of reconstruction and demolition.

8.1.4 Removal of the bridge was identified, on balance, to deliver substantial public benefit, in terms of delivering a feasible and cost-

effective design solution, reducing disruption to rail users and the railway network, and in achieving the aims of the Order Scheme. Whilst this option is recognised to result in the total loss of the structure and substantial harm to Wright's Bridge (MVL3/23), it is considered that the substantial public benefits of the Order Scheme outweigh this harm, in accordance with the requirements of paragraph 214 of the NPPF.

8.1.5 The loss of Wright's Overbridge (MVL3/23), which is a grade II listed building, should be considered exceptional. This will mean the loss of an irreplaceable piece of railway infrastructure, dating to the Heroic Age (1841-50) of railway building. It is also a loss to the collection of A.S. Jee bridges that are located along this section of the Transpennine route.

8.1.6 The design process has been undertaken in a strongly collaborative manner and has sought historic environment professional support from the outset. The desire to maximise heritage benefits and limit harm was the primary position. Every effort was made to retain this historic structure as part of TRU. However, this was unachievable with the operational parameters set. Regular consultation with historic environment stakeholders and the design team were held throughout the design development process. Historic England and OMBC have accepted that the approach of demolishing the structure is necessary to deliver the proposed Order Scheme, and that the justification for this harm is clear and convincing. The design development process, including engagement with historic environment stakeholders, resulted in compensation measures being agreed, to be secured as conditions of the LBC (see Section 7.3).

8.1.7 With the demolition of Wright's Overbridge (MVL3/23), the Order Scheme can achieve key improvement objectives as outlined in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution);
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and

- Improving public health and safety in providing safe routes across the railway (with the public right of way rerouted under Hobbe Hole Underbridge (MVL3/22).

8.1.8 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.9 Whilst the demolition of Wright's Overbridge (MVL3/23) is regrettable, its loss would be outweighed by the substantial public benefits that accrue from enabling the Transpennine programme to be achieved. The proposals would therefore meet the requirements of paragraph 214 of the NPPF in relation to the justification for substantial harm and provide sufficient justification to outweigh the strong presumption against demolition of listed buildings outlined in policy 24 of the OMBC local development framework and Policy JP-P2 of Places for Everyone.

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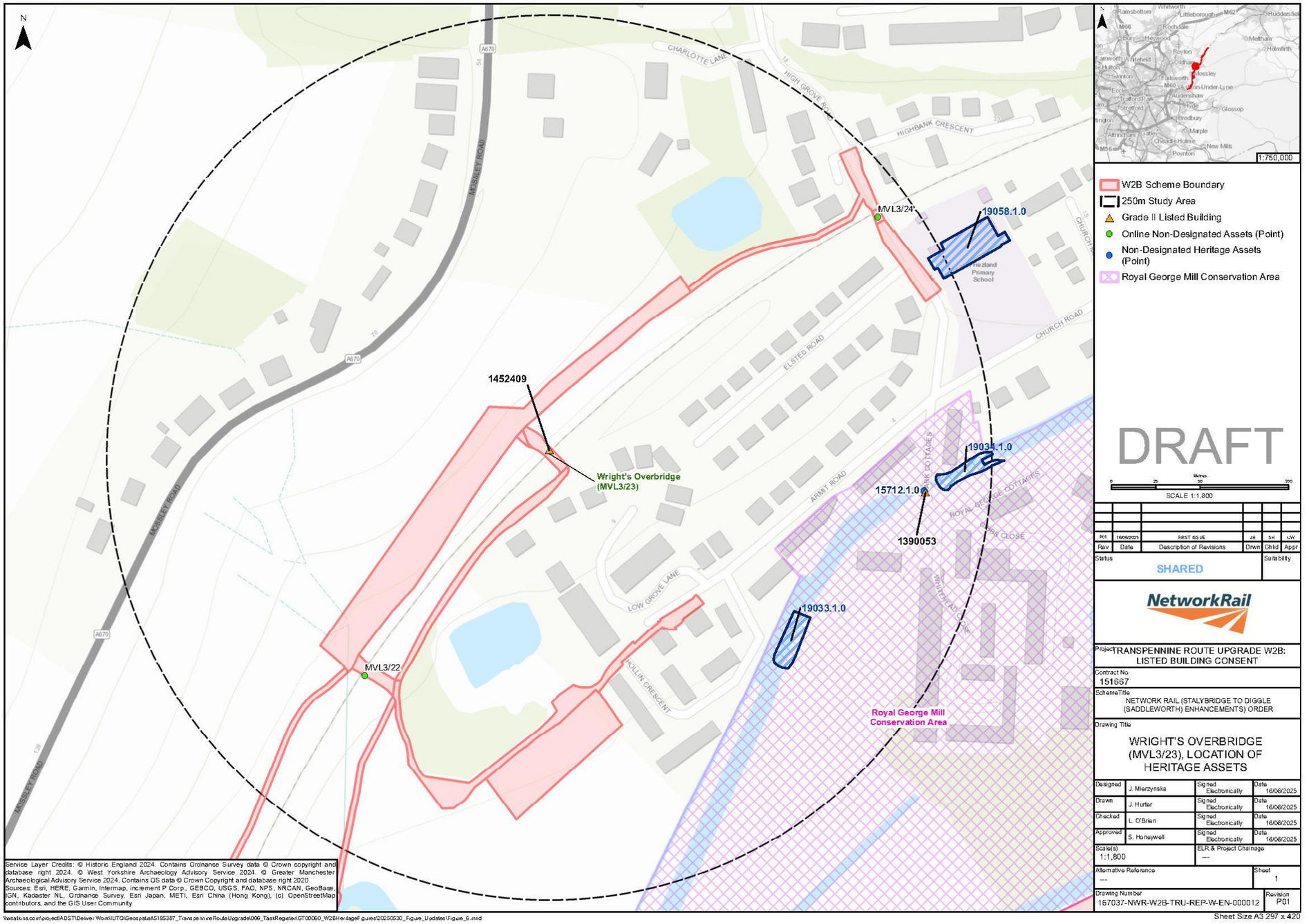
APPENDIX A – LOCATION PLAN



APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1452409
Date first listed:	23-Mar-2018
List Entry Name:	Railway overbridge MVL3/23, Wright's
Location Description:	Footpath from Mossley Road to Hollin Hall, Greenfield.

Location

The building or site itself may lie within the boundary of more than one authority.

District:	Oldham (Metropolitan Authority)
Parish:	Saddleworth
National Grid Reference:	SD9810704133

Summary

Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.

Reasons for Designation

Wright's Overbridge (MVL3/23), constructed in the mid-late 1840s by AS Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic interest:

* constructed during the heroic age of railway building and a little-altered example of an 1840s overbridge on what is now one of the main railway lines in northern England;

* designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* the bridge is well-detailed with ashlar impost bands and string course, and piers and voussoirs with tooled margins, that lift its design above the purely functional.

Group value:

* with the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed in 1837 to 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles, and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish

Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently (2018) owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

This overbridge was built to carry the footpath from Mossley Road to Hollin Hall over the railway. It was designed by AS Jee (1816-1858) and dates from the line's construction from 1845-1849. It remains as built.

Details

Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.

MATERIALS: buff sandstone.

DESCRIPTION: the bridge carries the footpath from north-west to south-east across the railway. Due to gradients it slopes down towards the south-east. The bridge comprises a single segmental-arched span recessed between battered abutments to either side of the steep cutting, with a parapet.

The stonework is regular-coursed and quarry-faced. The stone of the arch piers and the voussoirs has tooled margins, the keystone breaking the arch above and below. The impost bands, sloping string course above the arch and the chamfered-and-weathered parapet copings are dressed. The abutments curve outwards slightly at all four corners and terminate in slender piers with shallow, pyramidal caps. The arch soffit is narrow-coursed masonry with tooled detailing. The road surface was much overgrown at the date of survey (2017).

Sources

TransPennine Route Statement of History and Significance: West of Leeds V3.1. Prepared for Network Rail, March 2017. Alan Baxter Ltd.

APPENDIX C - HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

29 November 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meetings on 6 and 21 November 2024 to review the proposals for bridges MVL3/9, 10, 23, 25, 26, 28, 29 and 31. As before, it was helpful to see the drawings in advance and then talk through the proposals with the team.

The impacts of the proposed changes and our comments are detailed below:

Proposals at *Manchester Road underbridge MVL3/10*, *Shaw Hall Bank Road underbridge MVL3/26* and *Wickens underbridge MVL3/29* will involve minor works, consisting of renewal of railings and strengthening of parapets with reinforced concrete. Visually, there will be only a minor impact, as the replacement railings are similar to the existing and the concrete strengthening will be hidden from view by the parapets. There will be a very low level of less than substantial harm to the physical fabric of the bridges due to the new railings being grouted into cored holes in the masonry parapet blocks. We do not have concerns over the works at these three bridges and recognise the efforts to maintain the visual appearance on the bridges.

The proposals for *Spring Bank Lane overbridge MVL3/9* and *Uppermill Viaduct MVL3/31* have been discussed at previous meetings, and it was helpful to see further details of the works at these structures. There will be a low level of less than substantial harm to *Spring Bank Lane overbridge* due to the introduction of raised copers, however the use of colour-matched concrete here will help to mitigate some of the harm caused by the visual impact of the new copers. Works to *Uppermill Viaduct* will likewise lead to a low level of less than substantial harm due to the introduction of brackets to support the OLE portals which will have an impact both physically and visually. We appreciate that care has been taken in the spacing of these portals so the rhythm of the bridge arches is not unduly interrupted, and so that the pattress plates are not affected.

More considerable impacts will result from proposals at *Wright's overbridge MVL3/23*, *Oaklands Road underbridge MVL3/25* and *Oldham Road overbridge (Greenfield*

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Station) MVL3/28, all of which will result in substantial harm to the significance of the designated assets.

As mentioned in previous letters, the removal of *Wright's Overbridge* will cause substantial harm to its significance through the total loss of its historic form and all original fabric, and through the re-routing of a historic public footpath. Thorough justification will need to be presented in the supporting documentation to provide the reasoning for the total loss of this bridge.

The proposed reconstruction of *Oldham Road Overbridge* has also been discussed previously. This is a skew overbridge located on the north-east side of Greenfield Station which carries Oldham Road over the track below. The bridge currently has a masonry arch which will be dismantled, along with much of the approaching wing walls, resulting in very little historic fabric being retained. The works will also necessitate the removal of the ornate historic iron railway footbridge. There will be substantial harm to the significance of the listed asset due to the severity of changes to its physical appearance and the loss of historic fabric. We recognise that some fabric will be retained for reuse as cladding material, however this will need to be carefully managed to maintain the look of the structure. The stone coursing in the existing bridge runs through the parapets into the wing walls. We would like to see care taken to replicate this effect within the reconstructed bridge to avoid a disjointed appearance to the new structure, which could arise from using mismatched stone-cladded panels. The existing bridge features flat masonry pilasters that project slightly from the bridge to either side of the arch. These have not been articulated in the proposed design and we would like to see further investigation into whether they could be incorporated into the design. This location would be suitable for display of permanent interpretation materials which could help to mitigate some of the harm by informing the public about the history of the route and the upgrade works.

Oaklands Road underbridge MVL3/25 is a skew girder bridge carrying the two-track railway line over a bend in the road below. The angled abutments have distinctive semi-octagonal piers, and the parapets are ornate balustrades of decorative cast-iron panels of Gothic arcading. The craftsmanship of the stonemasonry and attention to architectural detail lifts the design of this bridge above the purely functional and it has considerable architectural interest. There will be substantial harm to the significance of this listed bridge resulting from the proposals to reconstruct and widen the bridge deck and to rebuild the octagonal piers. In order to minimise the harm, the design of the rebuilt piers and abutments will need to be careful managed to ensure there is meaningful articulation of the distinctive shape of the piers. This includes the contrasting shape and dimensions of the piers where they extend through and above the parapet. We are comfortable with the proposals to replicate the decorative cast-iron panels to minimise the visual impact of the loss of the original fabric here.

Next Steps

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We look forward to our continued involvement in the pre-application discussions for this scheme.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, October 2024

MVL3/25 Presentation, November 2024

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Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

25 June 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the pre-application meetings over the last five months. These have been extremely useful in explaining the significance of the heritage assets, the design team's approach, and in exploring issues and constraints associated with electrifying the track.

This letter covers our advice regarding proposals for change to eight listed railway structures between Stalybridge and Standedge Tunnel, within the Metropolitan boroughs of Tameside and Oldham in Greater Manchester. This section of the railway is referenced as W2B.

Significance

The section of railway between Stalybridge and Standedge Tunnel was constructed in stages between 1844 and 1849. This was at the height of "railway mania"; an intense period of activity when many competing companies formed and were racing to complete sections of railway. The Stalybridge and Standedge Tunnel railway eventually became part of a wider network of sections of track that extends from Selby and York to Manchester Victoria via Leeds.

The W2B route has considerable heritage value. It traverses areas of dramatic landscape and varied geology, and has remained well preserved and largely unaltered since its opening in the 1840s. The wider railway network from the Yorkshire cities to Manchester contributed hugely to the economic and urban development of the North and was a major factor in the industrial revolution and in the development of towns.

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The tricky geology and terrain of the W2B route presented challenges to the engineers of the 1840s, and many of the most notable surviving features of the railway are the impressively engineered bridge and viaduct structures. These structures are predominantly built from locally sourced stone, meaning they harmonise with the landscape and contribute to local views, adding to the aesthetic value of the route. The significance of the structures also lies in the fact that they survive well and in large numbers. There have been few alterations to bridges, mainly because this section of the line has not been widened as other parts of the wider route have been.

There are eight listed railway structures that will be affected by the proposed electrification works between Stalybridge and Standedge Tunnel; these are:

- Heyrod Hall Overbridge - MVL3/7
- Heyrod Footbridge Overbridge - MVL3/8
- Spring Bank Lane Overbridge - MVL3/9
- Roughtown Road Overbridge - MVL3/17
- Wright's Mill Overbridge - MVL3/20
- Wright's Overbridge - MVL3/23
- Oldham Road Overbridge - MVL3/28
- Saddleworth Viaduct - MVL3/31

All eight of the listed structures were designed by notable railway engineer Alfred Stanistreet Jee, lead engineer for the railway between Huddersfield and Manchester. They were built in the mid-late 1840s and share many architectural characteristics, adding to their group value and enhancing their significance.

Bridges MVL3/7, MVL3/9, MVL3/17, MVL3/20, MVL3/23, and MVL3/28 are all very similar in design. All are made from coursed local sandstone and have segmental arches formed from tooled voussoirs, with larger keystones. Each has dressed ashlar impost bands, sloping string courses above the arch, and parapet copings, with shallow pyramidal caps to the slender piers. They have considerable group value and are easily identifiable in the landscape as bridges associated with the original construction of the railway. The bridges are all well designed and adapted to their individual locations, some being skewed or sloped. High quality workmanship and

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details such as picked and tooled ashlar voussoirs elevate their design above what is purely function, enhancing their significance further.

Heyrod Footbridge (MVL3/8) and Saddleworth Viaduct (MVL3/31) are clearly recognisable as part of the same scheme of work but differ in their form. Heyrod Footbridge features a flat span, and retains its cast-iron edge beams and brick parapets, while Saddleworth Viaduct comprises 23 sandstone arches spanning the River Tame and Huddersfield Narrow Canal.

The structures are all Grade II listed in recognition of their special architectural and historic interest at national level. Saddleworth Viaduct was listed in 1986, while all seven overbridges were listed in 2017 or 2018 after a comprehensive review of the line.

Impacts

The proposals involve demolition and reconstruction of three structures, total removal of one structure, and modifications to four structures. These works are deemed necessary to achieve the clearance required for the OLE (overhead line equipment) and to ensure safety for bridge users. The impacts of proposed works at each structure are discussed below.

Bridges requiring demolition works:

Heyrod Hall Overbridge MVL3/7 carries a short section of private road over the railway to Heyrod Hall. This bridge is in a rock cutting with very hard rock beneath the track, prohibiting track lowering.

Wright's Mill Overbridge MVL3/20 carries the public footpath and bridleway over the railway where it passes through a steep-sided rock cutting. Options to lower the track at this bridge have been investigated but discounted due to the location on the bridge in a rock cutting with very hard rock beneath. Track lowering would also have a knock-on effect to a nearby underbridge.

Oldham Road Overbridge MVL3/28 is a skew overbridge located on the north-east side of Greenfield Station and carries Oldham Road over the track below. There will be

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the addition of a new footbridge alongside the reconstructed road bridge. Options to lower the track at this bridge have been investigated but would be difficult to achieve due to the proximity to the station.

Proposals at these three bridges involves the complete dismantling of each bridge and reconstruction to create a raised, flat deck with sufficient clearance for OLE. Stone would be reclaimed and used to clad the inside faces of parapet walls; however matching stone is likely to be needed to clad the external sides of the parapets. New copers would also be needed to ensure parapets were the correct height.

The demolition and reconstruction of these bridges will cause substantial harm to their significance through the total loss of historic form and loss of much of their original fabric. The proposals will also diminish the group value of the historic bridges on the railway.

Wright's Overbridge MVL3/23 is a footbridge that carries a public footpath from north-west to south-east across the railway. The railway here is in a steep cutting and due to gradients, the bridge slopes down towards the south-east. Proposals involve the total removal of this bridge and diversion of the public right of way across the railway at another point.

The removal of Wright's Overbridge will cause substantial harm to its significance through the total loss of its historic form and all original fabric. Its removal will necessitate the re-routing of a historic public footpath, which is part of a network of paths in the area connecting mills and farms with workers' housing, and contributes to the landscape character of the area and to the setting of the bridge. The proposals will also further diminish the group value of the historic bridges on the railway.

Bridges requiring modifications:

Heyrod Footbridge Overbridge MVL3/8 carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane which are also listed.

Spring Bank Lane Overbridge MVL3/9 (also known as Heyrod Bridge) carries Spring Bank Lane over the railway. Due to the lie of the land the bridge slopes down towards the east. The splayed projecting wing walls are also covered by the listing.

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Roughtown Road Overbridge MVL3/17 carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The projecting wing walls are also covered by the listing.

Minimal interventions are proposed at these three bridges, the most significant changes being the introduction of new triangular copers to ensure the correct and safe parapet heights.

The introduction of triangular copers to raise the parapet heights to 1.5m will result in a low level of less than substantial harm to the significance of the bridges through the changes to their appearance and the loss of original copers. This harm could be further lowed by using stone copers instead of concrete, and by undertaking any other restoration works required such as replacing the recently rendered section of parapet copings in the south-west corner of Roughtown Road Bridge.

Saddleworth Viaduct MVL3/31 (also known as Uppermill Arches and Uppermill Viaduct) carries the railway over a series of roads and lanes, and the River Tame and Huddersfield Narrow Canal. Due to the lack of space available on the viaduct deck, proposals here involve attaching brackets to the exterior of the viaduct for the OLE supports.

The proposed works at Saddleworth Viaduct will result in a low level of less than substantial harm to the significance of the structure through the change to its appearance and in the physical impact on the elevations of the viaduct from the brackets. This harm could be further lowed by ensuring the spacing of the masts responds to the structural and architectural rhythm of the viaduct to lessen their visual impact.

Policy

National policy relating to the conservation and enhancement of the historic environment is articulated in section 16 of the National Planning Policy Framework (NPPF, 2023). These policies state that heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so they can be enjoyed for their contribution to the quality of life of existing and future generations (NPPF para 195). Also, when considering the impact of a proposed development, great weight should be given to an asset's conservation (NPPF para 205).

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Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification (NPPF 206).

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss. In practice this means that less harmful alternative solutions should be explored through the pre-application and application processes.

In addition to section 16 of the NPPF, we refer you to Section 12 'Achieving well-designed and beautiful places' when considering the design for replacement bridge structures. Para 132 states that being sympathetic to local character and history is important, along with a consistent and high-quality standard of design (para 133).

Position

The proposed works to upgrade the W2B section of the Transpennine route network will be the first major programme of work since its construction in the 1840s. The wider public benefits of the upgrade work to this key transport network will be vast and will have positive knock-on effects across the region. The challenging geology and hydrology across the route still present issues to engineers today, and we welcome the work that has gone into investigating alternative options to demolition and reconstruction for the bridges affected.

The proposals will result in substantial harm to the significance of bridges MVL3/7, MVL3/20, MVL3/23, and MVL3/28, with the highest level of harm to bridge MVL3/23 which will be dismantled and not reconstructed. The proposals will cause harm through the loss of the form of the arched bridges and though the loss of historic fabric. There will be the additional harm to the group value of the bridges.

We agree that the bridges are predominantly experienced from the bridge deck, and that re-use of original fabric should be focussed on the inside faces of the parapet walls to ensure the look of the bridge when crossing it is not unacceptably altered, however this re-use of materials does not lower the harm to less than substantial levels. It will be for decision takers to weigh the balance of this substantial harm against the public benefits of the scheme.

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Works to bridges MVL3/8, MVL3/9 and MVL3/17 is largely limited to raising the parapets to ensure they are the safe and correct height. We acknowledge that Network Rail has a legal obligation to take reasonable steps to prevent people from coming into contact with the OLE by ensuring parapets cannot be climbed or walked on. We appreciate the work undertaken to investigate various options for different types of pantographs to limit the height at which the parapets need to be raised to. The use of triangular copers will introduce a change in the appearance of the bridges and cause a low level of less than substantial harm to their significance, but the impact can be lessened by use of stone rather than concrete copers which will be less visually obtrusive. Parapet design should be tailored to the individual circumstances of each bridge to ensure the least harmful solution is used.

There will also be a low level of less than substantial harm at Saddleworth Viaduct from the introduction of brackets to the structure to support the OLE. This can be further lowered by thoughtful spacing of the brackets.

We welcome the detailed options appraisals undertaken during the design of the proposed works to listed structures on the W2B route. We recommend that details are finalised using bespoke designs that respond to the particular character of each structure and its setting.

Next Steps

Thank you for involving us at the pre-application stage of this project. The above advice is the response that we would give if the same proposals were put forward unamended for statutory approval.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
HistoricEngland.org.uk

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Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
HistoricEngland.org.uk

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Royal George Underbridge (MVL3/25) – Heritage Statement

Rule 10(6)(d)

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Condition 3
1.4 Summary of proposal 5
2. LEGISLATION AND POLICY CONTEXT 5
2.1 Legislation 5
2.2 National Policy 7
2.3 Local planning policy 10
2.4 Historic England Guidance 13
3. ASSESSMENT METHODOLOGY 14
3.1 Research 14
3.2 Significance and setting 15
4. CONSULTATION 15
5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE 23
5.1 History of the W2B Transpennine Route 23
5.2 Royal George Underbridge (MVL3/25) 25
5.3 Surrounding heritage assets 32
6. PROPOSALS 35
6.1 Background of proposals 35
6.2 Design development and justification 35
6.3 Development of Preferred Option 40
6.4 Description of proposals 44
7. IMPACT OF PROPOSALS 48
7.1 Royal George (MVL3/25) 48

7.2 Other heritage assets 49

7.3 Mitigation 50

7.4 Public benefit 51

8. CONCLUSION 53

9. REFERENCES 56

APPENDIX A – LOCATION PLAN 59
APPENDIX B – HISTORY ENGLAND LIST DESCRIPTION 60
APPENDIX C - HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER 63

Inserts

Insert 1-1 Royal George Underbridge (MVL3/25) 3

Insert 5-1 Historic line plan of Huddersfield and Manchester Railway and Canal by LNWR in 1905 in which Royal George Underbridge (MVL3/25) is illustrated. 26

Insert 5-2 Royal George Underbridge deck renewal drawings, c. 1895 27

Insert 5-3 Royal George Underbridge (MVL3/25) south elevation. 28

Insert 5-4 Royal George Underbridge (MVL3/25) north elevation. 28

Insert 5-5 View of Christ Church from south of Church Road 33

Insert 6-1 Proposed south elevation of Royal George Underbridge (MVL3/25) 46

Tables

Table 4-1 Consultation for Royal George Underbridge (MVL3/25) 16

Table 6-1 – Optioneering for Royal George Underbridge (MVL3/25) 38

Table 6-2 - Abutment design optioneering 42

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Standedge to Diggle (Saddleworth) Enhancement) Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the "Order Scheme"). This section of the Transpennine route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels..

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any

proposed works that would affect the character of a listed building. The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade ll listed Royal George Underbridge (NHLE 1451848). This bridge is located in the village of Grasscroft (NGR SD9859804392), Oldham. A location plan is provided in Appendix A.

1.1.7 The Historic England list description (included in full in Appendix B) names the listed building as “Railway Underbridge MVL3/25, Oaklands Road”. Throughout this Heritage Statement the structure is referred to as “Royal George Underbridge (MVL3/25)” in accordance with Network Rail’s naming of the structure.

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF, revised 2025), specifically paragraph 207, which seeks an assessment proportionate to the asset’s importance and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail’s requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;
- Present the design requirements of the Order Scheme at the structure;

- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the National Planning Policy Framework, 2025 and the Oldham Joint Core Strategy and Development Management Policies.

1.3 Current Condition

1.3.1 Royal George Underbridge (MVL3/25) (Insert 1-1) is a railway underbridge built in the mid- to late-1840s, designed by A.S. Jee for the Huddersfield and Manchester Railway. In c. 1893, the original cast iron deck was reconstructed however the original substructure, pilasters, cast iron edge beams and parapets were retained. The underbridge is situated on the south-eastern periphery of the village of Grasscroft, c. 5.2 km east of Oldham.

Insert 1-1 Royal George Underbridge (MVL3/25)

1.3.2 The structure was subject to a Detailed Survey as part of Network Rail's maintenance regime in 2019, which found the structure to be in 'poor condition'. At this time, defects included section loss to bottom flanges of main girders, fractures to cast iron parapet screens, displacement of cast iron feature course covers, as well as bulging & displacement to wingwall stonework. Ultrasonic thickness testing to external elevations of the main girders, undertaken in 2021, indicated loss of section of girder webs throughout, and greater loss of section for portion of web buried within ballast.

1.3.3 An additional inspection was undertaken in 2023, with the examination report noting the following defects:

- Failure of protective paint system with localised corrosion throughout deck;
- Vertical stepped fractures and deep open joints to pilasters and abutments; and
- Deep open joints and loose to hammer brickwork to ballast walls.

1.3.4 The structure was reassessed under line closure in August 2024. This enabled inspection of hidden critical elements with 6 trial pits requiring removal of ballast to examine the two inner steel girders. Inspection of the trial pits identified the following:

- In some areas rivets were in very poor condition, with instances where the heads were completely corroded;
- Widespread corrosion to web, varying from 2mm-5mm loss of material.
- Widespread corrosion to steel angles between web and flange, causing loss of up to 5mm of steel; and
- Water pooling on top of concrete deck, circa 15mm deep.

1.3.5 Further detailed assessment was undertaken in November 2024. The assessment included 6 trial pits requiring the removal of ballast in order to undertake a visual inspection of the two outer steel girders. The inspection identified the following defects:

- Water was noted to be pooling at the base of one of the trial pits;
- Rivet heads and angle between web and flange noted to be in poor condition in numerous places;
- In three of the trial pit locations the web of the girder was found to be in poor condition with instances of corrosion and delamination. At one location a hole within the girder web was identified;

- Ultrasonic thickness testing of the girder webs was undertaken in three locations with thickness varying from 3.9 mm to 9.7 mm;
- Two of the trial pits revealed portions of the girder flange to be in very poor condition, with pieces of corrosion easily broken away;
- The girder stiffener was revealed to be in poor condition in one of the trial pits, with sections fully corroded and steel only 10mm thick where it remains; and
- In some areas the concrete covering the girder web was coming away and easy to remove, this deterioration could allow water to come into contact with portions of the web hidden from view.

1.3.6 The inspections enabled by the hand digging of trial pits have revealed substantial areas of corrosion, with portions of the girders in poor condition. The findings are limited to those areas revealed by the trial pits. However, those areas inspected have revealed the steelwork is deteriorating which needs to be taken into account when considering potential increases in line speed or loading.

1.4 Summary of proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the Route is required. This would require the alteration of a number of existing underbridges, including Royal George Underbridge (MVL3/25) to accommodate OLE, higher line speed and increased freight trains. It has been determined to be necessary to reconstruct the underbridge. These works would therefore enable implementation of the Order Scheme.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) (the "Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—

(a) any object or structure fixed to the building;

(b) any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

'(1) Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

(2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

(3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached listed building consent may include those with respect to:

'(a) the preservation of particular features of the building, either as part of it or after severance from it;

(b) the making good, after the works are completed, of any damage caused to the building by the works; [and]

(c) the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions.'

It is also defined in s.17 (2) that a condition *'may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'.*

2.1.5 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the

Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.1.6 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) also governs duties of the local planning authority relating to conservation areas, particularly Sections 69, 72 and 74.

- Section 69 requires local planning authorities to define as conservation areas any '*areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance'*.
- Section 72 confers a general duty '*with respect to any buildings or other land in a conservation area… special attention shall be paid to the desirability or preserving or enhancing the character or appearance of that area'*.
- Section 74 defines that demolition of a building in a conservation area is not permitted '*without the consent of the appropriate authority'*.

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective '*to protect and enhance our natural, built and historic environment*'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment'. This sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance. It also includes guidance on assessment of significance of heritage assets and their settings that may be affected by the proposed works and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance*.'
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance*.'
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

  a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

  b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

- Paragraph 214 – *'Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is* necessary *to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

  a) the nature of the heritage asset prevents all reasonable uses of the site; and

  b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

  c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

  d) the harm or loss is outweighed by the benefit of bringing the site back into use.'

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use*.'
- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably*.'

Planning Practice Guidance

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that '*it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed*' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

Oldham Joint Core Strategy and Development Policies

2.3.1 Local planning policy for Oldham Metropolitan Borough Council (OMBC) is provided by the Joint Core Strategy and Development Management Policies of the Oldham Local Development Framework, adopted in November 2011 (Oldham Council, 2011), adopted in November 2011, and a small number of retained policies from the Unitary Development Plan (Oldham Council, 2009). Policy 24 relates to the Historic Environment and is reproduced in full below:

Policy 24 Historic Environment

'Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

- *National and local guidance and policies on the historic environment.*
- *Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.*
- *Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.*
- *Conservation Area Appraisals and Management Plans, where appropriate.*

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

a. *Listed buildings.*

b. Conservation areas.

c. Registered parks and gardens (their historic character and setting).

d. Scheduled ancient monuments (their archaeological value and interest).

e. Significant archaeological remains.

f. Locally significant buildings, structures, areas or landscapes of architectural or historic interest (including non-designated locally significant assets identified in the local lists compiled by the council).

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional. Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.*

Conservation Areas

Development within or affecting the setting of a conservation area, including views in or out, must serve to preserve or enhance the character or appearance of the area. Proposals for all new development, including alterations and extensions to buildings and their re-use, must have a sensitive and appropriate response to context and good attention to detail. Proposals must not adversely affect important architectural or historic features or distinctive local features or structures unless it can be demonstrated that the development brings substantial benefits to the community. Proposals for the demolition of a building in a conservation area must demonstrate that it is unrealistic for the building to continue in its existing use and a suitable alternative use cannot be found, or the building is in poor structural condition and the cost of repairing and maintaining it would be disproportionate to its importance and value and the demolition would preserve or enhance the character or appearance of the conservation area. In exceptional circumstances,

the fact that a demolition would bring substantial benefits to the local community may outweigh the balance in favour of the preservation of the building.

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

- Significant archaeological remains.
- Locally significant buildings, structures, areas or landscapes of architectural or historic interest.'

Places for Everyone (Greater Manchester Combined Authority 2024)

2.3.2 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Oldham, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

2.4 Historic England Guidance

2.4.1 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England. 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.4.2 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the *'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance'* (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.4.3 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.4.4 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Royal George Underbridge (MVL3/25). The historical narrative informing the baseline has been derived from a review of various sources including maps and other cartographic and photographic sources. Statutory information in relation to the designated asset has been obtained from the National Heritage List for England maintained by Historic England and the Historic

Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the asset, ite condition, use and setting has been obtained from a walkover survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 May 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team.

3.2 Significance and setting

3.2.1 Assessment of the significance of the heritage asset and its setting has been undertaken in consideration of guidance issued by Historic England. Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in Annex 2 of the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest.

3.2.2 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- the location and siting of the development;
- the form and appearance of the development;
- additional effects (change to skyline etc.);
- permanence; and
- consequential effects.

4. CONSULTATION

4.1.1 Historic England and OMBC have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of the TRU.

4.1.2 Regular meetings with Historic England and OMBC have been held to discuss the design development of the proposal in relation to Royal George Underbridge (MVL3/25). Initial meetings were held periodically throughout 2021, and resumed in 2024 to discuss the

overall route and design development for all structures along the Route Section W2B.

4.1.3 The design development for Royal George Underbridge (MVL3/25) was presented and discussed with the historic environment stakeholders on the following dates:

Table 4-1 Consultation for Royal George Underbridge (MVL3/25)

Date	Stakeholder in attendance	Key agreements/items discussed
27 January 2021	• OMBC	• Meeting to present the overview and scope of Route Section W2B within Oldham Council. • Overview of the Order Scheme was presented including the inventory of structures within the council's jurisdiction of which Royal George Underbridge (MVL3/25) forms one of 12 underbridges.
15 February 2021	• OMBC	• Project briefing on the bridge structures in order to identify the location and Order Scheme output, Network Rail electrification challenge, structures overview and next steps. • Structures presentation included Royal George Underbridge (MVL3/25) and identified that works would be required to allow for an increase in line speed. Assurance that Network Rail would not want to reduce headroom and any refurbishment would be sympathetic to the historic design of the bridge, in response to council concerns regarding impact and sensitivity of the design.
26 May 2021	• OMBC • Tameside Metropolitan Borough Council (TMBC) • Historic England	• Overview of the structures along Route Section W2B which are of historic interest, such as the grade II underbridges including Royal George Underbridge (MVL3/25) which are noted for their significance, particularly as essential railway structures and their shared common themes, significance and group value. Royal Goerge Underbridge (MVL3/25) was also acknowledged as being the only underbridge within this route section with metallic parapets. Acknowledgement that

Date	Stakeholder in attendance	Key agreements/items discussed
		these are monumental examples of 19th century engineering and prominent elements of local townscape and landscape. • Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs[1]. • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. • Reassurance was provided to the council that they will be involved in the GRIP 3 design process which will be used within the detailed design development of GRIP 4. Clarification was also provided on the sustainable heritage initiatives. • Historic England stated that they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
6 February 2024	• Historic England	• Overview of listed structure, and details of the challenges of the electrification of the route in relation to listed overbridges were presented. • The design approach for electrification across / under existing railway bridges was noted to have been agreed in principle by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage.

[1] At the time of consultation in 2021, the delivery of railway investment programmes was managed by Network Rail as a staged process through use of the GRIP (Governance for Railway Investment Projects) process. GRIP 3 comprised option selection. This has since been replaced by PACE (Project Acceleration in a Controlled Environment).

Date	Stakeholder in attendance	Key agreements/items discussed
22 April 2024	• Oldham Council	• Overview of preferred options for structures along the route within Oldham. This included the preferred option for Royal George Underbridge (MVL3/25) which consists of steelwork strengthening and bonding, ballast beams required.
7 May 2024	• Historic England	• Progress with next steps of the design for works proposed to Underbridges involving track alignment which includes Royal George Underbridge (MVL3/25), which is the only non-masonry arch bridge of the underbridges within this part of the Order Scheme. • Awaiting track design before progressing.
24 April 2024	• OMBC	• Network Rail presented an overview of structures within Oldham to the council, which included Royal George Underbridge (MVL3/25) and discussed: steelwork strengthening and bonding, ballast retention and GRP handrail on wingwall.
21 November 2024	• Historic England	• Presentation of revised proposals for Royal George Underbridge (MVL3/25) which is now being proposed as a reconstruction due to poor structural condition. • Historic England accepted the need for reconstruction, and acknowledged harm to the listed structure resulting from this. • Key design features were identified to include the octagonal turrets and gothic parapets. • The need to widen bridge and alter the turrets was discussed and the need for a sensitive design solution which maintained the definition of the turrets was identified. Replication of the existing parapet and spacing of OLE masts to avoid the bridge were welcomed by Historic England. • The visibility of the bridge to the public was highlighted by Historic England increasing the sensitivity of the reconstruction proposals. • Potential for permanent interpretation at this location noted and welcomed by Historic England.

Date	Stakeholder in attendance	Key agreements/items discussed
4 December 2024	• Historic England	• Network Rail presented four high level options for the reconstruction of Royal George Underbridge (MVL3/25): 1. Reconstruction with pilasters to match existing geometry, resulting in a loss of section from the turrets to accommodate the widened deck. 2. Projection of pilaster at base of new cill units with a string course which steps out relative to the pilaster. This option would retain full extent of pilaster to interface with parapet. 3. 200mm step out of pilaster at existing string course, level with pilaster flush to string course. Pilaster shape adjusted to provide five faces of octagonal shape similar to existing. 4. 250mm step out of pilaster at existing string course level. The pilaster step in from string course as existing and the pilaster shape would be adjusted to provide five faces of octagonal shape. • Historic England identified Option 1 as preferred. • Materials for reconstruction discussed. Use of natural stone and concrete for feature lines, similar to other reconstructed structures noted. Potential for use of stone for capping of turrets also noted.
19 December 2024	• OMBC	• Meeting held with officers from the Highways department at OMBC, in which an overview of the proposed works to MVL3/25 were presented. • It was highlighted by Network Rail that the heritage significance of the bridge has been fully considered, with ongoing pre-application engagement with Historic England taking place. • Specific queries relating to highway safety (including risk of bridge strikes, nature of headroom signage) were discussed.

Date	Stakeholder in attendance	Key agreements/items discussed
		• The proposed construction methodology was discussed, along with the consideration needed to be given to sequencing the proposed works at MVL3/25 and MVL3/28 at different times to minimise disruption to diversionary highways routes, and engagement with nearby stakeholders. • OMBC Highways officers noted an understanding about why the proposed works are required and that engagement with Historic England is beneficial.
19 February 2025	• Historic England	• Presentation of developing proposals for MVL3/25 to Historic England. • Requirement for protection of bridge deck from vehicle strike and difference in headroom between the bridge elevations due to slope on road acknowledged. • Proposal to increase the depth of the southern edge beam to match that to the northern edge beam agreed. Articulation of the south beam agreed, and noted to enable understanding of the deeper beam as a safety feature.
27 February 2025	• Historic England	• Presentation of the deeper downhill beam to Historic England who expressed content with this design as well as with the continuation of the string course from the turrets across the deck. • Confirmation that Option 1 for the design for the new turrets is still the agreed approach.
02 April 2025	• OMBC	• Presentation of overview of the aims and objectives of TRU to OMBC heritage officers, with emphasis on the historic context of Route Section W2B and the 12 listed building consents applications which are being prepared for the various works to the grade II listed bridges and viaduct along the route section. • Presentation of overview of electrification challenges caused by the existing arch profile of a number of existing bridges

Date	Stakeholder in attendance	Key agreements/items discussed
		and have developed bespoke solutions for these to achieve the required clearance. • Overview of the current status of each structure within OMBC's jurisdiction, including the reconstruction of Royal George Underbridge (MVL3/25). Network Rail identified that the current structure would not be capable of accommodating the OLE, higher line speed and increased freight trains associated with the Transpennine Route Upgrade due to its poor condition and that proposals to reconstruct the structure have been progressed. The reconstruction would seek to rebuild the piers, abutments and replicate the cast iron parapets.
2 June 2025	• Historic England	• Feedback from Historic England following receipt of the draft listed building consent package for Royal George Underbridge (MVL3/25). • Raising of bridge deck noted, providing additional headroom. Appearance and proportions of proposed structure noted by Historic England to be successful, with the alignment of the parapet with the turrets being an important aspect of this.
24 June 2025	• OMBC	• Pre-application advice letter received from OMBC outlining local planning authority advice following review of the draft listed building consent application material. • OMBC found that the reconstruction of Royal George Underbridge (MVL3/25) would result in substantial harm through the loss of its historic form and much of the original fabric. • OMBC highlight that clear and convincing justification will be required for any harm arising to designated heritage assets, with substantial benefits required to outweigh substantial harm.

Date	Stakeholder in attendance	Key agreements/items discussed
		• A high level of harm was also found to the group value of the bridges designed by A.S Jee on the TransPennine Route, due to the proposed demolition of Wright's Overbridge (MVL3/23) and reconstruction of four other bridges (including Royal George Underbridge (MVL3/25), and a limited level of harm to group value arising from the alteration of three other structures
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Historic England state they are comfortable with the design of the proposals for reconstruction of the parapet and stone turrets at Royal George Underbridge (MVL3/25), which have been carefully considered to minimise visual impact. • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs over Royal George Underbridge (MVL3/25) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age of railway building (Historic England, 2017). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774km to 11,703km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after its authorisation (Alan Baxter Associates, 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is *'indisputably significant as a major engineering achievement'* (Alan Baxter Associates, 2024*).*

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harropdale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Royal George Underbridge (MVL3/25) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A.S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at

over three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However, similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Trans-Pennine Route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Trans-Pennine Route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associate, 2019). This was produced to characterise the overall heritage significance of the Transpennine route as a whole.

5.2 Royal George Underbridge (MVL3/25)

History

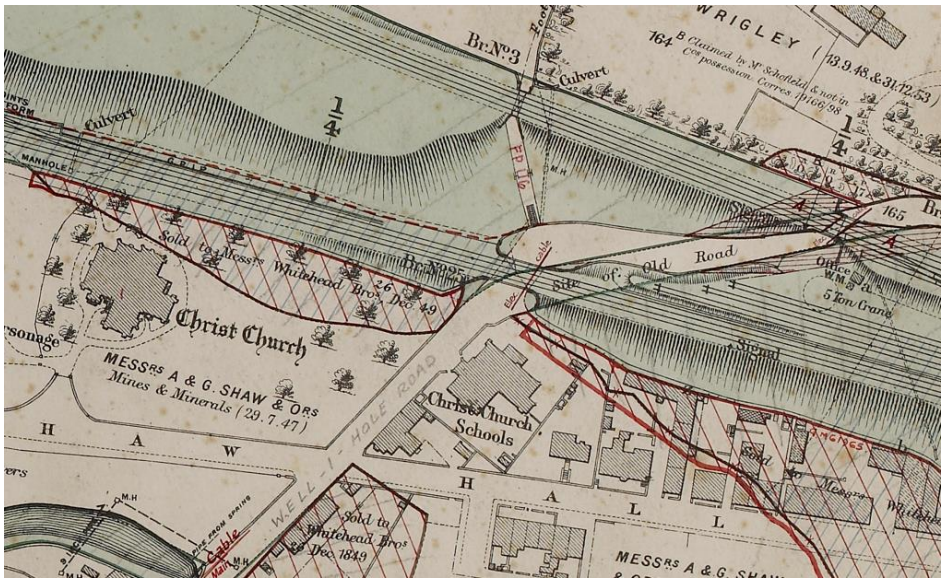
5.2.1 Royal George Underbridge (MVL3/25) was constructed between 1845 and 1849 during the Heroic Age of railway building (1841-1850). The single-span bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway, carrying the railway over Oaklands Road. The underbridge maintained access between the north and south of the valley, and was named after the Royal George Mill, located c. 380m south of the railway line.

5.2.2 Royal George Underbridge (MVL3/25) was originally constructed as a cast iron beam bridge which was a common building material for railway bridges until the 1840s. However, failures in the materials and concerns over structural capacity resulted in the decline of its use, and widespread replacement of cast iron in existing structures. In c. 1893, the cast iron deck at Royal George Underbridge (MVL3/25) was replaced with a steel girder deck, however the original cast iron fascia beams and parapets were retained. Whilst it is the only bridge with cast iron elements along this section of the former Huddersfield & Manchester Railway, other bridges along the wider Transpennine route also feature cast iron elements and survive as a record of this period of construction.

5.2.3 Royal George Underbridge (MVL3/25) was first depicted on the 1848 six-inch Ordnance Survey map, as shown carrying the railway over a road linking Grasscroft with Royal George woollen mills to the southwest. Royal George Mill began operation in 1786 originally under the name Gibbs Mill before changing its name to Royal George Mill in 1800. The mill gained international recognition and remained in operational use until its gradually declined in the 1990s and closure in 1999 (National Archives).

5.2.4 The environs of the underbridge are characterised by former workers' cottages which line the streets across the valley, with the mid 19th century Christ Church (grade II, NHLE 1356701) shown to the immediate southwest of the underbridge. The church was built by George Shaw on land purchased by LNWR in 1849 (Barrow *et al.* 2023, p.88). Piecemeal residential and industrial activity established in a rural and undulating landscape, particularly along Church Road and Shaw Bank Hall Road.

5.2.5 Subsequent historic mapping shows no further alterations to the underbridge.

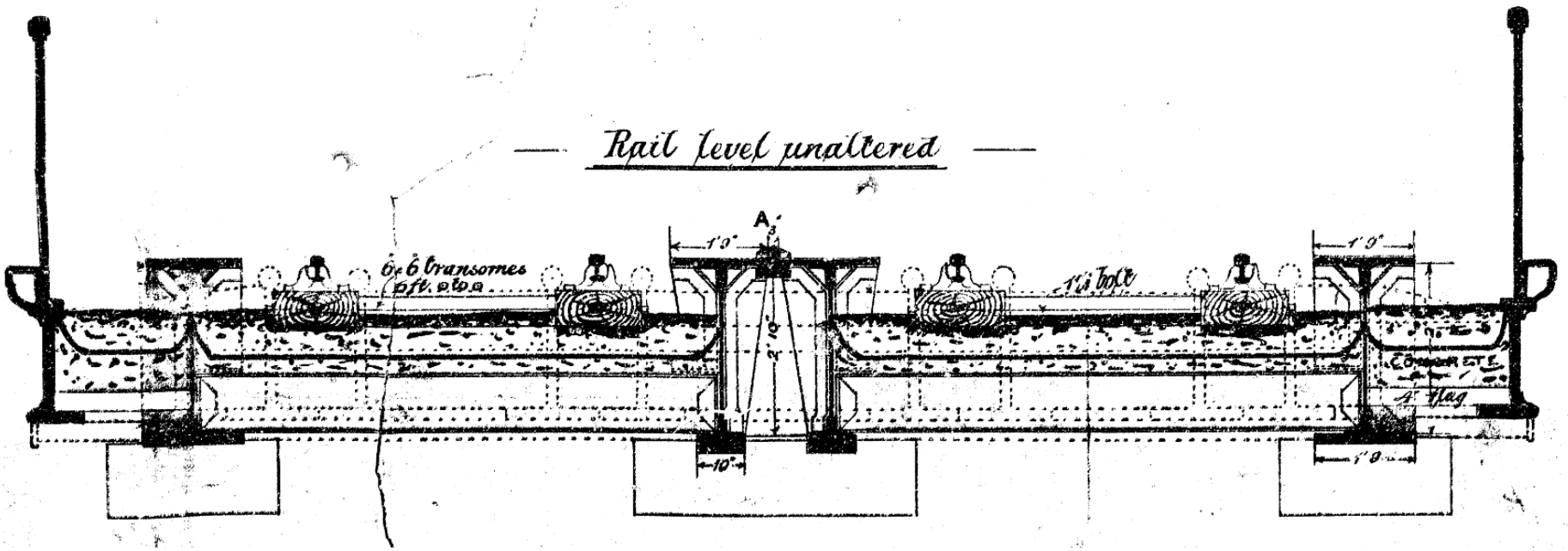


Insert 5-1 Historic line plan of Huddersfield and Manchester Railway and Canal by LNWR in 1905 in which Royal George Underbridge (MVL3/25) is illustrated.

Description

5.2.6 Royal George Underbridge (MVL3/25) comprises a single span girder bridge carrying the two-track railway line over Oaklands Road. The bridge has skew abutments with semi-octagonal piers of squared and rusticated stone blocks with chamfered edges. The piers narrow above a projecting string course at track level, above which they are constructed of picked ashlar stone with tooled margins and deep horizontal joints. The wing walls gently curve towards the skewed abutments and are topped with square-moulded ashlar coping.

5.2.7 The underbridge has cast-iron parapet balustrades which feature a gothic arcading relief pattern. The balustrades are supported on cast-iron fascia beams with Gothic flower rivets. These cast iron elements are thought to be retained original components of the former cast iron beam bridge which was removed during the renewal of the bridge deck in c. 1893 (Insert 5-2). The 1890s deck consists of a steel girder deck consisting of two separate spans for each railway line, riveted wrought iron or steel beams, traverse joists and steel plates. The cast iron parapets and edge beams are thought to be original components of the bridge (Insert 5-2).



Insert 5-2 Royal George Underbridge deck renewal drawings, c. 1895

Insert 5-3 Royal George Underbridge (MVL3/25) south elevation.

Insert 5-4 Royal George Underbridge (MVL3/25) north elevation.

5.2.8 Royal George Underbridge (MVL3/25) maintains a visual and historic relationship with its surrounding environment, particularly to the south, which contributes to its overall setting. Despite some development and change within its wider setting, its relationship with

the Transpennine railway remains wholly legible from its wider setting. Views of the southern and northern elevations remain visible from Oaklands Road and Church Road. The physical and historical relationship of the bridge with Christ Church (grade II listed, NHLE1356701) is reflected in the gothic style of both structures. Given the nature of its visibility, Royal George Underbridge (MVL3/25) forms a notable structure in its setting and its relationship the railway and the Pennine landscape, albeit at a distance to the south, are appreciated.

Significance

5.2.9 Royal George Underbridge (MVL3/25) was designated as a grade II listed building in 2018, listed as Railway underbridge (MVL3/25), Oaklands Road (NHLE 1451848). Historic England's List Entry description identifies the bridge to be of special interest for the following reasons:

- Historic interest:
    - Constructed during the heroic age of railway building and a little-altered example of an 1840s underbridge on what is now one of the main railway lines in northern England;
    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - As a well-designed bridge, whose craftsmanship of the stone-masonry and attention to architectural detail in its use of octagonal ashlar parapet piers with balustrades of decorative cast-iron panels of Gothic arcading and semi-octagonal piers to the angled stone abutments lifts it above the purely functional.
- Group value:
    - Architecturally inter-related with the other listed structures designed by A. S. Jee on the Huddersfield & Manchester line.

5.2.10 Royal George Underbridge (MVL3/25) is of significance as an example of a railway underbridge built during the Heroic Age of railway building (1841–50) and the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield and Manchester Railway and LNWR, and the notable railway engineer A.S. Jee, who also designed similar structures along the route, give

the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.11 Royal George Underbridge (MVL3/25) forms part of a group of cast iron beam bridges identified along the wider Transpennine route built during the Heroic Age (1841-50) of railway building. Whilst the underbridge does not survive in its original form as a result of late 19th century deck replacement prompted by other cast iron bridge failures in the country, Royal George Underbridge (MVL3/25) was the only cast iron construction bridge along this section of the railway route and retains original cast iron elements in the parapet and fascia boards.

5.2.12 The structural elements of the original cast iron beam bridge were removed in c. 1893 and replaced with a steel girder bridge as a result of the widespread concerns over structural stability and failures identified in cast iron bridges at this time. Whilst the bridge retains elements and features which contribute towards the legibility of the historic structure, the substantial late 19th century alterations have resulted in a loss of original fabric and has diminished its historic integrity. Despite these changes, the retained cast iron parapets and fascias continue to contribute towards the aesthetic, historic and evidential value of the underbridge, and enables Jee's original design intent and the historic function of the structure to be understood, contributing to its significance.

5.2.13 Royal George Underbridge (MVL3/25) derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. This architectural quality is evident within the Gothic arcading on the cast-iron parapets and fascia beams, with the squared and rusticated stonework of the piers, abutments and wing walls complementing the decorative cast iron parapets and deck. The use of architectural elements of such high-quality craftsmanship, particularly within the prominent balustrades, elevate the overall visual expression of the underbridge to become a structure that is more than solely functional.

5.2.14 The setting of Royal George Underbridge (MVL3/25) contributes to its overall significance. The bridge's relationship with the railway remains a key component of its setting given that it continues to carry the railway through the Pennine landscape which evidences its integral relationship with the TransPennine railway. Views of the bridge from Church Road and Oakland Road, and its relationship to Christ Church (NHLE1356701) enable a greater understanding of its historic and aesthetic values. Though some developmental changes

have been affected to its setting, this does not detract from the ability to appreciate its relationship with the Transpennine route and its overall significance.

Group value

5.2.15 As identified in the list description, Royal George Underbridge (MVL3/25) is recognised to be of group value with other listed structures by A.S. Jee on the Huddersfield & Manchester Railway.[2] These comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Footbridge Overbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wright's Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);
- Wright's Overbridge (MVL3/23) (grade II listed, NHLE 1452409);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Overbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Uppermill Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);

[2] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade, and will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 1223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[3].

5.2.16 Amongst the structures identified above, Royal George Underbridge (MVL3/25) is the only cast iron bridge, albeit altered. It does however, share a similar construction to a small number of surviving cast iron structures within the wider route network as part of the Leeds, Dewsbury & Manchester Railway built by Thomas Grainger between 1845 and 1847. These include the Calder and Hebble Canal Bridge (MDL1/6) (grade II listed, 1183783), River Calder Bridge (MDL1/8) (grade II listed, 1313646), Toad Holes (MDL1/12) (grade II, NHLE 1450704), Ming Hill (MDL1/14) (grade II, NHLE 1451887) and George Street (MDL1/16) (grade II, NHLE 1451888) which are more similar in design. These bridges comprise rare survivals of cast iron railway bridge construction and are recognised to be of national significance.

5.2.17 The group value which Royal George Underbridge (MVL3/25) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise the wider railway network and the Heroic Age of railway building (1825–41) more generally. This group value is enhanced by the structures ongoing use in the operational railway; as a collective group of assets, they are experienced by those following the rail line (travelling on it, or near it) as coherent features of a single historic route.

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

[3] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

Designated Heritage Assets

5.3.2 There are four designated assets within a 250m buffer of Royal George Underbridge (MVL3/25). These comprise:

- Christ Church (grade II listed, NHLE1356701), located c. 90m southwest of Royal George Underbridge (MVL3/25);
- Christ Church Vicarage (grade II listed, NHLE 1309579), located c. 173m southwest of Royal George Underbridge (MVL3/25); and
- Huddersfield Narrow Canal (grade II listed, NHLE 1253529) located c. 137m south of Royal George Underbridge (MVL3/25).
- Royal George Mills Conservation Area

5.3.3 Christ Church is a mid-19th century Gothic Revival building constructed in snecked stone with a slate roof (Insert 5-5 View of Christ Church from south of Church Road). The churchyard immediately borders the listed bridge, formed by an irregularly shaped parcel of land bordered by the railway line to the north, and defined by a low stone retaining wall to the south and east. As such, the open nature of the intervening graveyard offers largely uninterrupted views of the church from the path under the bridge. Although access to the site can be gained from Oaklands Road, the primary access to the church is via Church Road, away from the bridge. Given that the church and the underbridge were established around the same times, their visible relationship and proximity maintains the historic environment which contributes to the setting of both these listed buildings.

Insert 5-5 View of Christ Church from south of Church Road

5.3.4 None of the remaining listed buildings within the study area are considered to contribute to the significance or setting of the Royal

George Underbridge (MVL3/25) as there is no direct historical relationship, shared intervisibility and/or they are located at a greater distance.

5.3.5 The Royal George Underbridge (MVL3/25) is located c. 125m north of the Royal George Mills Conservation Area. The character and appearance of the conservation area is primarily focused on the Royal George Mills and associated buildings including Royal George Cottages, and reservoir. The character of the area is industrial estate with water mills set with a rural valley landscape with views towards the Pennines. The mill was converted to residential development at the turn of the century, however much of the external fabric and historical arrangement of the mill remains legible. Most notable from the road, the area is dominated by artificial bodies of water, including the mill's reservoir, which highlight the alteration and management of natural resources to power industry. The close physical relationship of the canal, river, railway, and mills contribute to the understanding of the development of this area in the post medieval period. Royal George Underbridge (MVL3/25) is located in the wider setting of the conservation area and shares a historic relationship given that the underbridge would have provided continued access from Grasscroft to the mills following the arrival of the railway. Though visibility of the underbridge is minimal from the conservation area, it is a contributing factor to its setting and wider character and appearance and helps to provide a wider contextual understanding of the area.

Non-Designated Heritage Assets

5.3.6 The Greater Manchester Historic Environment Record (HER) notes four non-designated heritage asset within the 250m study area of Royal George Underbridge (MVL3/25). Of these, three are duplicate listed entries for Christ Church, Friezland (NHLE 212061, HER 1091.1.0), Christ Church Vicarage, Friezland (NHLE 212062, HER 1091.2.0) and Huddersfield Narrow Canal: miles SD 987 043 (NHLE 1253529, HER 12198.1.0)

5.3.7 The remaining asset is the medieval Shaw Hall Settlement (6255.1.0). Although this HER record is centred c. 144 meters north of Royal George Underbridge, the nature of the historic settlement means that its former extents are unknown. Regardless, the intervening distance, built form, vegetation and steep topography excludes the possibility for any spatial relationship between this heritage asset and the underbridge. Furthermore, it is not considered that they share any historical ties

6. PROPOSALS

6.1 Background of proposals

6.1.1 In order to achieve the TRU Programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. Works to underbridges are required to accommodate the resulting additional loading on the structures resulting from increased line speeds and increased train loading.

6.1.2 Royal George Underbridge (MVL3/25) has been assessed to be in poor condition and would not be currently capable of withstanding the increase in line speed and train loading which would impose additional strain. Without mitigation, the implementation of the Order Scheme over Royal George Underbridge (MVL3/25) risks further damage to the grade II listed underbridge.

6.1.3 As such, it has been deemed necessary, in consultation with Historic England and OMBC (see Section 4) to reconstruct the structure. The design for its reconstruction has therefore been progressed to safeguard as far as practically possible the significance of the structure.

6.2 Design development and justification

6.2.1 Design development for Royal George Underbridge (MVL3/25) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has also involved engagement with Historic England and OMBC (as detailed above in Section 4). This iterative and robust process ensured the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultee

ES3 optioneering

6.2.2 Based on Network Rail's extensive experience delivering comparable schemes, the early phases of development of the Order Scheme had taken key constraints into consideration during the development of proposals for Royal George Underbridge (MVL3/25) at the ES3 design stage in 2021[4]. The consideration raised at this stage comprised:

[4] The delivery of railway investment programme is managed by Network Rail through the use of PACE (Project Acceleration in a Controlled Environment). This provides a flexible control framework for the delivery of rail projects. Under PACE, ES3 comprises optioneering and identification of a single design option, whilst ES4 is approval of design in principle.

- Time required working within the railway corridor is required to be minimised as much as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service.
- The bridge crosses Oaklands Road, with the highway bending and following a relatively steep gradient. Road closure below the bridge is required to be minimised to reduce disruption to road users.
- The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Building & Conservation Areas) Act 1990.

6.2.3 Taking these constraints into consideration, the optioneering undertaken in 2021 identified minor repairs and steelwork strengthening to Royal George Underbridge (MVL3/25) would be required. These comprised strengthening of the existing structure with the addition of steel elements to the top of the main girders, as well as upgrading the existing handrail. The proposals for these works were developed to minimise intervention into the historic structure and alteration of its appearance as far as possible, whilst mitigating the impact of increased line speeds and heavier trains.

6.2.4 The requirement for replacement of the existing metal handrails across the structure with GRP was also identified as part of the Order Scheme in order to comply with Network Rail safety standards for electrified lines. Proposals for the new handrails were developed to match the height and finish of the existing fittings, minimising the visual impact on the structure.

ES4 optioneering

6.2.5 At the commencement of the ES4 design stage in 2023, a comprehensive review was undertaken of the preferred options identified across the Route Section W2B as part of a validation exercise. This review identified a number of issues around constructability, access and disruption to the railway network in the area arising from the initial ES3 design.

6.2.6 Additional surveys of the structure of Royal George Underbridge (MVL3/25) that exposed structural elements normally hidden by ballast, were undertaken in 2024 (see paragraphs 1.3.2 and 1.3.5). These surveys identified the bridge to be in a poorer structural condition than previously understood, with degradation of critical elements such as the girder webbing and flanges. Due to this deterioration, the former preferred option of strengthening the existing structure with additional steel elements to the tops of the

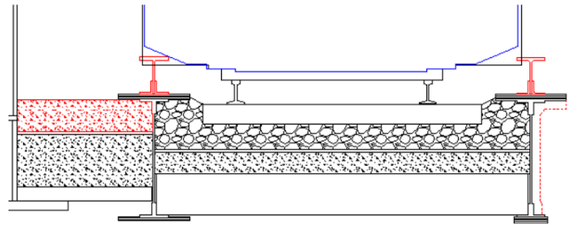
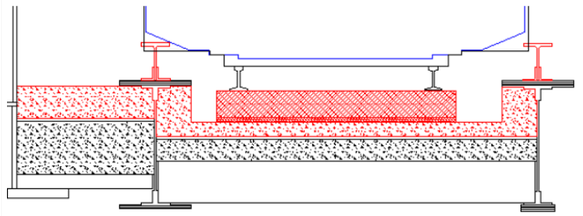
main girders only would not provide the required structural capacity, would not address the newly identified issues of corroding steelwork and would therefore pose a long-term risk of future structural failure. An options review process was therefore undertaken to identify an appropriate design solution.

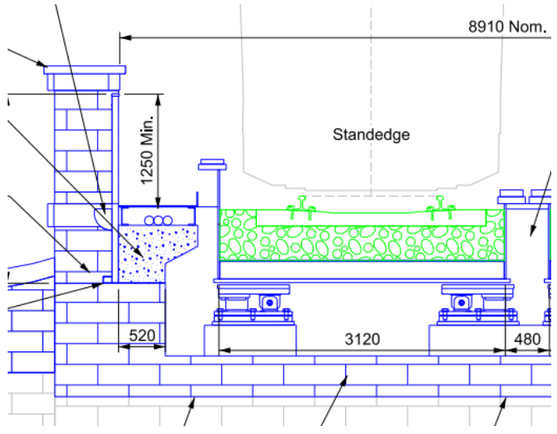
6.2.7 The option of retaining the structure without undertaking any works would prevent the delivery of the Order Scheme and leave the deteriorating condition of the steelwork unaddressed. This option was therefore discounted at an early stage. Taking into account the more detailed understanding of the bridge condition, three options were considered. These options comprised:

- Option 1: Steelwork Strengthening
- Option 2: Direct Fix Track
- Option 3: Deck Reconstruction

6.2.8 A summary assessment of these options is presented below in Table 6-1.

Table 6-1 – Optioneering for Royal George Underbridge (MVL3/25)

Option	Key Considerations	Advantages	Disadvantages	Indicative Image	Preferred
1) Steelwork Strengthening	• The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Buildings & Conservation Areas) Act 1990. • Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service. • Duration of road closures to be minimised as far as possible to reduce the level of disruption to members of the public. • Requirement to ensure sufficient structural capacity to enable increase in line speed and loading for delivery of the Order Scheme.	• This option would enable the retention of the existing deck, parapets and abutments. • The strengthening would be designed to increase the shear capacity of the existing steel girders, facilitating increases in line speed and track loading.	• There is limited clearance to fit 'top hat' steel strengthening within gauging (see overlap between gauge and strengthening proposals in indicative image). • There is limited clearance between the track sleepers and existing steel girders which would limit the feasibility of strengthening the girders. This would provide non-compliant track design due to the need for shorter sleepers • Strengthening proposals would be designed based on known condition of steel girders from surveys undertaken. It is not feasible to survey whole length of girders without causing major disruption to the railway. There is a risk that condition could be worse in areas not inspected, requiring redesign with major implications to deliverability of works. • Re-bolting would be required through existing rivet holes. The poor condition of these rivets raises buildability concerns. Heavily corroded rivets would be difficult to remove, and may result in further deterioration of the steel plate surrounding the rivets (potentially necessitating further remedial work), all of which would need to be implemented under tight time constraints in order to limit disruption to the railway and highway to agreed levels. • The design life of this option would remain uncertain, due to risk of ongoing deterioration of steel girders with particular risks where the ends of existing girders are built into abutments, restricting access to inspect and undertake remedial works if required. There would remain a potential requirement for deck reconstruction in the future due to potential for significant risks to safety.		N
2) Direct Fix Track and Steelwork Strengthening	• Requirement to address poor condition of steel girders. • Sufficient clearance needs to be maintained to enable electrification of the line and allow freight gauge clearance.	• This option would enable the retention of the existing deck, parapets and abutments. • The strengthening would be designed to increase the shear capacity of the existing steel girders, facilitating increases in line speed and track loading. • Changing the form of the trackbed would allow the ballast to be removed from around the girders, reducing the ongoing risk of corrosion. • Changing the form of the track would resolve the issue of limited clearance between sleepers and girders. • Installation could be undertaken with adjacent railway line remaining open.	• There is limited clearance to fit 'top hat' steel strengthening within gauging (see overlap between gauge and strengthening proposals in indicative image). • Strengthening proposals would be designed based on known condition of steel girders from surveys undertaken. It is not feasible to survey whole length of girders without causing major disruption to the railway. There is a risk that condition could be worse in areas not inspected, requiring redesign with major implications to deliverability of works. • Re-bolting would be required through existing rivet holes. The poor condition of these rivets raises buildability concerns. Heavily corroded rivets would be difficult to remove, and may result in further deterioration of the steel plate surrounding the rivets (potentially necessitating further remedial work), all of which would need to be implemented under tight time constraints in		N

Option	Key Considerations	Advantages	Disadvantages	Indicative Image	Preferred
			order to limit disruption to the railway and highway to agreed levels. • The design life of this option would remain uncertain, due to risk of ongoing deterioration of steel girders with particular risks where the ends of existing girders are built into abutments, restricting access to inspect and undertake remedial works if required. There would remain a potential requirement for deck reconstruction in the future due to potential for significant risks to safety. • This option would represent a major change in change in scope from the ES3 design and result in increased costs to the project. • This option would also require a major change to the track design as it would require significant run on/off slabs on the approaches to accommodate the change in track stiffness from ballasted tracks to direct fix on concrete.		
3) Reconstruction		• This option would remove the risk identified with the ongoing deteriorating condition of the existing steelwork. • By removing the corroding steel girders from the structure, certainty of the design life of the intervention can be achieved. • Reconstruction provides certainty that the investment and disruption resulting from the works would ensure a long-term solution, avoiding the risk of undertaking a short-term partial fix which may then require rebuilding in the near future. • This option provides an opportunity to increase headroom at the structure, reducing the future risk of bridge strikes. • Opportunities are available to preserve some elements of the historic structure, through the retention and reuse of the bridge abutments in conjunction with a new sensitively designed bridge deck. • This option would enable for a more robust design which would resist vehicle impact loads and prevent vehicle collisions with the set beam levels which would reduce the chance of railway disruption. • The reconstruction of the bridge would enable the design of a wider structure with safe walkway routes for maintenance and access on either side of the track.	• Reconstruction of the bridge would result in the loss of the bridge deck, pilasters and portions of the abutments. This would result in the removal of a considerable proportion of the historic bridge, altering its form and appearance, and negatively impacting the integrity and significance of the structure. • This option would represent a major in change in scope from the ES3 design and result in increased costs to the project.		**Y**

6.2.9 Option 1 (Steelwork Strengthening) and Option 2 (Direct Fix Track with Steelwork Strengthening) would both have enabled maximum retention of historic fabric. However, these options were discounted due to the ongoing risks presented by the retention of corroded steel girders within the deck. The buried elements of these girders coupled with the impracticality of having an exhaustive understanding of their condition as part of an actively used railway bridge, drastically restricts the feasibility of these options. There would be uncertainty in the long-term design life of any strengthening due to the buried elements. Similarly, should the overall condition of the girders be worse than anticipated once fully revealed during the construction phase, there is a potential risk of having to undertake a redesign with the potential for massive disruption to railway users arising.

6.2.10 The risks associated with implementing Options 1 (Steelwork Strengthening) or 2 (Direct Fix Track with Steelwork Strengthening) were assessed to be too great, liable to result in significant additional cost and disruption. Option 3 (Reconstruction) was therefore identified as the preferred option to achieve the aims of the Order Scheme. This option would bring considerable benefits in terms of certainty of design life, deliverability under tight time constraints and potentially limiting future public spending compared to the cost to strengthen (with the potential complicating factors outlined above in Table 6-1) and eventually reconstruct the bridge with retained corroding steelwork. Whilst Option 3 (Reconstruction) would result in significant alteration of the listed bridge, it was found to represent the most deliverable solution. This took into account the constrained nature of the site; the aims of the Order Scheme; minimising disruption to the railway network and enabling retention of historic fabric as far as possible.

6.3 Development of Preferred Option

6.3.1 Following the identification bridge reconstruction as the preferred option, design development was subsequently undertaken with the aim of mitigating the impact of reconstruction on the heritage significance of the structure as far as reasonably practicable.

6.3.2 Steel z-decks and reinforced concrete decks were considered and discounted. Z-decks are not considered to be sufficiently robust to withstand bridge strike impacts, which continue to present a risk due to the topography of the site. The weight of a concrete deck would limit the feasible options for installation at this site, with limited suitable area for construction operations and requirement to limit durations of highway and railway closures.

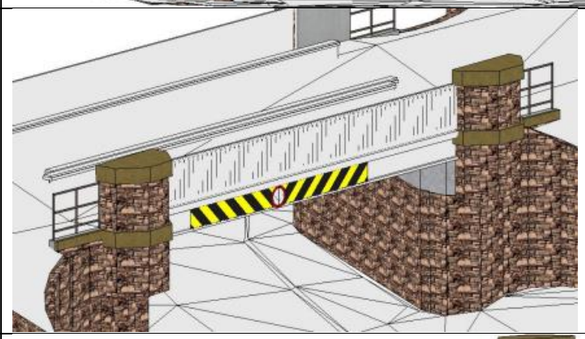
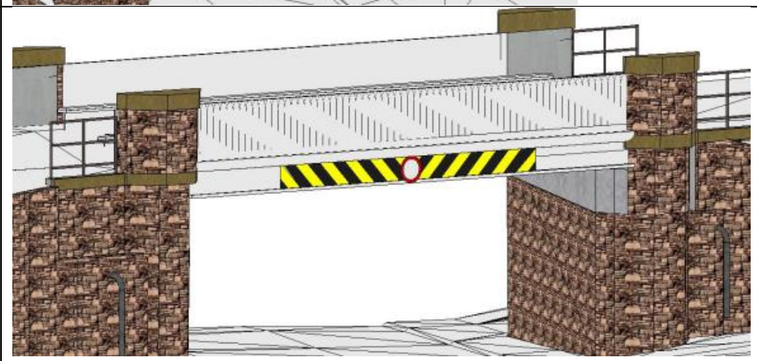
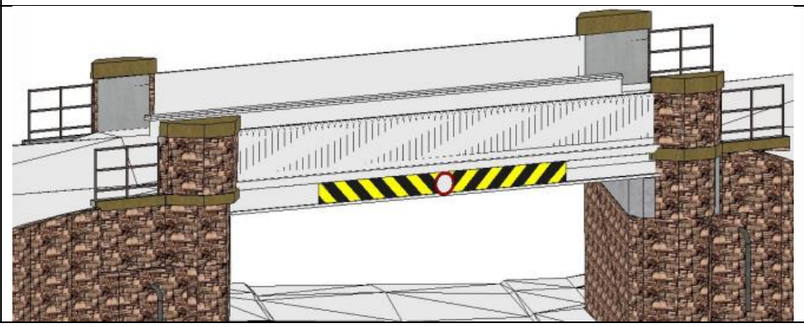
6.3.3 Steel U-decks are proposed to replace the current deck. These have been selected based on consideration of constructability constraints

and the necessary construction depth to meet the required headroom and minimise track lift. It is anticipated that this form of deck, which is widely used across the railway network, can sympathetically be introduced in this location, with additional bespoke design development for the abutments, parapets and edge beams. The reconstructed deck would need to comply with Network Rail's standards. Network Rail standard (NR/L3/CIV/020 and NR/SP/OHS/069) requires safe walkways be provided across the span. To accommodate these walkways that provide critical safety areas to operatives working on the railway, the reconstructed deck would need to be circa 1.65 m wider than the original deck. Careful consideration has been given to how this widening can be achieved in a manner most sensitive to the significance of the retained fabric.

Abutment Design

6.3.4 A key factor contributing towards the significance of the underbridge are the semi-octagonal ashlar pilasters which are a distinctive architectural feature recognised in the National Heritage List description of the bridge and during consultation with stakeholders (see Section 4). Reconstruction of the existing pilasters following the deck replacement was discounted due to the risk of instability. Therefore, given the significance of these features, an options appraisal was undertaken to determine the best approach to recreate the pilasters whilst achieving the widened deck. Four options were considered to try to limit changes to the structure's historic fabric and impacts on its architectural interest, these options are presented below in Table 6-2.

Table 6-2 - Abutment design optioneering

Option	Proposal	Advantages	Disadvantages	Indicative Image	Preferred
1) Retain existing geometry of pilasters	• Reconstructed piers continue geometry of the existing pilasters	• This option would maintain the existing appearance and plan form of the pilasters, maintaining their semi-octagonal shape and refinement of the pilasters' appearance above the string course.	• Due to the increased width of the deck, the depth of the semi-octagonal pilasters would be decreased meaning a reduction in the number of faces articulated from five to three. • This loss of articulation could dilute the prominence of the distinctive pilasters.		**Y**
Option 2 (400mm step out at base of cill unit)	• Stepping out the pilaster by 400mm in line with the base of new cill beam	• This step out would enable recreation of the piers with five faces, thereby ensuring the characterful form of these features are maintained.	• This degree of step out could result in a disjointed appearance, with the piers resembling projecting turrets. • This option may result in the structure appearing top-heavy, conflicting with original structural articulation provided by the different treatment of the masonry above and below the string course.		<u>N</u>
Option 3 (200mm step out at string course level)	• Stepping out the pier by 200mm at existing string course level, with the external face of the pilaster finishing flush with the external face of the string course	• Stepping out the piers by 200mm above the proposed reconstructed string course would enable five sides of the pilaster to be articulated.	• While five sides of the pier could be articulated, two of the sides would be much smaller than the others. Limiting the benefits of this solution and introducing practical difficulties to ensuring a high quality stone clad finish. • Losing the reveal of the string course could appear unusual, with the course losing its definition which coupled with the step out could risk the structure appearing top heavy conflicting with original structural emphasis provided by the rustication of masonry.		<u>N</u>
Option 4 (250mm step out at string course level)	• Stepping out the pier by 250mm at existing string course level, with a 50mm reveal maintained between the external face of the piers and the edge of the string course	• Stepping out the piers by 250mm above the proposed reconstructed string course would enable five sides of the pilaster to be articulated and some definition of the string course maintained.	• While five sides of the pier could be articulated, two of the sides would be much smaller than the others. Limiting the benefits of this solution and introducing practical difficulties to ensuring a high quality stone clad finish. • This option may result in the structure appearing top-heavy, conflicting with original structural emphasis provided by the rustication of masonry.		<u>N</u>

6.3.5 Option 1 (Retain existing geometry of pilasters) has been selected as the preferred option. While the distinctive geometric form of the piers would be slightly diluted as a result of the increased deck width, it is considered that stepping out the reconstructed abutments above the retained fabric would result in a top heavy and disjointed appearance. A reduction in the depth of the reconstructed pier, with a reduction from five to three articulated sides is considered preferable to the other options summarised in Table 6-2.

Parapets and Edge Beams

6.3.6 Unfortunately, due to the degree of fracturing and brittle nature of cast iron and increase in length of parapets required, reuse of the existing cast iron panels is not considered to be viable. As such, it is proposed that replacement steel panels are fabricated that recreate the gothic arcading featured on the existing cast iron parapets. While harm would arise from the loss of original historic fabric, the style of the distinctive gothic arcading would be continued in the form of the proposed new structure.

6.3.7 Precast concrete edge beams are required to provide the required trackside walkways and to enable attachment of the parapet panels. The form and appearance of the precast concrete edge beams has been carefully considered to fulfil operational requirements while ensuring they are sensitive to the character of the reconstructed bridge and sufficiently robust to resist bridge strike loads. It is proposed that steel plates with feature lines be affixed to the external elevation of the concrete beams to provide visual continuity between the beams and steel parapet above. To ameliorate the risk of tall vehicles becoming wedged beneath the bridge due to the slope of the road, it is necessary that the edge beam is deeper on the south side of the structure. This greater depth would prevent tall vehicles passing beneath the beam and then becoming stuck as the available clearance beneath the bridge reduces moving uphill. A consistency in spacing between the proposed steel feature lines would be maintained on both sides of the bridge, maintaining a sense of symmetry as far as possible and articulating the depth of the edge beam.

6.3.8 New road signage would be added to the edge beams of the reconstructed bridge. However, the number and dimension of signs would be minimised as far as is permissible according to the relevant design guidance in order to reduce their visual impact on the bridge while ensuring the safety of highway users is not compromised.

6.4 Description of proposals

6.4.1 Proposals for Royal George Underbridge (MVL3/25) would remove the existing bridge deck in order to construct a new U-type deck with new parapets and octagonal piers. The design for the new bridge has been informed by the architectural form and detailing of the existing grade II listed underbridge and has sought to respond to these (Insert 6-1).

6.4.2 Removal of the existing deck would be undertaken and the abutments cut down. The extent of this demolition would be minimised as far as possible and any fabric suitable for reuse retained. It is anticipated there could be an opportunity to reuse historic fabric from the demolished structure for works on the wider route, depending on its suitability. During demolition of the bridge, retention of historic fabric would be maximised as far as possible. Any suitable masonry reclaimed from the removal of bridges along the Route Section W2B would be used for cladding.

6.4.3 The reconstruction of the underbridge would consist of two new painted U-type decks supported on rocker bearings and reinforced concrete bearing plinths. To accommodate the new deck, the partial reconstruction of the abutments is required. To minimise line possession time, reconstruction of each abutment is proposed to be undertaken using three pre-cast concrete units as detailed below.

6.4.4 The new deck would be supported on pre-cast concrete cill units, doweled into the existing cut down masonry abutments. The cill units would be clad with stone on their external faces with only the bearing plinths left visible as exposed concrete. Stone-clad concrete pilaster units would be installed to the ends of the cill units, incorporating semi-octagonal piers which would continue the geometry of the existing piers. To facilitate the wider deck, the depth of the semi-octagonal piers would be reduced above the feature course, achieving three faces compared with the existing five faces present on the current structure. These units would match the existing architectural hierarchy of the piers, with finer masonry employed above the feature course. A stone cap would be placed atop the pilasters.

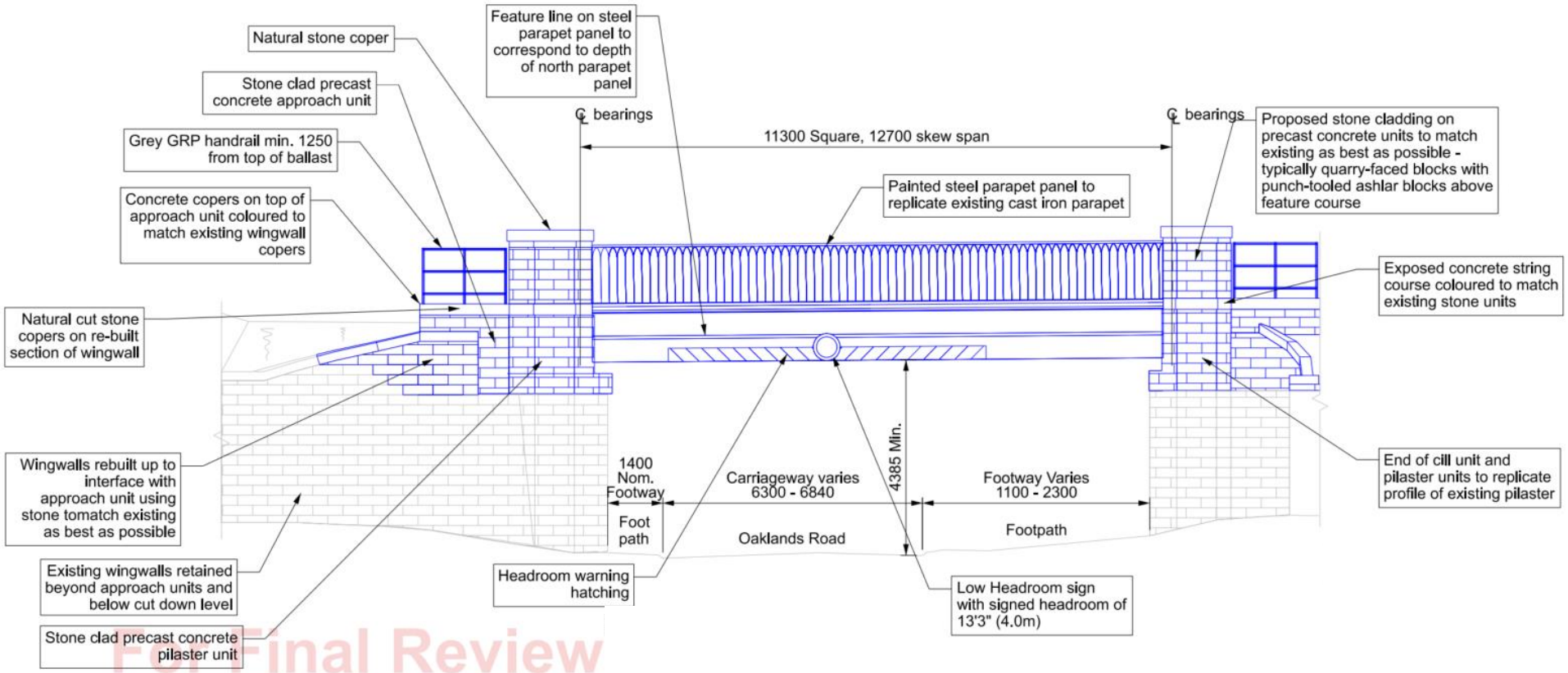
6.4.5 To the rear of the pilaster units, reinforced concrete L units would be installed at track level to retain the ballast on the approaches due to the widened bridge, with grey GRP tubular guardrails on top. All pre-cast concrete units would be clad in natural cut stone to replicate the existing materiality of the bridge, matching the difference in rustication above and below the feature course. Coloured concrete would be used on top of the approach units and feature course, colour matched to the existing wing wall copers.

6.4.6 The pre-cast concrete units would be clad in stone, to match existing fabric as closely as possible, both in stone type and colour, and in finishing. Where the wing wall would be rebuilt, this would be undertaken using stone which matches the existing, employing stone reclaimed from bridge reconstructions along the route as far as reasonably practicable, and would be finished with natural cut stone copers.

6.4.7 As described above, the new U-type decks would incorporate walkways to either side to enable safe access across the structure. The walkways would run atop a painted steel cable trough with GRP grate walkway. These would be supported on the concrete edge beams doweled into the cill units. The parapets of the new deck would be formed by steel panels with gothic arcade detailing, recreating the architectural detailing of the existing parapets, and a top rail.

6.4.8 The edge beams would be of differing depths between the north and south elevations, due to the need to provide consistent headroom on to either side of the structure on the sloping Oaklands Road. The north would be 0.625m in depth, whilst that to the south would be 1.14m in depth, with a banded detail set 0.625m from the top of the beam, in line with the soffit of the north edge beam, below which the headroom warning hatching and signage would be located.

The new structure would be waterproofed with a tightly bonded system in line with Network Rail standards. A drainage system would be installed with black cast iron down pipes which would feed into the highway drainage system.



Insert 6-1 Proposed south elevation of Royal George Underbridge (MVL3/25)

Construction Methodology

6.4.9 The proposed works for the reconstruction of Royal George Underbridge (MVL3/25) comprise:

- Removal of the existing track and ballast over the bridge in advance of demolition.
- Careful demolition of the existing bridge deck.
- Demolish pilasters and parapets and cut down abutments for sand cement bed.
- Reclamation of historic masonry as far as possible with transportation and secure storage at the site construction compound. Stone will be subject to preliminary rapid assessment for potential reuse and then palletised ready for transportation back to site where it will be redressed and used as appropriate.
- New precast cill beams installed using a crane or self-propelled modular transporter (SPMT). Dowels between the cill beam and abutments installed.
- New bridge deck, pilaster units and approach units installed by crane or SPMT.
- Rear abutment drainage installed and the structure waterproofed.
- Backfill the rear of abutments and reinstate the ballast and track.
- The wingwalls re-built and cladding installed to pilasters, approach units and cill units.

6.4.10 The proposed works to Royal George Underbridge (MVL3/25) are shown in the following drawing which accompany this application:

- Existing and Proposed Plan: 167037-TGP-25-MVL3-DRG-T-LP-162500
- Existing and Proposed Elevations and Sections: 167037-TGP-25-MVL3-DRG-T-LP-162501
- Existing and Proposed Elevation and Section: 167037-TGP-25-MVL3-DRG-T-LP-162503
- Existing and proposed Elevation and Sections: 167037-TGP-25-MVL3-DRG-T-LP-162504

7. IMPACT OF PROPOSALS

7.1 Royal George (MVL3/25)

7.1.1 The proposed works to the grade II listed Royal George Underbridge (MVL3/25) are required in order to achieve the objectives of the wider TRU Programme and deliver the public benefits of the Order Scheme.

7.1.2 Following recent condition surveys which identified that the late 19th century steel girders and cast iron elements of the underbridge were in poor condition, it was determined that reconstruction is required. Whilst this would result in the loss of the much of the structure, with the extent of retained fabric confined to the abutments and wingwalls, it would maintain the presence of an underbridge in this location and legibility of the historic railway line.

7.1.3 The reconstruction of Royal George Underbridge (MVL3/25) would erode its historic and aesthetic value through the reconstruction of the deck and part of the abutments. The proposals would result in the loss of the existing painted arched steel plate between the cross beams and rivetted steel beams of the deck, which form visually interesting features evidencing the bridge's construction. The proposed painted steel U-decks would be legible as a modern intervention when passing under the bridge. A portion of the abutments would be retained, which would maintain to a limited extent the structure's architectural interest which derives principally from being the only cast iron beam bridge, albeit altered, along this section of the historic Huddersfield & Manchester Railway.

7.1.4 The proposals would result in the substantial removal of a historic bridge that forms part of the infrastructure associated with the Heroic Age (1841-50) of railway construction. That being said, Royal George Underbridge (MVL3/25) has already been subject to significant alterations in c. 1893 with the replacement of the cast iron beam deck with a steel girder bridge, although retained the cast iron parapets and fascia beams. As such, though the reconstruction of Royal George Underbridge (MVL3/25) would be considered a loss in its own right and detrimental to the historic character and group value that this structure contributes to as part of the Transpennine route, historic alterations of the structure have already degraded its significance to an extent.

7.1.5 These proposals would result in substantial harm to the significance of Royal George Underbridge (MVL3/25) as defined by NPPF and have embedded details to mitigate against this harm wherever possible. The proposals have sought to sensitively respond to the historic form and design of the bridge through incorporation of

measures such as gothic arcading to the new bridge parapets, reinstatement of the semi-octagonal piers and feature course, and use of stone cladding. These measures would aid the integration of new and existing fabric, and maintain the architectural character of the bridge, albeit in altered form. Whilst the level of harm from these works would be substantial, the careful consideration given to ensure the overall composition, architectural features and relationship with the retained elements of the bridge would, to a small degree, offset the potential harm to Royal George Underbridge (MVL3/25).

7.1.6 The proposed reconstruction of Royal George Underbridge (MVL3/25) would impact the group value shared with other listed structures designed by A.S. Jee for the Huddersfield & Manchester Railway. The loss of Royal George Underbridge (MVL3/25) would remove one element of this group of 18 designated bridges (see paragraph 5.2.15) The proposed reconstruction would also have an impact on the underbridge's group value with other cast iron bridges identified on the wider Transpennine route (see paragraph 5.2.16). In both cases, the bridge derives a degree of significance from their shared group value and would therefore be slightly diminished as a result of the reconstruction of this bridge. The impact would amount to less than substantial harm to the retained structures arising from a weakening of the extent of which group value contributes towards their significance.

7.2 Other heritage assets

7.2.1 The proposals would have no direct physical impact on the designated and non-designated assets identified in the 250m study area.

7.2.2 The reconstruction of the bridge would result in an, albeit minor, change to the setting of Christ Church (grade II, NHLE 1356701). As mentioned in paragraph 5.3.3, these grade II listed structures contribute to each other setting given that they are contemporaneous and maintain uninterrupted views due to the open nature of the graveyard and the prominence of the church. Whilst the reconstruction of Royal George Underbridge (MVL3/25) would result in a minor change to the setting of the church, the considered design for the reconstruction of the underbridge which would reinstate the gothic elements and the overall form of the bridge, would maintain their visual relationship.

7.2.3 Whilst the underbridge makes a contribution to the setting of Royal George Conservation Area, its reconstruction would not have an appreciable impact on its significance given that the underbridge would continue to provide access towards Royal George and legibility of the historic environment.

7.3 Mitigation

7.3.1 Design proposals were developed through an iterative process which has robustly sought to avoid or reduce the impact on the significance of Royal George Underbridge (MVL3/25). Additional information with respect to these elements of design development is included in Section 6.2.

7.3.2 Regular consultation with historic environment stakeholders and the design team were held through the design development process for the reconstruction of the bridge (see Section 4). Historic environment stakeholders, including Historic England and OMBC have been involved in the development of the design mitigation described below.

7.3.3 The design development process has resulted in mitigation being embedded within the design of the reconstruction of Royal George Underbridge (MVL3/25). The following design considerations have been taken into account in response to the magnitude of proposed alterations:

- The use of natural stone cladding to minimise the areas of visible concrete, reflecting the materiality of both the original bridge and many of the other retained structures along the Transpennine route. This approach would ensure natural stone remains the dominant material of the bridge abutments.
    - Salvaged stone from reconstructed structures along the route will also be considered for reuse on the wing walls where feasible.
- Reinstatement of the semi-octagonal piers within the abutments and the feature course across these to maintain the historic form of the underbridge and its architectural features as far as possible.
- Recreation of the cast iron gothic arcading pattern on the bridge parapets.

7.3.4 During construction of the works, toolbox talks would be delivered to disseminate best practice for reducing potential impacts in relation to construction activity associated with Royal George Underbridge (MVL3/25), for example to ensure the approach taken to maximising masonry for reclamation is communicated.

Recommended Compensation

7.3.5 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 3 standards in accordance with Historic England guidance (Historic England 2016). This would provide a permanent record of Royal George Underbridge (MVL3/20) in its current form and be lodged with the Greater Manchester Historic Environment Record. This building recording would help to compensate for the harm to significance resulting from the reconstruction by providing the opportunity to document the structure which would be largely lost as a result of the proposed works. The historic building recording would include:
    - Drawings;
    - Photography; and
    - Written account.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee such as Royal George Underbridge (MVL3/25). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The reconstruction of Royal George Underbridge (MVL3/25) and resulting substantial harm is considered justified to ensure the realisation of the substantial public benefits of the Order Scheme, in accordance with paragraph 214 of the NPPF.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The reconstruction of Royal George Underbridge (MVL3/25) would directly facilitate the achievement of these aims by enhancing the structural capacity and condition of the bridge to enable the use of larger gauge and faster trains, delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including reconstruction of Royal George Underbridge (MVL3/25), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed reconstruction would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four ‘express’, two ‘semi-express’ services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in ‘greener’ energy technology. This supports Network Rail’s Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation

of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the reconstruction of Royal George Underbridge (MVL3/25).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Royal George Underbridge (MVL3/25) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Royal George Underbridge (MVL3/25) lies primarily in its historic and architectural interest. The underbridge derives significance from being the only cast iron beam bridge, albeit altered in c. 1893, on this section of the Huddersfield & Manchester Railway dating to the Heroic Age (1841–50) of railway history. The high quality of the bridge's architecture, including the extant cast iron gothic arcaded parapets, cast iron fascia beams and semi-octagonal piers together with its high-quality workmanship present a unique structure on the Huddersfield & Manchester Railway. The bridge also derives significance from its direct historical relationship with the notable railway engineer A.S. Jee and the Huddersfield & Manchester Railway and LNWR. It also possesses group value as one of a number of A.S. Jee structures on the Transpennine route, as well as with cast iron structures identified elsewhere along the wider Transpennine route. The setting of Royal George Underbridge (MVL3/25) contributes to the significance of the structure.

8.1.2 Initial proposals for Royal George Underbridge (MVL3/25) were for strengthening and repair of the existing structure, however following a condition survey which identified that the structure was in poor condition, reconstruction was identified to be required. Historic England and OMBC have accepted that the reconstruction of the structure is necessary to deliver the TRU.

8.1.3 The proposals for reconstruction were developed through a robust process of design optioneering undertaken collaboratively with historic environment stakeholders and informed by the desire to maximise heritage benefits and limit harm. Special regard has been given to the desirability of preserving or enhancing the structure or its setting or any features of special architectural or historic interest which it possesses. Every effort was made to retain this historic structure as part of the TRU. However, this was unachievable within the operational parameters set. Whilst historic fabric, particularly the cast iron elements, could not be retained, every effort to maintain the architectural character of the structure was made during the design development. Several mitigation measures have been integrated into the design to reduce the impact on the significance of Royal George Underbridge (MVL3/25) and preserve its architectural character as far as possible.

8.1.4 With the reconstruction of Royal George Underbridge (MVL3/25), the Order Scheme can achieve key improvement objectives as outlined in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution);
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and
- Improving public health and safety in providing safe routes across the railway.

8.1.5 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.6 The reconstruction of the grade II listed Royal George Underbridge (MVL3/25) would result in substantial harm to its significance and should be considered exceptional. This will mean the loss of an

irreplaceable piece of railway infrastructure, dating to the Heroic Age (1841-50) of railway building. It is also a loss to the collection of A.S. Jee bridges that are located along this section of the Transpennine route, as well historic cast iron bridges along the Transpennine route.

8.1.7 Whilst the reconstruction of Royal George Underbridge (MVL3/25) is regrettable, its loss would be outweighed by the substantial public benefits that accrue from enabling the Transpennine programme to be achieved. The proposals therefore meet the requirements of paragraph 214 of the NPPF in relation to the justification for substantial harm and provide sufficient justification to outweigh the strong presumption against demolition of listed buildings outlined in policy 24 of the OMBC local development framework and Policy JP-P2 of Places for Everyone.

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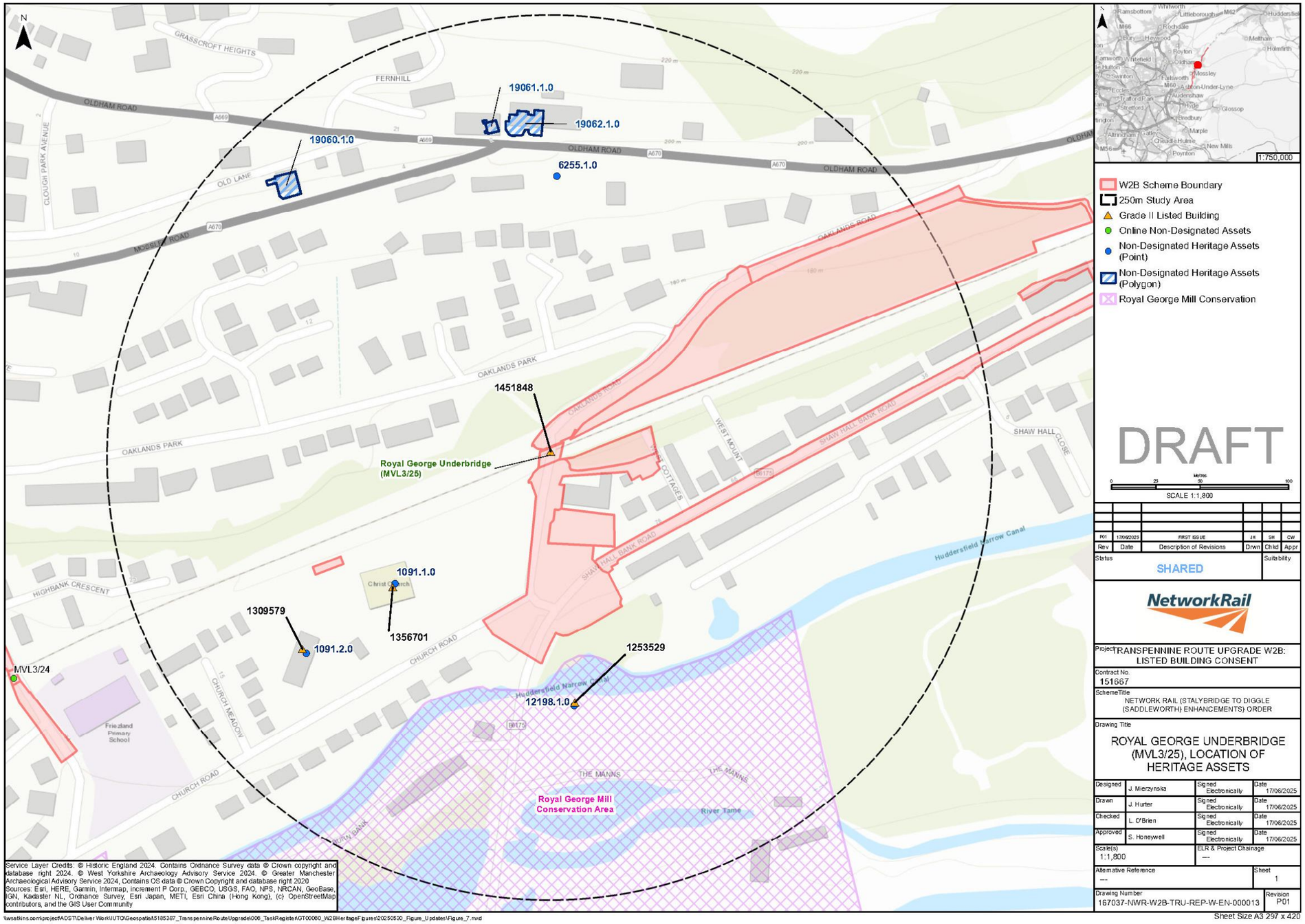
APPENDIX A – LOCATION PLAN



APPENDIX B – HISTORY ENGLAND LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1451848
Date first listed:	23-Mar-2018
List Entry Name:	Railway underbridge MVL3/25, Oaklands Road
Location Description:	Oaklands Road, Grasscroft.

Location

The building or site itself may lie within the boundary of more than one authority.

District:	Oldham (Metropolitan Authority)
Parish:	Saddleworth
National Grid Reference:	SD9859804392

Summary

Railway underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.

Reasons for Designation

The underbridge MVL3/25, Oaklands Road, Grasscroft, constructed in the mid-late 1840s by A S Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic Interest:

- constructed during the heroic age of railway building and a little altered example of an 1840s underbridge on what is now one of the main railway lines in northern England

- designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural Interest:

- as well-designed bridge, whose craftsmanship of the stone-masonry and attention to architectural detail in its use of octagonal ashlar parapet piers with balustrades of

decorative cast-iron panels of Gothic arcading and semi-octagonal piers to the angled stone abutments lifts it above the purely functional.

Group value:

- architecturally inter-related with the other listed structures designed by A S Jee on the Huddersfield & Manchester line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies, the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed between 1837 and 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19.

Although the LNWR had a general manager, Captain Mark Huish, the lines of the Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently (2018) owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

This underbridge carries the railway over Oaklands Road. It was designed by A S Jee and dates to the construction of the Huddersfield & Manchester Railway between 1845 and 1849 (it is depicted and named on the first edition 1:10,560 OS map surveyed between 1848 and 1850 and published in 1854).

Details

Railway underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.

MATERIALS: cast and wrought iron, rusticated and ashlar sandstone (shale grit/Kinderscout grit/millstone grit) with ashlar dressings.

DESCRIPTION: the bridge is located on the east side of the rural village of Grasscroft. It is a skew, girder bridge carrying the two-track railway line over a bend in the road below. The angled abutments have semi-octagonal piers and are constructed of squared, rusticated stone blocks with chamfered edges to emphasize the joints. The piers rise to track level where there is an ashlar band, above which there are slightly narrower octagonal parapet piers. The parapet piers are constructed of picked ashlar blocks with tooled margins and deep horizontal joints. The abutment stonework courses through to gently curving and angled wing walls with square-moulded ashlar coping. The wing walls terminate in octagonal piers.

The bridge has cast-iron panels forming the parapet balustrades with a relief pattern of closely-spaced Gothic arcading. The balustrades are supported on deep cast-iron fascia beams with small, relief flower rivets. The bridge deck has two separate spans with riveted wrought-iron or steel beams carrying transverse joists and riveted iron plate jack arches.

Sources

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APPENDIX C - HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

29 November 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meetings on 6 and 21 November 2024 to review the proposals for bridges MVL3/9, 10, 23, 25, 26, 28, 29 and 31. As before, it was helpful to see the drawings in advance and then talk through the proposals with the team.

The impacts of the proposed changes and our comments are detailed below:

Proposals at *Manchester Road underbridge MVL3/10*, *Shaw Hall Bank Road underbridge MVL3/26* and *Wickens underbridge MVL3/29* will involve minor works, consisting of renewal of railings and strengthening of parapets with reinforced concrete. Visually, there will be only a minor impact, as the replacement railings are similar to the existing and the concrete strengthening will be hidden from view by the parapets. There will be a very low level of less than substantial harm to the physical fabric of the bridges due to the new railings being grouted into cored holes in the masonry parapet blocks. We do not have concerns over the works at these three bridges and recognise the efforts to maintain the visual appearance on the bridges.

The proposals for *Spring Bank Lane overbridge MVL3/9* and *Uppermill Viaduct MVL3/31* have been discussed at previous meetings, and it was helpful to see further details of the works at these structures. There will be a low level of less than substantial harm to *Spring Bank Lane overbridge* due to the introduction of raised copers, however the use of colour-matched concrete here will help to mitigate some of the harm caused by the visual impact of the new copers. Works to *Uppermill Viaduct* will likewise lead to a low level of less than substantial harm due to the introduction of brackets to support the OLE portals which will have an impact both physically and visually. We appreciate that care has been taken in the spacing of these portals so the rhythm of the bridge arches is not unduly interrupted, and so that the pattress plates are not affected.

More considerable impacts will result from proposals at *Wright's overbridge MVL3/23*, *Oaklands Road underbridge MVL3/25* and *Oldham Road overbridge (Greenfield*

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Station) MVL3/28, all of which will result in substantial harm to the significance of the designated assets.

As mentioned in previous letters, the removal of *Wright's Overbridge* will cause substantial harm to its significance through the total loss of its historic form and all original fabric, and through the re-routing of a historic public footpath. Thorough justification will need to be presented in the supporting documentation to provide the reasoning for the total loss of this bridge.

The proposed reconstruction of *Oldham Road Overbridge* has also been discussed previously. This is a skew overbridge located on the north-east side of Greenfield Station which carries Oldham Road over the track below. The bridge currently has a masonry arch which will be dismantled, along with much of the approaching wing walls, resulting in very little historic fabric being retained. The works will also necessitate the removal of the ornate historic iron railway footbridge. There will be substantial harm to the significance of the listed asset due to the severity of changes to its physical appearance and the loss of historic fabric. We recognise that some fabric will be retained for reuse as cladding material, however this will need to be carefully managed to maintain the look of the structure. The stone coursing in the existing bridge runs through the parapets into the wing walls. We would like to see care taken to replicate this effect within the reconstructed bridge to avoid a disjointed appearance to the new structure, which could arise from using mismatched stone-cladded panels. The existing bridge features flat masonry pilasters that project slightly from the bridge to either side of the arch. These have not been articulated in the proposed design and we would like to see further investigation into whether they could be incorporated into the design. This location would be suitable for display of permanent interpretation materials which could help to mitigate some of the harm by informing the public about the history of the route and the upgrade works.

Oaklands Road underbridge MVL3/25 is a skew girder bridge carrying the two-track railway line over a bend in the road below. The angled abutments have distinctive semi-octagonal piers, and the parapets are ornate balustrades of decorative cast-iron panels of Gothic arcading. The craftsmanship of the stonemasonry and attention to architectural detail lifts the design of this bridge above the purely functional and it has considerable architectural interest. There will be substantial harm to the significance of this listed bridge resulting from the proposals to reconstruct and widen the bridge deck and to rebuild the octagonal piers. In order to minimise the harm, the design of the rebuilt piers and abutments will need to be careful managed to ensure there is meaningful articulation of the distinctive shape of the piers. This includes the contrasting shape and dimensions of the piers where they extend through and above the parapet. We are comfortable with the proposals to replicate the decorative cast-iron panels to minimise the visual impact of the loss of the original fabric here.

Next Steps

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We look forward to our continued involvement in the pre-application discussions for this scheme.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, October 2024

MVL3/25 Presentation, November 2024

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
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Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Shaw Hall Bank Road Footway (MVL3/26) – Heritage Statement

Rule 10(6)(d)

Author	Network Rail
Date	October 2025
Document Reference	167037-NWR-W2B-TRU-REP-W-EN-000024
Revision Number	Revision 1 – Final

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Conditions 3
1.4 Summary of proposal 5
2. LEGISLATION AND POLICY CONTEXT 5
2.1 Legislation 5
2.2 National Policy 7
2.3 Local planning policy 10
3. ASSESSMENT METHODOLOGY 15
3.1 Research 15
3.2 Significance and setting 15
4. CONSULTATION 16
5. HERITAGE ASSETS AND THEIR SIGNIFICANCE 20
5.1 History of the W2B Transpennine Route 20
5.2 Shaw Hall Bank Road Footway (MVL3/26) 22
5.3 Surrounding heritage assets 29
6. PROPOSALS 30
6.1 Background to proposals 30
6.2 Design development and justification 30
6.3 Description of proposals 31
7. IMPACT OF PROPOSALS 34
7.1 Shaw Hall Bank Road Footway (MVL3/26) 34
7.2 Other heritage assets 36
7.3 Mitigation 36

7.4 Public benefit.....37

8. CONCLUSION.....39

9. REFERENCES.....42

APPENDIX A – LOCATION PLAN.....44

APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION.....45

APPENDIX C - HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER 48

List of Tables

Table 4-1 Consultations for Shaw Hall Bank Road Footway (MVL3/26) 16

List of Inserts

Insert 1-1 Shaw Hall Bank Road Footway (MVL3/26) south elevation. 4

Insert 1-2 Shaw Hall Bank Road Footway (MVL3/26), soffit and masonry walling. 4

Insert 1-3 Shaw Hall Bank Road Footway (MVL3/26), soffit and masonry walling. 5

Insert 5-1 Historic line plan of the Huddersfield & Manchester Railway and Canal by LNWR in 1905 showing Shaw Hall Bank Road Footway (MVL3/26). 23

Insert 5-2 Shaw Hall Bank Road Footway (MVL3/26), south elevation. 24

Insert 5-3 Shaw Hall Bank Road Footway (MVL3/26), north elevation. 25

Insert 5-4 Shaw Hall Bank Road Footway (MVL3/26) looking south towards Shaw Hall Bank Road. 27

Insert 6-1 Proposed north elevation Shaw Hall Bank Road Footway (MVL3/26).....32

Insert 6-2 Proposed south elevation Shaw Hall Bank Road Footway (MVL3/26) 33

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four ‘express’ and two ‘semi-express’ services an hour;
- Capability to operate up to two ‘local services’ an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail’s Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the “Order Scheme”). This section of the Transpennine Route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels. Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a listed building.

The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.5 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade II listed Shaw Hall Bank Road Footway (MVL3/26) (NHLE 1451852). This bridge is located in Grasscroft (NGR SD9894204527), Oldham. A location plan is provided in Appendix A.

1.1.6 The Historic England list description (included in full in Appendix B) names the listed building as “Railway Accommodation Underbridge (MVL3/26), Footway”. Throughout this Heritage Statement the structure is referred to as “Shaw Hall Bank Road Footway (MVL3/26)” in accordance with Network Rail’s naming of the structure.

1.1.7 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF, revised 2025) specifically paragraph 207, which seeks an assessment proportionate to the asset’s importance and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail’s requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;
- Present the design requirements of the Order Scheme at the structure;

- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the National Planning Policy Framework, 2025 and the Oldham Local Development Framework, 2011.

1.3 Current Conditions

1.3.1 Shaw Hall Bank Road Footway (MVL3/26) was built to the design of Alfred Stanistreet (A.S.) Jee between 1845-1849 and is contemporary with the Huddersfield & Manchester Railway. The underbridge allows passage of a footpath linking Shaw Hall Bank Road and Oaklands Road under the railway embankment, providing a pedestrian route between Grasscroft and Greenfield.

1.3.2 Shaw Hall Bank Road Footway (MVL3/26) was subject to a detailed examination as part of Network Rail's regular maintenance programme in December 2016. The assessment concluded that the underbridge was in fair condition and identified the following defects to the structure:

- Open joints across the arch and wing walls;
- Fractures in the arch voussoirs;
- Water running off the weep pipes above the stone abutments, springers and on both sides of the arch**;**
- Diagonal step fractures found on the upside low mileage wingwall**;**
- Open joints throughout all three wing walls; and
- Deterioration of pointing in several areas.

1.3.3 Regular visual assessments have been undertaken since 2016, the most recent of which was undertaken in 2021. These surveys have identified little change to the bridge's condition, with the exception of vegetation growth on the wing walls.

Insert 1-1 Shaw Hall Bank Road Footway (MVL3/26) south elevation.

Insert 1-2 Shaw Hall Bank Road Footway (MVL3/26), soffit and masonry walling.

Insert 1-3 Shaw Hall Bank Road Footway (MVL3/26), soffit and masonry walling.

1.3.4 Regular visual assessments have been undertaken since 2016, the most recent of which was undertaken in 2021. These surveys have identified little change to the bridge's condition, with the exception of vegetation growth on the wing walls.

1.4 Summary of proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the Route is required. This would require the alteration of a number of existing underbridges, including Shaw Hall Bank Road Footway (MVL3/26) to accommodate OLE, higher line speed and increased freight trains. It has been determined to be necessary to strengthen the underbridge using precast reinforced units. These works will therefore enable the implementation of the Order Scheme.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) (the "Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—

any object or structure fixed to the building;

any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

'(1) Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

(2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

(3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) *' the preservation of particular features of the building, either as part of it or after severance from it;*

b) *the making good, after the works are completed, of any damage caused to the building by the works; [and]*

c) *the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.*

2.1.5 It is also defined in s.17 (2) that a condition *'may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'.*

2.1.6 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance on the Historic Environment (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective '*to protect and enhance our natural, built and historic environment*'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' and includes guidance on assessment of significance of the heritage assets and their setting that may be affected by the proposed works and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance*.'
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to*

substantial harm, total loss, or less than substantial harm to its significance.'

- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

  a) *grade II listed buildings, or grade II registered parks or gardens, should be exceptional;*

  b) *assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

  a) the nature of the heritage asset prevents all reasonable uses of the site; and

  b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

  c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

  d) *the harm or loss is outweighed by the benefit of bringing the site back into use.'*

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use*.'

- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a*

balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'

- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.*'

Planning Practice Guidance: Historic Environment

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that *'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed'* (paragraph 017). Harm to

heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

Oldham Joint Core Strategy and Development Management Policies.

2.3.1 Local planning policy for Oldham Metropolitan Borough Council (OMBC) is provided by the Joint Core Strategy and Development Management Policies of the Oldham Local Development Framework (Oldham Council, 2011), adopted in November 2011, and a small number of retained policies from the Unitary Development Plan (Oldham Council, 2009).

2.3.2 Policy 24 relates to the Historic Environment and is reproduced in full below:

Policy 24 Historic Environment

'Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

National and local guidance and policies on the historic environment.

Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.

Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.

Conservation Area Appraisals and Management Plans, where appropriate.

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

a. Listed buildings.

b. Conservation areas.

c. *Registered parks and gardens (their historic character and setting).*

d. *Scheduled ancient monuments (their archaeological value and interest).*

e. *Significant archaeological remains.*

f. *Locally significant buildings, structures, areas or landscapes of architectural or historic interest (including non-designated locally significant assets identified in the local lists compiled by the council).*

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional. Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.*

Conservation Areas

Development within or affecting the setting of a conservation area, including views in or out, must serve to preserve or enhance the character or appearance of the area. Proposals for all new development, including alterations and extensions to buildings and their re-use, must have a sensitive and appropriate response to context and good attention to detail. Proposals must not adversely affect important architectural or historic features or distinctive local features or structures unless it can be demonstrated that the development brings substantial benefits to the community. Proposals for the demolition of a building in a conservation area must demonstrate that it is unrealistic for the building to continue in its existing use and a suitable alternative use cannot be found, or the building is in poor structural condition and the cost of repairing and maintaining it would be disproportionate to its importance and value and the demolition would preserve or enhance the character or appearance of the conservation area. In exceptional circumstances, the fact that a demolition would bring substantial benefits to the local community may outweigh the balance in favour of the preservation of the building.

Registered Parks and Gardens

Development which would lead to the loss of, or cause harm to, the historic character or setting of any part of registered park and garden will not be permitted.

Scheduled Monuments

Development which would lead to the loss of, or cause harm to, scheduled ancient monuments should be wholly exceptional.

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

Significant archaeological remains.

Locally significant buildings, structures, areas or landscapes of architectural or historic interest'.

Places for Everyone

2.3.3 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Oldham, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.4 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most

relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.5 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the *'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance'* (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.6 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.7 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Shaw Hall Bank Road Footway (MVL3/26). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a walkover survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 of May 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England. Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest.

3.2.2 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence; and

- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and OMBC have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of TRU.

4.1.2 Regular meetings with both Historic England and OMBC have been held to discuss the design development of the proposals in relation to Shaw Hall Bank Road Footway (MVL3/26). Initial meetings were held periodically through 2021 and resumed in 2024 to discuss the overall route and design development for all structures along Route Section W2B.

4.1.3 The design development for Shaw Hall Bank Road Footway (MVL3/26) was presented and discussed with the historic environment stakeholders on the following dates.

Table 4-1 Consultations for Shaw Hall Bank Road Footway (MVL3/26)

Date	Stakeholder in attendance	Key agreements/items discussed
15 February 2021	• OMBC	• Project briefing on the bridge structures in order to identify the location and the Order Scheme output, Network Rail electrification challenge, structures overview and next steps. • Structures presentation included MVL3/26 and identified the need to upgrade the handrails with a non-conductive material. Given that this would result in a change to the structure which is not like-for-like, this was identified to require listed building consent.
26 May 2021	• Historic England • OMBC • TMBC	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II overbridges and underbridges which are noted for their heritage significance, particularly as essential railway structures. The group value of the bridges was identified as a key contributor to significance. • Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and

Date	Stakeholder in attendance	Key agreements/items discussed
		compensation. • Reassurance was provided to the councils that they will be involved in the GRIP 3 design process which will be used within the detailed design development of GRIP 4 (Single Option Development). Clarification was also provided on the sustainable heritage initiatives. • Historic England stated that they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
6 February 2024	• Historic England	• Overview of listed structure, and details of the challenges of the electrification of the route in relation to listed overbridges were presented. • The design approach for electrification across / under existing railway bridges was noted to have been agreed in principle by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage.
22 April 2024	• OMBC	• Overview of preferred options for structures along the route within Oldham. This included the preferred option for Shaw Hall Bank Road Footway (MVL3/26) which consists of installation of GRP handrails.
	• Historic England	• Presentation of development of next steps for the underbridges, including Shaw Hall Bank Road Footway (MVL3/26). • All of the underbridges are of masonry arch construction (apart from MVL3/25) and would be progressed once the track designs are received.
6 November 2024	• Historic England	• Draft listed building consent drawings presented for discussion for the underbridges. • Presentation of interventions required to strengthen Shaw Hall Bank Road Footway (MVL3/26). Acknowledgement that there will be minimal change to the bridge's appearance. • Confirmation that this will not entail raising the parapet, and

Date	Stakeholder in attendance	Key agreements/items discussed
		no additional OLE equipment will be required.
29 November 2024	• Historic England	• In their formal pre-application advice letter, Historic England confirmed that proposals for Shaw Hall Bank Road Footway (MVL3/26) would result in *'a very low level of less than substantial harm'* (Appendix C.1).
2 April 2025	• OMBC	• Presentation of overview of the aims and objectives of TRU, with emphasis on the historic context of Route Section W2B and the 12 listed building consents applications which are being prepared for the various works to the grade II listed bridges and viaduct along the route section. • Network Rail requested for the draft Heritage Statement to be reviewed by the Council for comment and feedback. • Presentation of overview of electrification challenges caused by the existing arch profile of a number of existing bridges and have developed bespoke solutions for these to achieve the required clearance.
4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits. • Historic England were content with the assessment of significance for all structures, and noted that the optioneering tables were helpful. Historic England requestion for further details on the heritage interpretation as part of the heritage benefits.
12 May 2025	• OMBC	• Proposals for Shaw Hall Bank Road Footway (MVL3/26) presented to OMBC heritage officers, noting less than substantial harm to the structures.
24 June 2025	• OMBC	• Pre-application advice letter received from OMBC outlining local planning authority advice following review of the draft listed building consent application. • OMBC found that the proposals at Shaw Hall Bank Road Footway (MVL3/26) would result in a low level of less than substantial harm arising from minor physical intervention. • OMBC highlight that clear and convincing justification will be required for any harm arising to designated heritage

Date	Stakeholder in attendance	Key agreements/items discussed
		assets, with substantial benefits required to outweigh substantial harm. • A high level of harm was also found to the group value of the bridges designed by A.S Jee on the TransPennine Route, due to the proposed demolition of Wright's Overbridge (MVL3/23) and reconstruction of four other bridges, and a limited level of harm to group value arising from the alteration of three other structures (including Shaw Hall Bank Footway (MVL3/26)).
	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is very much welcomed by Historic England.

5. HERITAGE ASSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs under Shaw Hall Bank Road Footway (MVL3/26) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age (1841-1850) of railway building (Historic England, 2017). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774km to 11,703km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after the railway's authorisation (Alan Baxter Associates, 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is *'indisputably significant as a major engineering achievement'* (Alan Baxter Associates, 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Shaw Hall Bank Road Footway (MVL3/26) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at

over three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associates, 2019). This was produced to characterise the overall heritage significance of the Transpennine route.

5.2 Shaw Hall Bank Road Footway (MVL3/26)

History

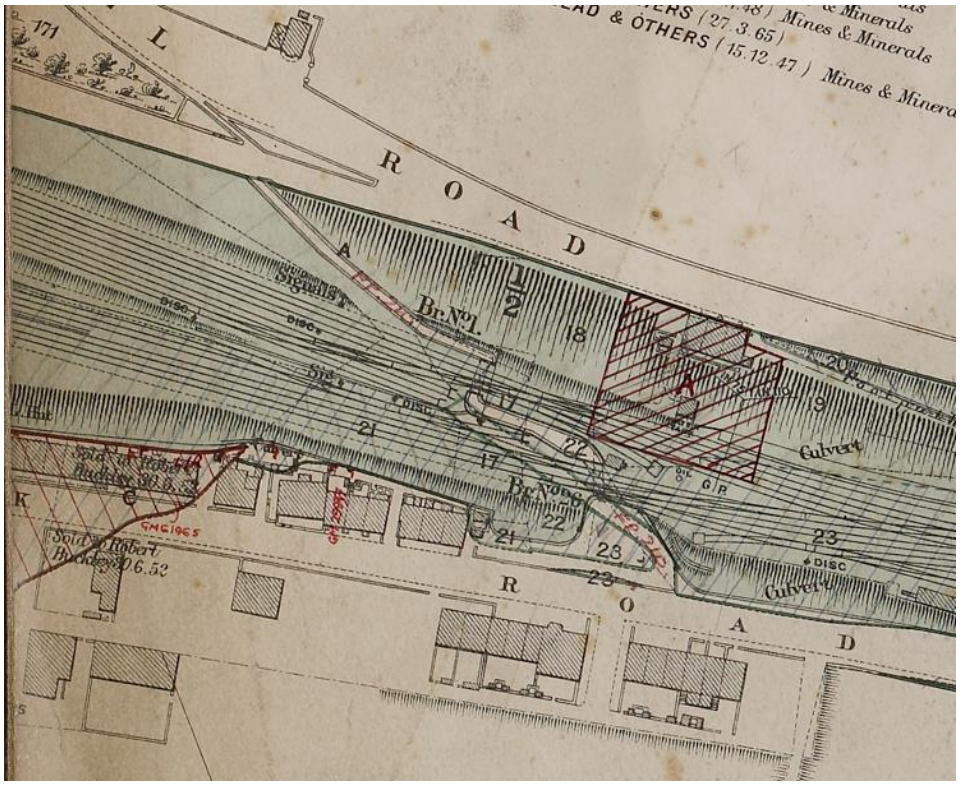
5.2.1 Shaw Hall Bank Road Footway (MVL3/26) was constructed between 1845 and 1849 during the Heroic Age of railway building. The single-span bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway.

5.2.2 Shaw Hall Bank Road Footway (MVL3/26) is annotated as Shaw Hall Bank Bridge on the 1st edition 6-inch Ordnance Survey map of 1854, taking its name from the local place name of Shaw Hall Bank. The place name element *Shaw* is associated with the Shaw family of Upper Mill who were prominent landowners in the local area, with numerous farms, woollen mills and other interests within the Saddleworth area. Within the vicinity of Shaw Hall Bank Road Footway (MVL3/26) numerous references to the Shaw family can be seen on the 1st edition 6" Ordnance Survey map, including Shaw Hall, Shaw Hall Quarry, Shaw Hall T.P (telegraph post), Shaw Hall Barn and Shaw Hall Bank. Following the construction of the Huddersfield & Manchester Railway, Shaw Hall Bank Road Footway (MVL3/26) was constructed as an accommodation bridge to maintain the existing right of way across land to the north and south of the railway line.

5.2.3 The LNWR Oldham Branch opened between Greenfield Station and Oldham in 1856. The line was located directly to the north of Shaw Hall Bank Road Footway (MVL3/26), constructed on a separate embankment to the north of the underbridge (Insert 5-1). The east-west retaining wall located to the north of Shaw Hall Bank Road Footway (MVL3/26) is likely to relate to this arrangement.

5.2.4 The arrival and expansion of the railway during the second half of the 19th century fuelled gradual development to the south of Shaw Hall Bank Road Footway (MVL3/26). Terraces and a small number of detached structures are shown on subsequent Ordnance Survey editions in the later 19th and early 20th century to the south of the Railway line and MVL3/26 along the newly established road.

5.2.5 In the 20th century, the area to the south of the underbridge continued to gradually develop with residential buildings. In the mid-20th century, the Oldham Branch line was closed to passenger traffic as it was superseded by competing bus companies. The line continued in operation for freight until its closure in 1964. The route of the Oldham Branch is now a pedestrian walkway. Shaw Hall Bank Road Footway (MVL3/26) continues in active use part of the Transpennine route.



Insert 5-1 Historic line plan of the Huddersfield & Manchester Railway and Canal by LNWR in 1905 showing Shaw Hall Bank Road Footway (MVL3/26).

Description

5.2.6 Shaw Hall Bank Road Footway (MVL3/26) is a single span segmental-arched skew bridge which carries the two-tracks of the Transpennine route (see Insert 5-2 and Insert 5-3). The structure is constructed of rock-faced sandstone with ashlar detailing. Due to the local topography, the footbridge slopes downwards from north to south and consists of a single arch structure.

5.2.7 The bridge is formed by a segmental arch with V-jointed rusticated voussoirs which are keyed into the coursing of the spandrels, and a projecting keystone. The arch springs from an ashlar impost band supported on rusticated quoins, with a soffit of smaller, skew-coursed dressed ashlar blocks. On the south elevation of the underbridge, the arch is flanked by a pair of slightly battered projecting pilasters, with curving wing walls to either side. To the north elevation, a single pier is present to the right of the arch, with the wing wall extending beyond this. To the left of the arch, a retaining wall of roughly coursed rock-faced stone abuts the side of the arch, obscuring the fabric to the left. Constructed separately from the underbridge and of lesser quality and architectural refinement, this wall extends east-west along the side of the footpath and was constructed in association with the embankment for the Oldham Branch Line. Above the arch of Shaw Hall Bank Road Footway

(MVL3/26) is a stringcourse formed by two square-moulded bands with plain parapet above with ashlar coping over the flanking wing walls. The parapet is made of discrete stone blocks with a modern metallic tubular handrail set into it.

5.2.8 Architectural features include rusticated v-jointed voussoirs made of picked ashlar stone with tooled margins and a slightly projecting keystone. The structure is supported by impost bands which is also tooled with similar detailing which continued down to the quoins of the abutments. The walls of the north and south elevation are otherwise squared with coursed quarry-faced stone. The bridge survives in its original form, with no evidence of significant alteration.

5.2.9 The setting of Shaw Hall Bank Road Footway (MVL3/26) is somewhat localised given the nature of the topography and landscape surrounding the underbridge. Though its setting has undergone some change since the mid-20th century, its setting remains semi-rural due to the dense vegetation that engulfs the underbridge. The bridge is recessed from Shaw Bank Hall Road and despite the trees and vegetation, pockets of intervisibility remains visible from the road on its southern elevation (Insert 5-2). Its northern elevation is more obscured given the angle of the footpath which limits visibility in combination with the dense vegetation (Insert 5-3). Its relationship with the railway also contributes to its setting despite the limited visibility of the railway which limits the ability to appreciate this relationship.

Insert 5-2 Shaw Hall Bank Road Footway (MVL3/26), south elevation.

Insert 5-3 Shaw Hall Bank Road Footway (MVL3/26), north elevation.

Significance

5.2.10 The Shaw Hall Bank Road Footway (MVL3/26) was designated as a grade II listed building in 2018. The Historic England List Entry description identifies the bridge to be of special interest for to the following reasons:

- Historic interest:
    - Constructed during the heroic age of railway building and a little altered example of an 1840s accommodation underbridge on what is now one of the main railway lines in northern England;
    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - As a well-designed bridge with good quality stone-masonry and attention to architectural detail in its use of a skew-coursed ashlar soffit, stepped, picked and tooled ashlar voussoirs with v-joints, ashlar parapet and contrasting rock-faced piers and curved wing walls which all lift it above the purely functional.
- Group value:
    - With the other listed structures designed by Jee on the Huddersfield & Manchester Railway line.

5.2.11 Shaw Hall Bank Road Footway (MVL3/26) is of significance as a largely unaltered example of an 1840s skew underbridge, dating from the Heroic Age (1841–50) of railway building and the period of

'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield & Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route, give the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.12 Shaw Hall Bank Road Footway (MVL3/26) derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. Architectural elements such as the skew-coursed ashlar soffit, stepped and tooled ashlar voussoirs, ashlar parapet and contrasting rock-faced piers and curved wing walls are notable features of Jee's design which elevate the bridge above the purely functional. The design language used is consistent with other bridges built by A.S. Jee for the Huddersfield & Manchester Railway, which further contributes towards a consistency in architectural character and an appreciation of their group value.

5.2.13 The design and construction of Shaw Hall Bank Road Footway (MVL3/26) as a skew bridge contributes to its significance. Skew bridges represent a particular challenge in engineering terms and had been increasingly employed from the late 18th century by canal engineers to overcome the difficulties of canal crossings which were not perpendicular. Early uses on the railway included bridges by George Stephenson on the Liverpool and Manchester Railway (1828–1830) and James Walker on the Leeds and Selby Railway (1830–1834). Jee's use of skew arches on the Huddersfield & Manchester Railway, as at Shaw Hall Bank Road Footway (MVL3/26), represented a continuation of this practice, and provided an elegant solution to the challenges of the constrained and topographically challenging route through the Pennines.

5.2.14 The bridge survives in its original form, with no evidence of significant intervention or alteration, and remains in use for its original purpose. The integrity of the structure enables Jee's original design intent and the historic function of the structure to be understood, contributing to its significance. As a surviving and component feature along the wider railway network, its design contributes to the legibility of the Huddersfield & Manchester Railway in the contemporary landscape.

5.2.15 Shaw Hall Bank Road Footway (MVL3/26) does not draw particular significance from its setting save for its relationship with the railway. The underbridge continues to carry the railway over a pedestrian

footpath, evidencing the physical, functional and historic relationship with the railway. Views of the footbridge are limited given the topography and vegetation, however pockets of intervisibility can be appreciated from Shaw Bank Hall to the south and the footpath to the north.

Insert 5-4 Shaw Hall Bank Road Footway (MVL3/26) looking south towards Shaw Hall Bank Road.

Group value

5.2.16 As identified in the list description, Shaw Hall Bank Road Footway (MVL3/26) is recognised to be of group value with other listed structures by A.S. Jee on the Huddersfield & Manchester Railway[1]. These comprise:

- Heyrod Hall Footbridge (MVL3/7) (grade II listed, NHLE 1449242);

[1] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of TRU, and will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Spring Bank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wright's Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);
- Wright's Overbridge (MVL3/23) (grade II listed, NHLE 1452409);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Oldham Road Overbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Uppermill Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[2].

5.2.17 Of this group, Manchester Road Underbridge (MVL3/10), Oldham Road Overbridge (MVL3/28), Church Street (MVL3/82) and Hillhouse Lane Underbridge (MVL3/94) bear a particular relationship to Shaw Hall Bank Road Footway (MVL3/26). All four structures are skew underbridges which utilise the same architectural detailing as

[2] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

Shaw Hall Bank Road Footway (MVL3/26). As a group, these bridges are substantially unaltered, and evidence Jee's characteristic finely detailed construction, with elegantly skewed stone soffits.

5.2.18 The group value which Shaw Hall Bank Road Footway (MVL3/26) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age of railway building (1841-1850) more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it).

5.2.19 Masonry railway bridges across the historic Huddersfield & Manchester Railway route have been characterised as being of local or regional interest, depending on their architectural quality, contribution to wider historical interest of the route, and their group value. It has been noted however that, as a group, they are not of substantial national interest due to their dating from a period of railway development when thousands of similar structures were erected (Alan Baxter Associates, 2019, 37).

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated heritage assets

5.3.2 There is one listed building located within 250m of Shaw Hall Bank Road Footway (MVL3/26), comprising the grade II listed Wharmton Tower (NHLE 1068153) which is located c. 150m to the northwest. Designed by George Shaw of Uppermill, Wharmton Tower is a large-scale gothic revival house, built c. 1861. Situated on the steeply sloping hillside above the Transpennine route, due to the dramatic differences in land height and intervening mature vegetation, there is no intervisibility between the two listed structures. Consequently, Shaw Hall Bank Road Footway (MVL3/26) does not share any visual relationship with Wharmton Tower. Whilst there is some limited loose historical association due to the Shaw family connection, the two structures do not make a notable contribution to each other's significance.

Non-designated heritage assets

5.3.3 The Greater Manchester Historic Environment Record (HER) records two non-designated heritage assets within 250m of Shaw Hall Bank Road Footway (MVL3/26), one of which is a duplicate of

the listed Wharmton Tower noted above. The remaining record comprises a findspot located 230m to the east of Shaw Hall Bank Road Footway (MVL3/26), in which medieval carved stone heads (9003.1.1) were recovered.

6. PROPOSALS

6.1 Background to proposals

6.1.1 In order to achieve the TRU Programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. Works to the underbridges along the route are required to accommodate the resulting additional loadings on the structures resulting from increased line speeds and increases in train loading.

6.1.2 Shaw Hall Bank Road Footway (MVL3/26) is currently understrength. As such, provisions to safeguard the structure ahead of the increase in line speed are required. The increased line speed and train loading will impose increased horizontal forces on the underbridge. Without mitigation, this has the potential to affect the structural condition of the underbridge. The proposed design has therefore been developed to address these considerations, whilst safeguarding the significance of the structure.

6.2 Design development and justification

6.2.1 Key constraints taken into consideration during the development of proposals for Shaw Hall Bank Road Footway (MVL3/26) comprised:

- Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service.
- The bridge's location within an area characterised by dense vegetation. These constraints, the accessibility of the site to construction vehicles and the delivery of materials/components.
- The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regards for its preservation under the Planning (Listed Building & Conservation Areas) Act 1990.

6.2.2 During the ES3 design stage, proposals for Shaw Hall Bank Road Footway (MVL3/26) considered only installing upgraded GRP Handrails. During ES4 design stage, a comprehensive review was undertaken of the preferred options identified at ES3 across the whole of Route Section W2B as part of a validation exercise. At this

time, the requirement for strengthening of Shaw Hall Bank Road Footway (MVL3/26) was identified and proposals for the structure developed. The proposals for these works have been developed to minimise intervention into the historic structure and alteration of is appearance as far as possible, whilst mitigating the impact of increased line speed and heavier trains.

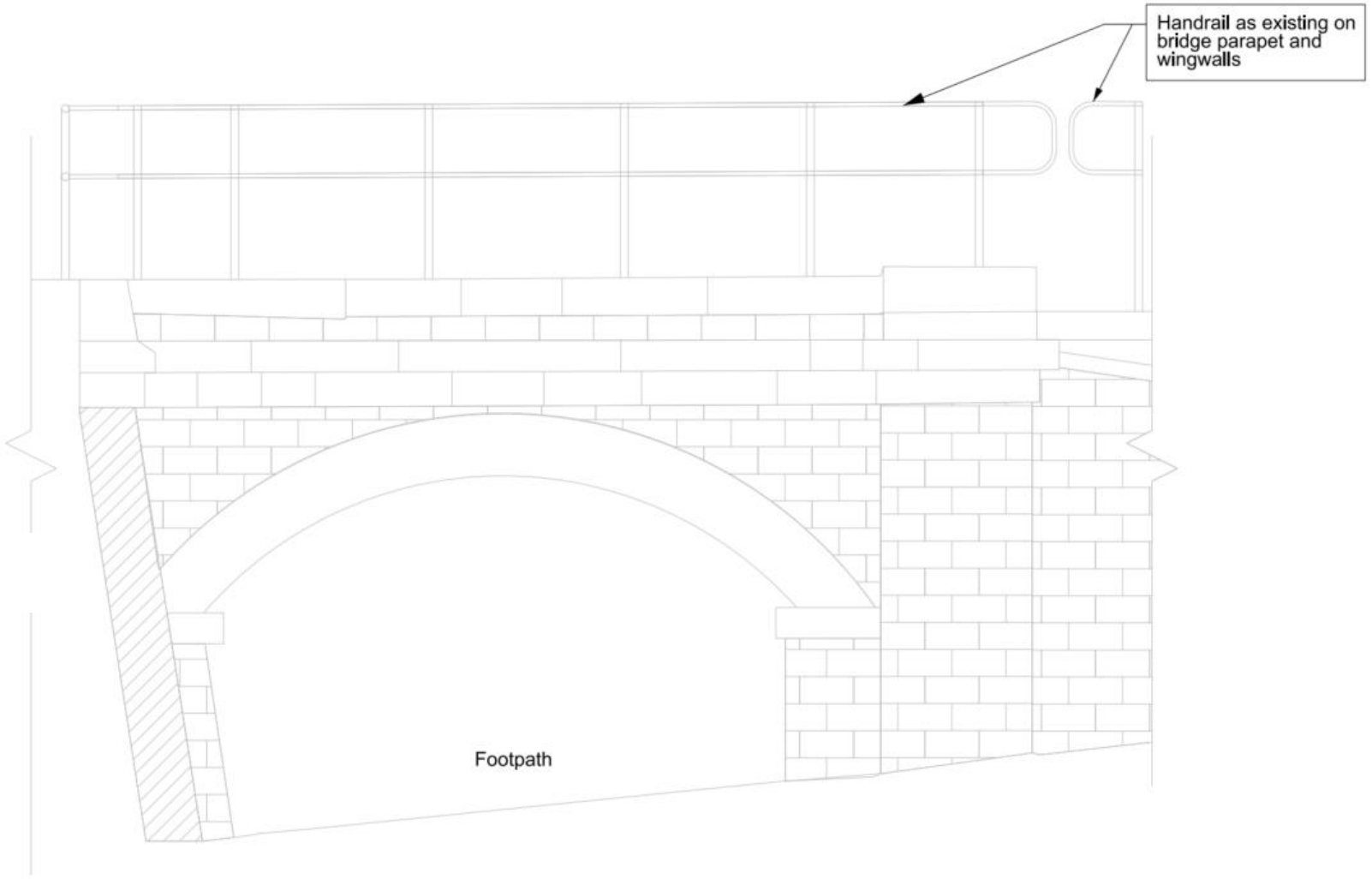
6.2.3 The proposals have been developed in consultation with Historic England and OMBC (as detailed above in Section 4). This iterative and robust design process has been undertaken to minimise the extent of interventions to the grade II listed underbridge in order to maintain the existing appearance and significance of the structure.

6.3 Description of proposals

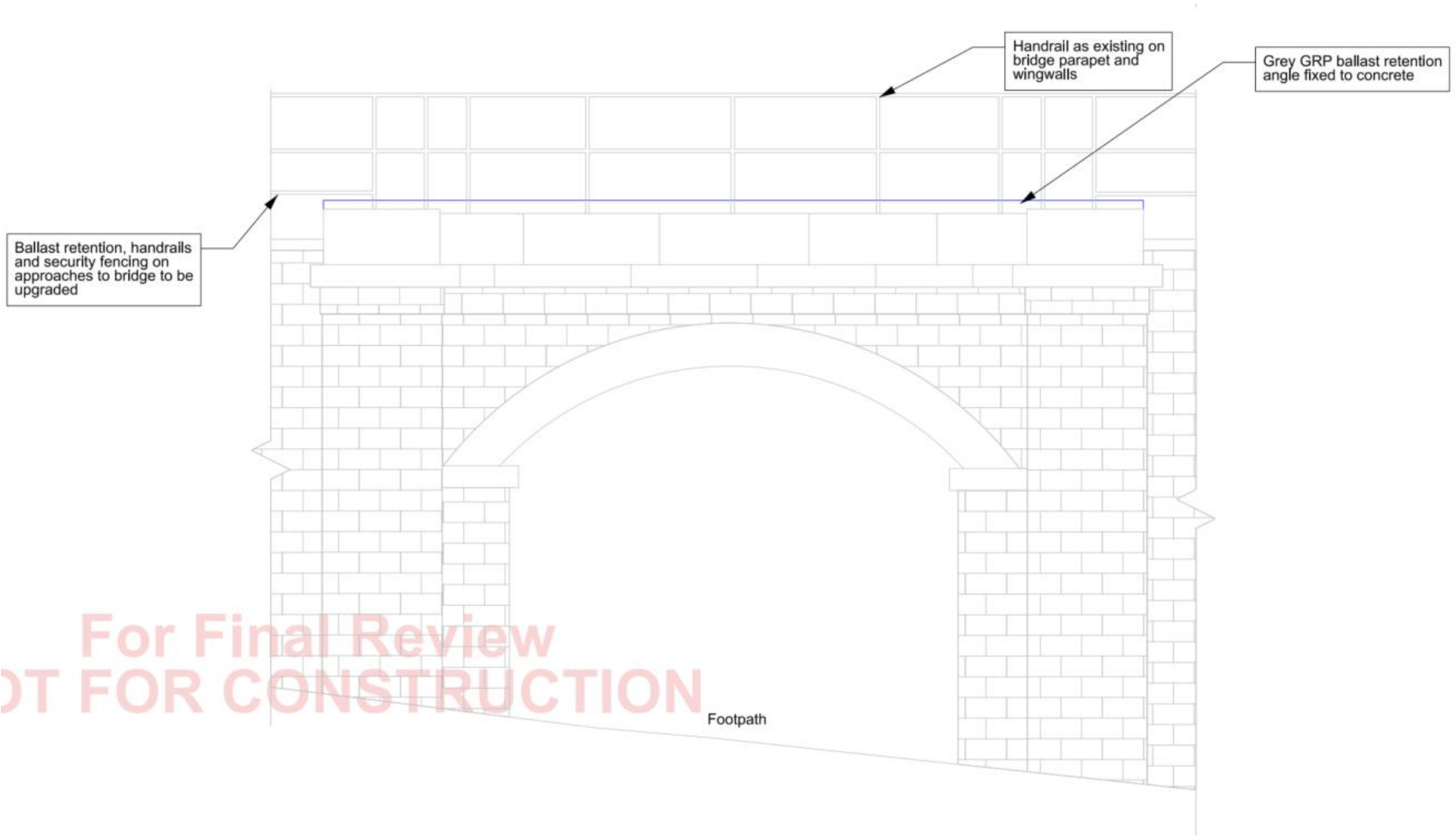
6.3.1 In order to achieve the aims of the TRU programme, it is necessary to re-align the track over Shaw Hall Bank Road Footway (MVL3/26), to increase ballast depth and to strengthen the structure in order to accommodate the increased forces placed on the underbridge by increased line speed and heavier trains (Insert 6-1 and Insert 6-2).

6.3.2 The alterations to the listed bridge would comprise the adjustment of the existing track bed on both lines. Two precast reinforced ‘L’ units would be installed to the inside of the underbridge parapets, below ballast level, extending across the bridge deck. Grout infill to the rear of the precast reinforced units and sand/cement bedding underneath would secure these in place and would not require drilling into the stone parapet or the stone arch below. An *in-situ* concrete stitch would be installed across the centre of the bridge deck between the precast reinforced units to secure these in place. These measures will enable for the precast reinforced units to perform as a singular structural unit, increasing the strength of the bridge and relieve the load from the existing parapets. A low grey GRP ballast retention angle would also be fixed along the inside of the east parapet.

6.3.3 The existing metal ‘kee clamp’ handrails across the structure would be retained and would be electrically earth bonded.



Insert 6-1 Proposed north elevation Shaw Hall Bank Road Footway (MVL3/26)



For Final Review
OT FOR CONSTRUCTION

Insert 6-2 Proposed south elevation Shaw Hall Bank Road Footway (MVL3/26)

Construction Methodology

6.3.4 The proposed works to Shaw Hall Bank Road Footway (MVL3/26) will comprise the following:

- Temporarily divert signalling and telecom (S&T) cables on top of the parapet.
- Install lateral restraint to outside of parapets if required.
- Remove track from Up and Down lines.
- Excavate ballast using tracked excavator.
- Prepare sand/cement bed ahead of placing precast reinforced concrete units.
- Install precast reinforced units using tracked excavator.
- Fix precast reinforced units and install concrete stitch along centre of the precast reinforced units.
- Backfill in-situ grout to rear of precast reinforced units.
- Reinstate ballast, S&T cables and track.
- Tamp track.

6.3.5 The proposed works to Shaw Hall Bank Road Footway (MVL3/26) are shown in the following drawings which accompany this application:

- Existing and Proposed Plan (167037-TGP-25-MVL3-DRG-T-LP-162602); and
- Existing and Proposed Elevation and Sections (167037-TGP-25-MVL3-DRG-T-LP-162603).

7. IMPACT OF PROPOSALS

7.1 Shaw Hall Bank Road Footway (MVL3/26)

7.1.1 The proposed works to the grade II listed Shaw Hall Bank Road Footway (MVL3/26) are required in order to safeguard the structure ahead of the upgrade of the line as part of the wider TRU Programme. These works would result in permanent minor alteration to the underbridge via the installation of precast reinforced units.

7.1.2 The installation of reinforced concrete strengthening to the bridge deck and parapets would result in a permanent localised change to the underbridge. The strengthening units would be secured in place using grout infill and sand/cement bedding, avoiding the need to fix into the masonry parapets. Though these works would result in some minor intervention into the existing underbridge, it would enable for

retention of the entire underbridge and would result in only slight physical impacts to the historic fabric.

7.1.3 The proposed reinforced concrete units have been sensitively and sympathetically developed to ensure that they result in very minor visual impacts. Whilst the majority of the precast reinforced concrete units would be located below ballast level, the top portion of these would rise above the ballast along the inside elevation of the parapets and would be visible from the bridge deck. With the exception of the ballast retention angle which would protrude very slightly above the east parapet, these works would not be visible in views of the external bridge elevations. The overall ability to appreciate the historic form, features and legibility of the underbridge which contribute towards its overall significance would be retained. Elements of interest recognised by Historic England including the ashlar impost bands, rusticated abutments and voussoirs, and pilasters, would be wholly retained. Given the nature of these proposals, there would be no impact on the overall aesthetic value of the underbridge.

7.1.4 The proposed reinforced concrete units have been sensitively and sympathetically developed to ensure that they do not create any substantial visual change to the structure. The design for the reinforced concrete units would retain the ability to appreciate the overall historic form, features and legibility of the underbridge which contribute towards its overall significance. Whilst the ballast retention angle would slightly protrude above the east parapet, this would form a very small element in the elevation and not form a prominent or intrusive feature. Elements of interest recognised by Historic England to contribute to the bridge's significance including the skew coursed ashlar soffits, tooled ashlar voussoirs and v-joints, ashlar parapets and curved rock-faced wing walls would be wholly retained and unaltered. Given the nature of these works, there would be no visual impact or detraction from its overall aesthetic value.

7.1.5 Shaw Hall Bank Road Footway (MVL3/26) derives significance from its association with the historic railway and engineer A.S. Jee, its construction within the Heroic Age (1841-1850) of railway building, and the quality of its architectural design. Though these works will introduce contemporary elements, namely the reinforced concrete strengthening, this would result in only slight physical impacts which would not detract from the aspects of its original design which contribute to its significance. Following the implementation of proposals, the historic value drawn from its associations with the Heroic Age of railway building, A.S. Jee and the Huddersfield & Manchester Route would continue to be understood and continue to contribute towards the underbridge's overall significance.

7.1.6 Shaw Hall Bank Road Footway (MVL3/26) does not derive particular significance from its setting, apart from its relationship with the historic and operational railway. The proposed works would not result in appreciable change to the relationship between the underbridge and the railway. Views of the underbridge from Shaw Bank Hall will be maintained.

7.1.7 Shaw Hall Bank Road Footway (MVL3/26) also derives significance from its group value with other A.S. Jee structures which share a common design language identifiable across the Huddersfield & Manchester Railway, particularly the masonry underbridges at Manchester Road Underbridge (MVL3/10), Oldham Road Overbridge (MVL3/28), Church Street (MVL3/82) and Hillhouse Lane Underbridge (MVL3/94). The proposed works would not negatively impact on the ability to appreciate its group value given that the historic form and features of Jee's design and contribution as part of the historic railway would not be altered. The proposals have been devised with an appreciation for the group value of the bridge by ensuring the appearance of the new precast reinforced units are sensitively incorporated into the historic underbridge.

7.1.8 The proposals would therefore result in less than substantial harm at the lower end of the scale, as agreed with Historic England in their letter of 29 November 2024.

7.2 Other heritage assets

7.2.1 Due to the minor nature of the works, the proposals would not result in any impact to any surrounding designated or non-designated heritage assets.

7.3 Mitigation

7.3.1 The design proposals have been developed to minimise impact on the fabric, form and appearance of Shaw Hall Bank Road Footway (MVL3/26). This has been achieved through the design development, undertaken in consultation with Historic England and OMBC. Measures incorporated into the design to mitigate impacts on the significance of the underbridge.

- Ensure the continued viable use of the structure as a part of the TRU network, and to safeguard it ahead of the electrification of the railway.
- Placement of precast reinforced units on the inside of the bridge deck to minimise visual and physical interventions into the historic structure.

7.3.2 In addition to these measures, Toolbox Talks would be undertaken in advance of construction works to Shaw Hall Bank Road Footway (MVL3/26). These talks would disseminate best practices for reducing potential impacts in relation to construction activities, for example to help avoid accidental damage.

Recommended compensation

7.3.3 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 1 in accordance with Historic England guidance (Historic England, 2016). This would provide a permanent record of Shaw Hall Bank Road Footway (MVL3/26) in its current form and be lodged with the Greater Manchester Historic Environment Record.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Shaw Hall Bank Road Footway (MVL3/26). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The works proposed to be undertaken to Shaw Hall Bank Road Footway (MVL3/26) are required to ensure the realisation of the substantial public benefits of the Order Scheme.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from

modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The completion of the proposed works to re-align the track over Shaw Hall Bank Road Footway (MVL3/26) and strength the structure, would contribute towards delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including Shaw Hall Bank Road Footway (MVL3/26), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed works at Shaw Hall Bank Footway (MVL3/26) would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four ‘express’, two ‘semi-express’ services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in ‘greener’ energy technology. This supports Network Rail’s Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley

Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the works to Shaw Hall Bank Road Footway (MVL3/26).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Shaw Hall Bank Road Footway (MVL3/26) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Shaw Hall Bank Road Footway (MVL3/26) lies primarily in its historic and architectural interest. The underbridge is a large unaltered example of a masonry underbridge dating to the Heroic Age (1841-1950) of railway building. The underbridge derives significance from its direct historic relationship with notable railway engineer A.S. Jee and the Huddersfield & Manchester Railway and LNWR. The high quality of the underbridge's architecture, which includes skew-coursed ashlar soffit, ashlar voussoirs and v-joints, ashlar parapets and rock faced piers, together with the quality of workmanship, are characteristic of A.S. Jee's works recognised across the wider Huddersfield & Manchester Railway. It also retains group value as one of number of A.S. Jee structures on the Transpennine route which share a common design language.

8.1.2 The proposals for Shaw Hall Bank Road Footway (MVL3/26) have been developed and undertaken in consultation with Historic England and OMBC and have been developed to minimise the impact on the listed underbridge as far as possible. Special regard has been given to the desirability of preserving or enhancing the structure or its setting or any features of special architectural or

historic interest which it possesses. The proposals therefore comprise:

- Strengthening of the bridge through installation of precast reinforced units to the deck of the bridge, inside the parapets.

8.1.3 The works would result in minor alteration of the structure and would preserve key aspects that contribute to its overall significance including its architectural quality, detailing and construction. Whilst the proposals would introduce modern materials into the historic structure, these works have been developed to be as visually unobtrusive as possible. Additionally, the group value of Shaw Hall Bank Road Footway (MVL3/26) with other A.S. Jee bridges for the Huddersfield & Manchester Railway would be maintained.

8.1.4 With the works to Shaw Hall Bank Road Footway (MVL3/26), the Order Scheme can achieve key improvement objectives as outlined in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution);
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and
- Improving public health and safety in providing safe routes across the railway.

8.1.5 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.6 The works to Shaw Hall Bank Road Footway (MVL3/26) would result in less than substantial harm to the significance of the listed building, at the lower end of the scale, as defined under the NPPF. Substantial public benefits would outweigh the less than substantial harm to the significance of Shaw Hall Bank Road Footway (MVL3/26), therefore meeting the requirements of the NPPF (paragraph 215) in relation to the justification for less than substantial harm. The proposals would also satisfy the requirements of Policy 24 of the Oldham Joint Core Strategy and Development Management Policies (2011), in relation to the impact on the character of the listed building, and preservation of its architectural style and features. It would also satisfy Policy JP-

P2 contained within Greater Manchester Combined Authority's Places for Everyone (2024). The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to significance of Shaw Hall Bank Road Footway (MVL3/26).

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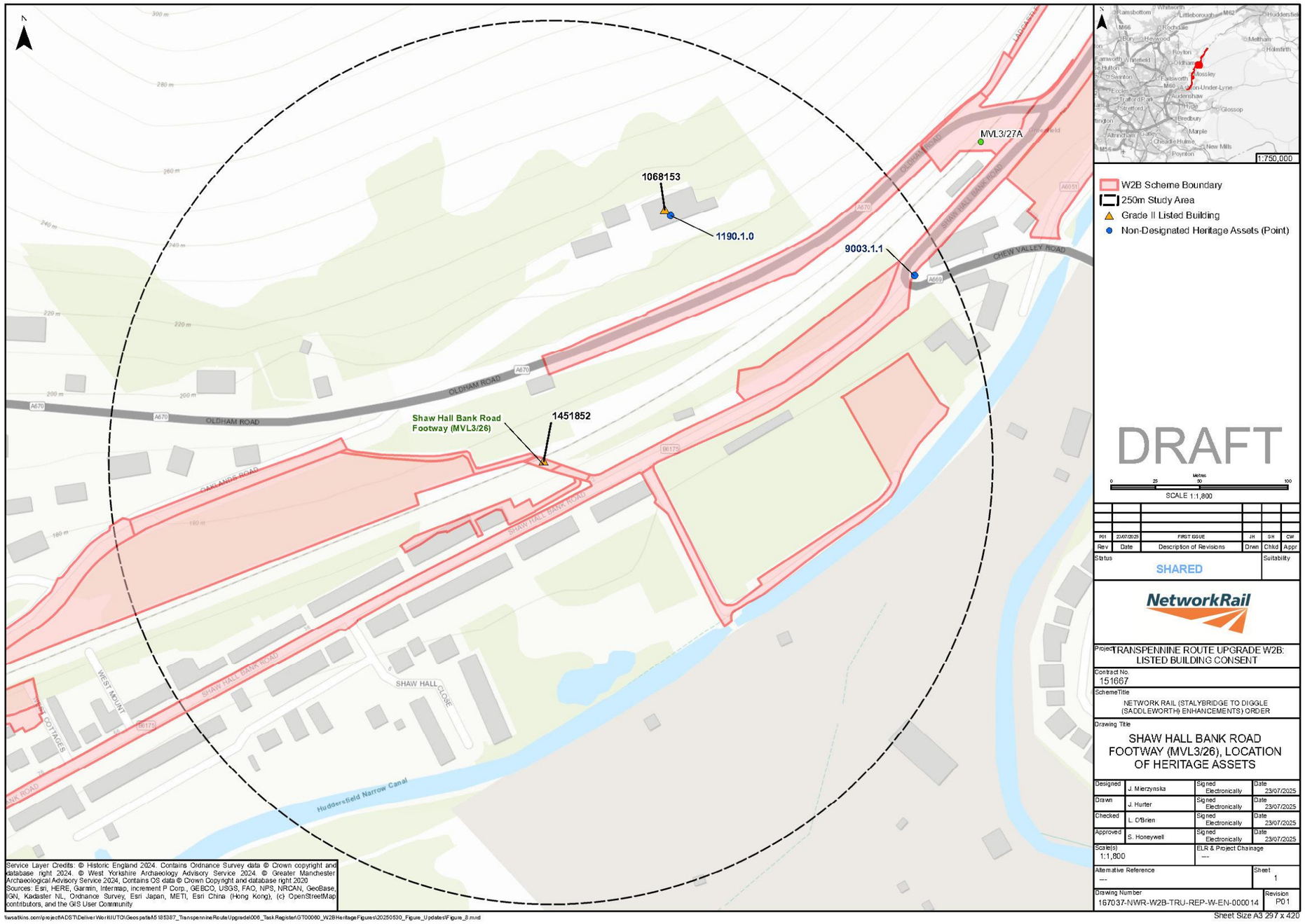
APPENDIX A – LOCATION PLAN



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APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1451852
Date first listed:	23-Mar-2018
List Entry Name:	Railway accommodation underbridge MVL3/26, Footway
Location Description:	Off Shaw Hall Bank Road, Greenfield.

Location

The building or site itself may lie within the boundary of more than one authority.

District:	Oldham (Metropolitan Authority)
Parish:	Saddleworth
National Grid Reference:	SD9894204527

Summary

Accommodation underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s for the railway line with A S Jee as lead engineer.

Reasons for Designation

The accommodation underbridge MVL3/26, off Shaw Hall Bank Road, Greenfield, constructed in the mid-late 1840s by A S Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic interest:

* constructed during the heroic age of railway building and a little altered example of an 1840s accommodation underbridge on what is now one of the main railway lines in northern England;

* designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* as a well-designed bridge with good quality stone-masonry and attention to architectural detail in its use of a skew-coursed ashlar soffit, stepped, picked and tooled ashlar voussoirs with v-joints, ashlar parapet and contrasting rock-faced piers and curved wing walls which all lift it above the purely functional.

Group value:

* with the other listed structures designed by A S Jee on the Huddersfield & Manchester line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies, the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed between 1837 and 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently (2018) owned by Network Rail, and the passenger services operated by Trans Pennine Express and Northern Rail.

This underbridge accommodates a footpath beneath the railway line. It dates to the construction of the Huddersfield & Manchester Railway between 1845 and 1849 when A S Jee was the lead engineer. (The railway line and the footpath are shown on the first edition 1:10,560 OS map surveyed between 1849 and 1851 and published in 1854.)

Details

Accommodation underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s for the railway line with A S Jee as lead engineer.

MATERIALS: rock-faced and ashlar sandstone (shale grit/Kinderscout grit/millstone grit).

DESCRIPTION: the skew accommodation bridge carries the two-line railway track over a footpath which slopes steeply down towards the south. The bridge has deep, segmental arches with stepped voussoirs and slightly taller keystones. The v-jointed voussoirs are of picked ashlar with tooled margins. They spring from an ashlar impost band with similarly detailed ashlar quoins to the bridge abutments, which are otherwise constructed of coursed, rock-faced stone blocks, as are the spandrels. The bridge soffit is constructed of smaller, skew-coursed, dressed ashlar blocks. The bridge arches are framed by slightly projecting piers of rock-faced stone. The ashlar parapets encompass the archway and the piers and have a slightly projecting, square-moulded band with deeper panels above. The curved wing walls are constructed of coursed, rock-faced stone blocks with square-moulded ashlar coping.

Sources

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APPENDIX C - HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

29 November 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meetings on 6 and 21 November 2024 to review the proposals for bridges MVL3/9, 10, 23, 25, 26, 28, 29 and 31. As before, it was helpful to see the drawings in advance and then talk through the proposals with the team.

The impacts of the proposed changes and our comments are detailed below:

Proposals at *Manchester Road underbridge MVL3/10*, *Shaw Hall Bank Road underbridge MVL3/26* and *Wickens underbridge MVL3/29* will involve minor works, consisting of renewal of railings and strengthening of parapets with reinforced concrete. Visually, there will be only a minor impact, as the replacement railings are similar to the existing and the concrete strengthening will be hidden from view by the parapets. There will be a very low level of less than substantial harm to the physical fabric of the bridges due to the new railings being grouted into cored holes in the masonry parapet blocks. We do not have concerns over the works at these three bridges and recognise the efforts to maintain the visual appearance on the bridges.

The proposals for *Spring Bank Lane overbridge MVL3/9* and *Uppermill Viaduct MVL3/31* have been discussed at previous meetings, and it was helpful to see further details of the works at these structures. There will be a low level of less than substantial harm to *Spring Bank Lane overbridge* due to the introduction of raised copers, however the use of colour-matched concrete here will help to mitigate some of the harm caused by the visual impact of the new copers. Works to *Uppermill Viaduct* will likewise lead to a low level of less than substantial harm due to the introduction of brackets to support the OLE portals which will have an impact both physically and visually. We appreciate that care has been taken in the spacing of these portals so the rhythm of the bridge arches is not unduly interrupted, and so that the pattress plates are not affected.

More considerable impacts will result from proposals at *Wright's overbridge MVL3/23*, *Oaklands Road underbridge MVL3/25* and *Oldham Road overbridge (Greenfield*

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Station) MVL3/28, all of which will result in substantial harm to the significance of the designated assets.

As mentioned in previous letters, the removal of *Wright's Overbridge* will cause substantial harm to its significance through the total loss of its historic form and all original fabric, and through the re-routing of a historic public footpath. Thorough justification will need to be presented in the supporting documentation to provide the reasoning for the total loss of this bridge.

The proposed reconstruction of *Oldham Road Overbridge* has also been discussed previously. This is a skew overbridge located on the north-east side of Greenfield Station which carries Oldham Road over the track below. The bridge currently has a masonry arch which will be dismantled, along with much of the approaching wing walls, resulting in very little historic fabric being retained. The works will also necessitate the removal of the ornate historic iron railway footbridge. There will be substantial harm to the significance of the listed asset due to the severity of changes to its physical appearance and the loss of historic fabric. We recognise that some fabric will be retained for reuse as cladding material, however this will need to be carefully managed to maintain the look of the structure. The stone coursing in the existing bridge runs through the parapets into the wing walls. We would like to see care taken to replicate this effect within the reconstructed bridge to avoid a disjointed appearance to the new structure, which could arise from using mismatched stone-cladded panels. The existing bridge features flat masonry pilasters that project slightly from the bridge to either side of the arch. These have not been articulated in the proposed design and we would like to see further investigation into whether they could be incorporated into the design. This location would be suitable for display of permanent interpretation materials which could help to mitigate some of the harm by informing the public about the history of the route and the upgrade works.

Oaklands Road underbridge MVL3/25 is a skew girder bridge carrying the two-track railway line over a bend in the road below. The angled abutments have distinctive semi-octagonal piers, and the parapets are ornate balustrades of decorative cast-iron panels of Gothic arcading. The craftsmanship of the stonemasonry and attention to architectural detail lifts the design of this bridge above the purely functional and it has considerable architectural interest. There will be substantial harm to the significance of this listed bridge resulting from the proposals to reconstruct and widen the bridge deck and to rebuild the octagonal piers. In order to minimise the harm, the design of the rebuilt piers and abutments will need to be careful managed to ensure there is meaningful articulation of the distinctive shape of the piers. This includes the contrasting shape and dimensions of the piers where they extend through and above the parapet. We are comfortable with the proposals to replicate the decorative cast-iron panels to minimise the visual impact of the loss of the original fabric here.

Next Steps

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We look forward to our continued involvement in the pre-application discussions for this scheme.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, October 2024

MVL3/25 Presentation, November 2024

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Telephone 0161 242 1416
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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
HistoricEngland.org.uk

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Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Oldham Road Overbridge (MVL3/28) – Heritage Statement

Rule 10(6)(d)

Author	Network Rail
Date	October 2025
Document Reference	167037-NWR-W2B-TRU-REP-W-EN-000025
Revision Number	Revision 1 – Final

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Conditions 3
1.4 Summary of proposal 5
2. LEGISLATION AND POLICY CONTEXT 6
2.1 Legislation 6
2.2 National Policy 7
2.3 Local planning policy 10
3. ASSESSMENT METHODOLOGY 15
3.1 Research 15
3.2 Significance and setting 15
4. CONSULTATION 16
5. HERITAGE ASSETS AND THEIR SIGNIFICANCE 24
5.1 History of the W2B Transpennine Route 24
5.2 Oldham Road Overbridge (MVL3/28) 26
5.3 Surrounding heritage assets 35
6. PROPOSALS 36
6.1 Background to proposals 36
6.2 Design development and justification 37
6.3 Preferred option design development 39
6.4 Description of proposals 48
7. IMPACT OF PROPOSALS 56
7.1 Oldham Road Overbridge (MVL3/28) 56
7.2 Other heritage assets 57

7.3 Mitigation 57

7.4 Public benefit 59

8. CONCLUSION 61

9. REFERENCES 65

APPENDIX A – LOCATION PLAN 67

APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION 68

APPENDIX C – HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS 71

List of Tables

Table 4-1 Consultations for Oldham Road Overbridge (MVL3/28) 16

Table 6-1 Optioneering for Oldham Road Overbridge (MVL3/28) 38

Table 6-2 Highway configuration optioneering 41

Table 6-3 Summary of bridge deck design options 43

Table 6-4 Parapet Design Optioneering 45

Table 6-5 Coping stone optioneering 46

List of Inserts

No table of figures entries found.

Insert 1-1 Oldham Road Underbridge (MVL3/28), south-western elevation 4

Insert 1-2 Displaced capstone on bridge parapet 4

Insert 1-3 Scrape marks and displacement of coping from vehicle strikes 5

Insert 1-4 Standing fractures to the bridge abutments. 5

Insert 5-1 Historic line plan held by Network Rail which depicts the course of Oldham Road prior to the construction of the railway 27

Insert 5-2 1st edition Ordnance Survey County Series Map 1854 28

Insert 5-3 County Series Map 1891 28

Insert 5-4 Oldham Road Overbridge (MVL3/28) north-east elevation 29

Insert 5-5 Oldham Road Overbridge (MVL3/28) south-west elevation from Greenfield Station. 30

Insert 5-6 Oldham Road Bridge (MVL3/28), bridge deck and evidence of vehicle strike. 31

Insert 5-7 Oldham Road Bridge (MVL3/28), looking south-west overlooking the railway alignment. Greenfield Station Footbridge (MVL3/27A) is visible 31

Insert 6-1 Proposed Plan for reconstruction of MVL3/28 and the proposed Oldham Road Footbridge (MVL3/27B) 50

Insert 6-2 Proposed south elevation of Oldham Road Overbridge (MVL3/28).....51

Insert 6-3 Proposed north elevation of Oldham Road Overbridge (MVL3/28) 52

Insert 6-4 Visualisation of Oldham Road Overbridge (MVL3/28) looking east. 53

Insert 6-5 Visualisation of Oldham Road Overbridge (MVL3/28) from Shaw Hall Bank Road looking north.....53

Insert 6-6 Visualisation of Oldham Road Overbridge (MVL3/28) from Oldham Road looking west.....53

Insert 6-7 Visualisation of Oldham Road Overbridge from aerial perspective showing footbridge (MVL3/28A) in the foreground (visualisation prepared in 2024).....54

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order Scheme extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the "Scheme"). This section of the Transpennine route follows the Tame Valley from Stalybridge to Diggle, and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade

and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a listed building. The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade II listed Oldham Road Overbridge (MVL3/28) (NHLE 1451853). A location plan is provided in Appendix A.

1.1.7 The Historic England list description (included in full in Appendix B) names the listed building as “Railway Overbridge MVL3/28, Oldham Road”. Throughout this Heritage Statement the structure is referred to as “Oldham Road Overbridge (MVL3/28)” in accordance with Network Rail’s naming of the structure.

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds1 and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF 2025) specifically paragraph 207, which seeks an assessment proportionate to the asset’s importance and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail’s requirement to provide an objective assessment of the heritage value of assets that may be affected by the Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;
- Present the design requirements of the Scheme at the structure;
- Present the process of development and optioneering which has led to the design proposal for the Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Scheme weighed against the impact on the significance of the structure, in line with the NPPF and the Oldham Local Development Framework, 2011.

1.3 Current Conditions

1.3.1 Oldham Road Overbridge (MVL3/28) (Insert 1-1) is a single span skew overbridge built to carry Oldham Road (A670) across the historic Huddersfield & Manchester Railway. The overbridge is situated on the western edge of the village of Greenfield (NGR SD9859804392), c. 7 km east of Oldham. It comprises a single segmental-arched bridge, which carries vehicular traffic over the railway via Oldham Road (the A670).

1.3.2 The structure was subject to a detailed examination as part of Network Rail's maintenance regime in June 2016, which identified it to be in fair condition, with the exception of the parapets and pilasters which were identified to be in poor condition due to repeated vehicle strikes (Insert 1-2). Defects identified included:

- Poor condition of parapets due to vehicle strikes;
- Damage to existing palisade fencing from vehicle strike;
- Fractures and spalling of stonework, some of which are identified to be long-standing (Insert 1-3);
- Slight seepage from the bridge soffit;
- Missing pointing from isolated joints; and
- Leaning parapets.

1.3.3 A visual inspection undertaken in September 2021 again identified the long-standing issue of vehicle impacts to the inside of the bridge

parapets, with further impacts and displacement of stonework and copings, and damage to stonework and movement of copings. Since the completion of the visual survey in 2021, a further five rapid response surveys have been undertaken due to vehicles crashing into the bridge parapets.

Insert 1-1 Oldham Road Underbridge (MVL3/28), south-western elevation

Insert 1-2 Displaced capstone on bridge parapet.

Insert 1-3 Scrape marks and displacement of coping from vehicle strikes

Insert 1-4 Standing fractures to the bridge abutments.

1.4 Summary of proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the Route is required as part of the construction of the Order Scheme. This requires alteration of a number of existing bridges, including Oldham Road Overbridge (MVL3/28) to accommodate OLE. Following optioneering, it has been determined to be necessary to reconstruct Oldham Road Overbridge (MVL3/28) to enable implementation of the Order Scheme.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) (the "Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'*In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—*

a) *any object or structure fixed to the building;*

b) *any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'*

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

1) *'Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.*

2) *In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving and enhancing the building or its setting or any features of special architectural or historic interest which it possesses.*

3) *Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'*

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) ' the preservation of particular features of the building, either as part of it or after severance from it;

b) the making good, after the works are completed, of any damage caused to the building by the works; [and]

c) the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.

2.1.5 It is also defined in s.17 (2) that a condition '*may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'*.

2.1.6 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective 'to protect and enhance our natural, built and historic environment'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' which includes guidance on plan making, managing Historic Environment Records; how to determine proposals affecting the historic environment; and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance.'*
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance*.'
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

  a) *grade II listed buildings, or grade II registered parks or gardens, should be exceptional;*

  b) *assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

  a) *the nature of the heritage asset prevents all reasonable uses of the site; and*

  b) *no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and*

  c) *conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and*

d) *the harm or loss is outweighed by the benefit of bringing the site back into use.'*

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.'*
- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*
- Paragraph 219 - *'Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.'*

Planning Practice Guidance

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that *'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed'* (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

2.3.1 Local planning policy for Oldham is provided by the Joint Core Strategy and Development Management Policies of the Oldham Local Development Framework, adopted in November 2011 (Oldham Council, 2011), and a small number of retained policies from the Unitary Development Plan (Oldham Council, 2009).

2.3.2 Policy 24 relates to the Historic Environment and is reproduced in full below:

Policy 24 Historic Environment

'Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

National and local guidance and policies on the historic environment.

Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.

Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.

Conservation Area Appraisals and Management Plans, where appropriate.

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

Listed buildings.

Conservation areas.

Registered parks and gardens (their historic character and setting).

Scheduled ancient monuments (their archaeological value and interest).

Significant archaeological remains.

Locally significant buildings, structures, areas or landscapes of architectural or historic interest (including non-designated locally significant assets identified in the local lists compiled by the council).

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional. Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.*

Conservation Areas

Development within or affecting the setting of a conservation area, including views in or out, must serve to preserve or enhance the character or appearance of the area. Proposals for all new development, including alterations and extensions to buildings and their re-use, must have a sensitive and appropriate response to context and good attention to detail. Proposals must not adversely affect important architectural or historic features or distinctive local features or structures unless it can be demonstrated that the development brings substantial benefits to the community. Proposals for the demolition of a building in a conservation area must demonstrate that it is unrealistic for the building to continue in its

existing use and a suitable alternative use cannot be found, or the building is in poor structural condition and the cost of repairing and maintaining it would be disproportionate to its importance and value and the demolition would preserve or enhance the character or appearance of the conservation area. In exceptional circumstances, the fact that a demolition would bring substantial benefits to the local community may outweigh the balance in favour of the preservation of the building.

Registered Parks and Gardens

Development which would lead to the loss of, or cause harm to, the historic character or setting of any part of registered park and garden will not be permitted.

Scheduled Monuments

Development which would lead to the loss of, or cause harm to, scheduled ancient monuments should be wholly exceptional.

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

Significant archaeological remains.

Locally significant buildings, structures, areas or landscapes of architectural or historic interest'.

Places for Everyone (Greater Manchester Combined Authority 2024)

2.3.3 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Oldham, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate

heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.4 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.5 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the *'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance'* (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.6 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.7 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Oldham Road Overbridge (MVL3/28). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a walkover survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 May 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England. A methodology for the assessment of significance of heritage assets is outlined in Advice Note 12 (Historic England, 2019) whilst Historic England GPA3 (Historic England, 2017) provides the basis of a methodology for the assessment of setting.

3.2.2 Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest.

3.2.3 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;

- Additional effects (change to skyline etc.);
- Permanence; and
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and Oldham Metropolitan Borough Council (OMBC) have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of the TRU.

4.1.2 Regular meetings with both these historic environment stakeholders have been held to discuss design development of the proposals in relations to Oldham Road Overbridge (MVL3/28). Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall route and design development for all listed structures within Route Section W2B.

4.1.3 The design development for Oldham Road Overbridge (MVL3/28) was discussed during meetings with the statutory stakeholders on the dates outlined in Table 4-1.

Table 4-1 Consultations for Oldham Road Overbridge (MVL3/28)

Date	Stakeholder in attendance	Key agreements/items discussed
16 February 2021	• OMBC • Historic England	• An overview of Oldham Road Overbridge's (MVL3/28) significance was presented. • The challenge of electrification at this location was presented, with the problem of clashing electrification and gauge clearances outlined. • A summary of the two key high-level options being considered was presented, namely track lowering and bridge reconstruction (with the potential scope to widen the bridge to improve highway layout). • OMBC queried whether bridge reconstruction could also include pedestrian provision across the bridge which is currently poor. • Detailed discussion took place regarding the options for improving the layout of the highway, including widening of the bridge and signalising Shaw Hall Bank Road junction to remove conflicts. Potential diversionary routes during construction works were also discussed, with feedback gathered from OMBC regarding road closures and the management of highway disruption.

Date	Stakeholder in attendance	Key agreements/items discussed
		• At this time OMBC were without a Conservation Officer, with Historic England recognising this gap in resource and agreeing to continue to engage and provide pre-application feedback.
26 May 2021	• Historic England • OMBC • Kirklees Council	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II overbridges and underbridges which are noted for their inherent significance, particularly as essential railway structures. Acknowledgement of their group value with each other was also presented as a key contributor to significance. • Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs.[1] • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. The high likelihood of MVL3/28 being reconstructed was presented, due to the potential level of impact this structure was flagged as red on a RAG scale. • Reassurance was provided to the council that they will be involved in the GRIP 3 design process which will be used within the detailed design development of GRIP 4. Clarification was also provided on the sustainable heritage initiatives. • Historic England stated that they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
6 February 2024	• Historic England	• Details of the challenges of the electrification of the route in relation to listed overbridges were presented. Design measures under consideration for addressing these challenges noted to include: Reduced voltage clearances: o Development of scheme-specific pantograph, reducing electrical clearances to a minimum. o Site specific risk assessments of bridges due to reduced overhead wire heights.

[1] At the time of consultation in 2021, the delivery of railway investment programmes was managed by Network Rail as a staged process through use of the GRIP (Governance for Railway Investment Projects) process. GRIP 3 comprised option selection and GRIP 4 single option development. This has since been replaced by PACE (Project Acceleration in a Controlled Environment).

Date	Stakeholder in attendance	Key agreements/items discussed
		Electrical protection works: ○ Risk-based approach to raising parapets. Where safe to do so, 1.5 m height parapets may be employed, rather than standard 1.8 m height. ○ This approach has been embedded in designs for Route Section W2B. • The design approach for electrification across / under existing railway bridges was noted to have agreed in principle by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage. • The approach to bridge reconstruction was outlined, with key design aspects discussed including: ○ Visibility of new concrete elements to be minimised through the use of masonry cladding; ○ Reclaimed stone used to clad interior of parapet, natural stone used to clad exterior; ○ Coursing of cladding to tie in with existing stonework as far as reasonably practicable; and ○ Where reclaimed stone cannot be reused, natural stone of matching size and colour will be used. • Confirmation that the design optioneering will be undertaken in consultation with Historic England.
22 February 2024	• OMBC	• The challenge of electrification at this location was presented, with the problem of clashing electrification and gauge clearances outlined. • A summary of the two key high-level options being considered was presented, namely track lowering and bridge reconstruction (with the potential scope to widen the bridge to improve highway layout). The opportunity for OMBC to introduce traffic lights into both of the presented options was also highlighted. • Network Rail confirmed that both options would be developed in parallel to enable the robust exploration of their advantages and disadvantages. • OMBC recognised the overall impact of the proposed works on the safety of highway users would be positive once completed. However, the key importance of minimising disruption during the construction phase was underlined.

Date	Stakeholder in attendance	Key agreements/items discussed
5 March 2024	• Historic England	• The significance, site constraints and optioneering process for Oldham Road Overbridge (MVL3/28) were presented to Historic England. • Two key options for bridge reconstruction that achieve higher standards for highway safety were presented. The options comprised: the widening of the deck on the south side, and the construction of a separate footbridge. Further consultation with the Local Highway Authority was needed to agree the optimal arrangement. • Agreement that the detailing of any reconstruction would align with the general approach taken for other proposed reconstructions on Route Section W2B. • Network Rail's preferred option for a bridge reconstruction was recognised by Historic England along with the constraints relating to the other presented options.
22 March 2024	• OMBC	• Presentation of site constraints and optioneering for Oldham Road Overbridge (MVL3/28) to the council. • Presentation of the two options being considered for Oldham Road Overbridge (MVL3/28): o Option 2a: propose widening the bridge and increase width deck. This option is not recommended by the TRU team given that the gradient would be worse than it currently is. o Option 2b: removing footway off the bridge. This option would improve the gradient of the ramp Both options would be considered to be a local improvement. • During this meeting, the Council identified Option 2B as their preferred approach.
9 April 2024	• Historic England	• Presentation of proposal for Oldham Road Overbridge (MVL3/28) for an enhanced reconstruction.
7 May 2024	• Historic England	• Agreement in principle with Historic England on the principle of reconstruction at Oldham Road Overbridge (MVL3/28)
22 May 2024	• OMBC	• Presentation of progression of optioneering for Oldham Road Overbridge (MVL3/28), in particular Option 2B which was previously deemed to be the preferred approach. Presentation of advantages and disadvantages of progressing with Option 2b, and

Date	Stakeholder in attendance	Key agreements/items discussed
		confirmation that it is now the preferred Option for TRU.
26 June 2024	• OMBC	• Presentation of update on Oldham Road Overbridge (MVL3/28) with 3D visualisations. Confirmation that the proposals are viable and that the overbridge would be built within the same footbridge as the existing footbridge. • The materiality used for the proposals would include: o A prestressed concrete box beam; o Stone clad parapets (on both sides); o Coloured concrete copers; and o Stone clad approach parapets (on both sides). • Confirmation that the designs will seek to minimise the visible coloured concrete at the base of the parapets, high stone walls
25 June 2024	• Historic England	• Pre-application advice letter from Historic England identifies that the reconstruction of MVL3/28 would result in substantial harm to the significance of the bridge (Appendix C.1). • Historic England summarised that substantial harm would arise from the loss of the form of the arched bridges and through the loss of historic fabric, with additional harm identified to the group value of the bridges. • It was agreed that reclaimed stone should be focussed on the inside faces of the parapet to minimise the degree to which the alteration of the bridge is experienced from the deck. • Historic England concluded that it will be for the decision taker to weigh the balance of the identified substantial harm against the public benefit of the scheme.
2 July 2024	• Historic England	• An update on the developing design for Oldham Road Overbridge (MVL3/28) was presented to Historic England. The selection of the separate footbridge as the single preferred option was confirmed. • Details regarding the proposed materials and progress with modelling the proposed designs were shared. Materials presented included: Overbridge o Prestressed concrete beams for the overbridge deck;

Date	Stakeholder in attendance	Key agreements/items discussed
		○ Stone clad parapet units; and ○ Coloured concrete copers. Footbridge ○ Steel composite bridge deck; and ○ Stone clad parapet units. Ramps ○ Utilising existing stone walls where possible; ○ No steel or concrete superstructures; and ○ Handrails on approach. • Details were also shared regarding the proposed improvements to highway visibility and gradients of the proposed ramps and footbridge.
06 November 2024	• Historic England	• This meeting was used to present the draft listed building consent drawings to Historic England and to discuss the proposals presented in the drawings. • It was noted that the drawings show the maximum extent of demolition expected at this structure, with the extent of demolition sought to be minimised wherever possible should the proposed work be implemented. • Historic England stated that the proposals would result in the loss of the majority of the bridge's significance, while also recognising the benefits afforded by the proposed works. It was also underlined that permanent public interpretation would contribute as a mitigating measure balancing against the high level of harm. • Due to the degree of harm arising from the proposals, discussion took place regarding the potential for de-listing the structure should the proposed works be implemented, this would be considered further in future. • Brief discussion regarding the scope of the forthcoming application for listed building consent took place, with the question of whether the proposed Oldham Road Footbridge (MVL3/27B) should form part of the application raised. It was concluded that the query would best be resolved by OMBC.
29 November 2024	• Historic England	• In their pre-application advice letter Historic England confirmed demolition and reconstruction of Oldham Road Overbridge (MVL3/28) would result in substantial harm to the significance of the bridge arising from the severity of changes to its physical

Date	Stakeholder in attendance	Key agreements/items discussed
		appearance and the loss of historic fabric ((Appendix C.2). • Historic England highlighted that the detailing of stone cladding would need to be carefully managed to maintain the look of the structure, with care taken to replicate the effect of stone coursing running through the parapets into the wing walls. Mismatched coursing in separate panels could result in a disjointed new structure which should be avoided. • It was requested that the possibility of articulating the existing pilasters in the design of the new bridge be fully investigated. • The suitability of the location to display permanent interpretation materials to mitigate some of the harm arising from the works was also highlighted.
04 December 2024	• Historic England	• Following receipt of Historic England's pre-application advice letter on 29th November 2024, a meeting was arranged to discuss the detailing of the stone clad riser units and the degree to which the pilasters could be articulated in the proposed design. • Network Rail confirmed that the stone-clad riser would be detailed to reference the existing pilasters below deck level, with pilaster features projecting from the wingwall creating a comparable visual effect as the existing pilasters. The geometry of each of the pilaster features would differ due to the alignment of the structure. The articulation cannot be continued up to parapet height due to the requirement to maintain a gap between the riser unit and abutment, as well as potential difficulties in achieving the stringent requirements for vehicle containment if the parapet were to differ in thickness along its length (which would result from the pilaster feature stepping out).
2 April 2025	• OMBC	• Presentation of overview of the aims and objectives of TRU to OMBC heritage officers, with emphasis on the historic context of Route Section W2B and the 12 listed building consents applications which are being prepared for the various works to the grade II listed bridges and viaduct along the route section. • Network Rail requested for the draft Heritage Statement to be reviewed by the Council for comment and feedback. • Presentation of overview of electrification challenges caused by the existing arch profile of a number of

Date	Stakeholder in attendance	Key agreements/items discussed
		existing bridges and have developed bespoke solutions for these to achieve the required clearance. • Overview of the current status of each structure within OMBC's jurisdiction, including the reconstruction of Oldham Road Overbridge (MVL3/28). Network Rail noted that the existing structure is very low and a significant track lowering would be needed however its proximity to the station makes this unfeasible. Reconstruction was progressed as the preferred option which would also take into account the highway safety concerns and traffic issues previously raised by OMBC. The proposed new footbridge would also result in significant improvement to the public.
4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits. • Historic England were content with the assessment of significance for all structures, and noted that the optioneering tables were helpful. Historic England requestion for further details on the heritage interpretation as part of the heritage benefits.
12 May 2025	• OMBC	• Presentation of proposals for Oldham Road Overbridge (MVL3/28) to OMBC heritage officers. • Significance and status of the existing station footbridge queried by OMBC. The structure was noted to have been partially reconstructed, altered and relocated to its current position from another railway line. The footbridge was noted to have been excluded from the NHLE listing for Oldham Road Bridge (MVL3/28). • Draft listed building consent conditions discussed including specification of finish for railings.
24 June 2025	• OMBC	• Pre-application advice letter received from OMBC outlining local planning authority advice following review of the draft listed building consent application material. • OMBC found that the reconstruction of Oldham Road Overbridge (MVL3/28) would result in substantial harm through the loss of its historic form and much of the original fabric. • OMBC highlight that clear and convincing justification will be required for any harm arising to designated heritage assets, with substantial benefits required to outweigh substantial harm.

Date	Stakeholder in attendance	Key agreements/items discussed
		• A high level of harm was also found to the group value of the bridges designed by A.S Jee on the TransPennine Route, due to the proposed demolition of Wright's Overbridge (MVL3/23) and reconstruction of four other bridges (including Oldham Road Overbridge (MVL3/28) and a limited level of harm to group value arising from the alteration of three other structures.
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs under Oldham Road Overbridge (MVL3/28) was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age of railway building (Historic England, 2017). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774 km to 11,703 km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after the railway line's authorisation (Alan Baxter Associates, 2019). These difficult

landscape conditions resulted in the need to build several major viaducts and tunnels. These included the Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is '*indisputably significant as a major engineering achievement'* (Alan Baxter Associates, 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Oldham Road Overbridge (MVL3/28) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at over three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise (Institution of Civil Engineers: Obituaries, 1859). He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associates, 2019). This was produced to characterise the overall heritage significance of the Transpennine route as a whole.

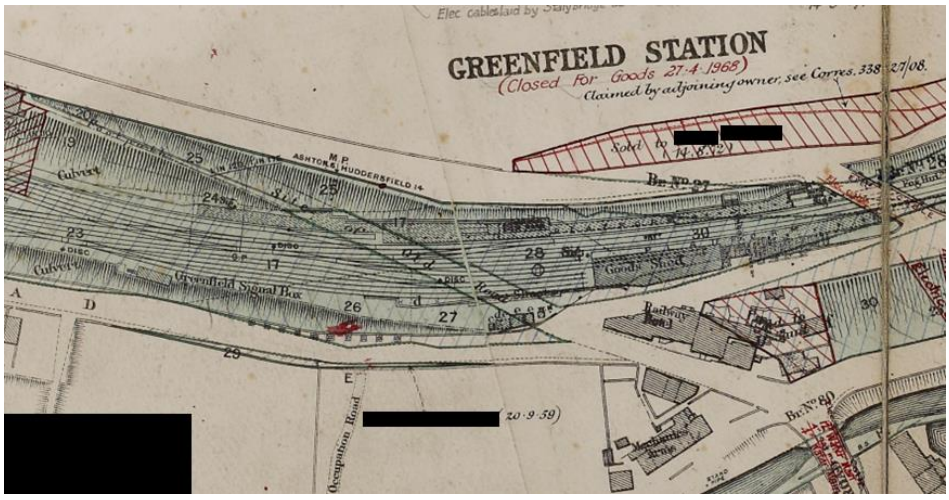
5.2 Oldham Road Overbridge (MVL3/28)

History

5.2.1 Oldham Road Overbridge (MVL3/28) was constructed between 1845 and 1849 during the Heroic Age of railway building. The single-span bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway and is situated adjacent to Greenfield Station to the west of the village of Greenfield.

5.2.2 Oldham Road Overbridge (MVL3/28) was constructed between 1845 and 1849 to the design of A. S. Jee for the Huddersfield and Manchester Railway. The overbridge was constructed to carry the existing Standedge and Oldham Turnpike Road (now the A670) across the cutting for the Huddersfield & Manchester Railway. Constructed in the late 18th century, the turnpike road provided a valuable communication route into the Pennine hills, linking the more remote upland areas with growing industrialised centres such as Oldham, fuelling growth, and settlement and industrial expansion.

The historic line plans held by Network Rail depict the original course of Oldham Road prior to the construction of the railway, with its course being re-routed to the north via the newly constructed overbridge (see Insert 5-1). The construction of Oldham Road Overbridge (MVL3/28) to maintain this route reflects the importance of this route to communications through the Tame Valley. This was reinforced in 1851 with the opening of the Oldham Branch Line by LNWR, which provided connections with Delph and Oldham to the west.



Insert 5-1 Historic line plan held by Network Rail which depicts the course of Oldham Road prior to the construction of the railway

5.2.3 Oldham Road Overbridge (MVL3/28) is constructed on a skew across the railway track. Skew bridges represent a particular challenge in engineering terms and had been increasingly employed from the late 18th century by canal engineers to overcome the difficulties of canal crossings which were not perpendicular. Early uses on the railway included bridges by George Stephenson on the Liverpool and Manchester Railway (1828–1830) and James Walker on the Leeds and Selby Railway (1830–1834). Jee's use of skew arches on the Huddersfield & Manchester Railway represented a continuation of this practice and provided an elegant solution to the challenges of the constrained route through the Pennines.

5.2.4 The 1st edition six-inch Ordnance Survey Map of 1854 (Insert 5-2) depicts the bridge five years after the opening of the Huddersfield & Manchester Railway. Oldham Road Overbridge (MVL3/28) is shown directly to the north of the buildings of Greenfield Station, and labelled as Frenches Top Bridge reflecting its location close to the hamlet of Frenches and Frenches Mill. The railway is shown as running in cutting at the base of a steep hill, adjacent to the Huddersfield Narrow Canal and River Tame, with enclosed fields present on the flatter land to the east of the River Tame, and plantation on the steep slopes of Wharmton to the north-west. The

1st edition map reveals development around the bridge to have been dispersed and predominantly residential or agricultural. A single mill is depicted between the canal and river comprising Frenches Mill which is annotated as a bone, dye and wood mill.

Insert 5-2 1st edition Ordnance Survey County Series Map 1854

5.2.5 By the time of the second edition six-inch Ordnance Survey map of 1891 (Insert 5-3), the setting of Oldham Road Overbridge (MVL3/28) is shown to have undergone further development. The large-scale complex of Wellington Mills is depicted to the east of the River Tame, whilst Frenches Mill has expanded to become Frenches Dye Works. Workers' housing is also depicted along Chew Valley Road and Shaw Hall Bank Road to serve the growing mill and dye works. This growth of development around Oldham Road Overbridge (MVL3/28) was enabled by the good communication links which Greenfield enjoyed, being served by road, canal and railway. Further expansion of settlement and industry in the area around Oldham Road Overbridge (MVL3/28) is shown on subsequent map editions through the 20th century.

Insert 5-3 County Series Map 1891

Description

5.2.6 Oldham Road Overbridge (MVL3/28) comprises single segmental arched skew overbridge located directly to the north of Greenfield Station (Insert 5-4 and Insert 5-5). Constructed to carry Oldham Road (the A670) over the railway, which is aligned north-east to south-west and set within a cutting at this location. Three-way junctions are present to either end of the bridge with sharp bends in all directions. A 40 mile per hour speed limit is present along this stretch of road.

5.2.7 The overbridge is constructed in regular-coursed, rock-faced ashlar sandstone and is formed by a segmental arch flanked by battered piers and wing walls. The arch springs from an ashlar impost band and is detailed with stepped voussoirs and taller keystones, in picked ashlar with tooled margins. The bridge soffit is constructed of skew-coursed, rock-faced stone blocks. A stringcourse runs across the bridge formed by two square-moulded bands, extending across the arch and over the flanking piers. A plain parapet runs above with ashlar coping over. The wing walls continue around into the flanking roads, with a blocked opening present in the parapet to the south-west which formerly gave access to a staircase to platform level (now removed). Repeated vehicle strikes on Oldham Road have resulted in damage to the parapet and its repeated rebuilding (Insert 5-6). Palisade fencing and a steel barrier are present at the end of the bridge adjacent to Shaw Hall Bank Road, and very narrow footways run to either side of the structure.

Insert 5-4 Oldham Road Overbridge (MVL3/28) north-east elevation

Insert 5-5 Oldham Road Overbridge (MVL3/28) south-west elevation from Greenfield Station.

5.2.8 Oldham Road Overbridge (MVL3/28) is a prominent feature in its setting which is somewhat localised given the nature of its surrounding environment. Due to the steep topographical nature of the area and intervening vegetation and embankment walls, the elevations of the road bridge can only be appreciated from the station platforms to its southwest (Insert 5-5). Its relationship with and proximity to Greenfield Station is a key element of its setting which evidences its relationship with the operational Transpennine Railway. Views from the bridge deck looking north and south also enable for an appreciation of its relationship with the Transpennine Railway (for example see Insert 5-7). A cast iron footbridge (MVL3/27A) dating to c. 1900 and station platforms located directly to the west provide key vantage points to appreciate the road bridge. Given that the current Greenfield Station is of modern construction, it is not of historic interest and forms a neutral element in its setting.

Insert 5-6 Oldham Road Bridge (MVL3/28), bridge deck and evidence of vehicle strike.

Insert 5-7 Oldham Road Bridge (MVL3/28), looking south-west overlooking the railway alignment. Greenfield Station Footbridge (MVL3/27A) is visible

Significance

5.2.9 Oldham Road Overbridge (MVL3/28) was designated as a grade II listed building in March 2018. The Historic England List Entry description identifies the bridge to be of special interest due to the following principle reasons:

- Historic interest:
    - Constructed during the heroic age of railway building and a little altered example of an 1840s overbridge on what is now one of the main railway lines in northern England.
    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - As a well-designed and crafted stone bridge with attention to architectural detail in the use of a skew-coursed soffit, stepped, picked and tooled ashlar voussoirs with v-joints, ashlar impost band and coping and contrasting rock-faced spandrels, parapets, piers and wing walls, all lifting it above the purely functional.
- Group value:
    - Architecturally inter-related with the other listed structures designed by A S Jee on the Huddersfield & Manchester line.

5.2.10 The construction of Oldham Road Overbridge (MVL3/28) between 1845 and 1849 places it within the Heroic Age (1841–50) of railway development and links it to the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield & Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route (see 5.2.13 below), give the structure historical value from which it derives significance. The bridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.11 The bridge derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. The bridge's considered architectural features include its overall skewed form, stepped, rusticated, ashlar voussoirs with a slightly projecting keystone,

tooled margins, and ashlar impost bands. These features, as well as the quality of their execution, raise the architectural value of the bridge beyond the purely functional. The skew arch is well detailed and constructed, evidencing Jee's mastery of the setting out and construction of skew arches, and providing an elegant solution to the challenges presented by the combination of road and railway alignment at this site. The bridge survives in largely unaltered form and with the exception of repairs to the parapet, no evidence of significant intervention or alteration. The historic integrity of the structure enables Jee's original design intent and the historic function of the structure to be understood, contributing to its significance. As a surviving and component feature along the wider railway network, its design contributes to the legibility of the Huddersfield & Manchester Railway in the contemporary landscape.

5.2.12 The setting of Oldham Road Overbridge (MVL3/28) makes a minor contribution to its overall significance. Its relationship with the railway is a key component of its setting given that the bridge continues to span the railway cutting and evidences its close physical, functional and historic relationship with the railway. Its proximity to Greenfield Station, albeit a station of modern construction, enhances this relationship and provides key views from the station platform and station footbridge. This relationship is also visible from the bridge deck looking north and south. The presence of the existing footbridge (MVL3/27A) and its relationship to Oldham Road Overbridge (MVL3/28), whilst providing visual interest, results from the relocation of the footbridge from another station in the late 20th century and does not reflect the historic setting of the overbridge. Though its wider setting has undergone some change and development, this does not impact on the ability to appreciate its overall significance, nor does it impact on its relationship with the railway.

Group value

5.2.13 As identified in the list description, Oldham Road Overbridge (MVL3/28) is recognised to be of group value with other designated structures designed by A.S. Jee on the Huddersfield & Manchester Railway[2]. These comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);

[2] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade, and will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment..

- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wright's Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);
- Wright's Overbridge (MVL3/23) (grade II listed, NHLE 1452409);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Uppermill Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 1223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[3].

5.2.14 Of this group, Manchester Road Underbridge (MVL3/10), Shaw Hall Bank Road Footway (MVL3/26), Church Street Overbridge (MVL3/82) and Hillhouse Lane Underbridge (MVL3/94) bear a particular relationship to Oldham Road Overbridge (MVL3/28),

[3] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

comprising skew arched bridges of similar detail and construction. As a group, these bridges are substantially unaltered, and evidence Jee's characteristic finely detailed construction, with elegantly skewed stone soffits.

5.2.15 The group value which Oldham Road Overbridge (MVL3/28) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age (1841-1850) of railway building more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it).

5.2.16 Masonry railway bridges across the historic Huddersfield & Manchester Railway route have been characterised as being of local or regional interest, depending on their architectural quality, contribution to wider historical interest of the route, and their group value. It has been noted however that, as a group, they are not of substantial national interest due to their dating from a period of railway development when thousands of similar structures were erected (Alan Baxter Associates, 2019, 37).

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated Heritage Assets

5.3.2 A total of three listed buildings are present within a 250m buffer of Oldham Road Overbridge (MVL3/28). These comprise:

- Wharmton Tower (grade II listed, 1068153), a mid-19th century gothic revival villa located on the hillside c. 200 m west of Oldham Road Overbridge (MVL3/28);
- Wharf Cottages (grade II, 1067470), a terrace of 18th and 19th century houses overlooking the canal c.110 m to the south-west; and
- 17 Chew Valley Road (grade II, 1067469), a former toll cottage dating from c.1820, located c. 130 m south-east of the overbridge.

5.3.3 These structures do not enjoy any visual relationship with Oldham Road Overbridge (MVL3/28) due to the local topography, and the presence of intervening buildings and planting. The structures do not enjoy any historic relationship and do not contribute to each other's significance.

Non-Designated Heritage Assets

5.3.4 The local Historic Environment Record (HER) records six non-designated heritage asset within the 250 m study area, three of which duplicate the listed buildings identified above. The remaining records comprise:

- Greenfield Station (174.1.0), located immediately to the west;
- Wellington Mills (6105.1.0) c.210 m east; and
- Station Brow (stone heads) (9003.1.1) 100 m to the south.

5.3.5 As discussed above, Greenfield Station (174.1.0) has a direct physical and historic relationship with Oldham Road Overbridge (MVL3/28); however the station has been reconstructed, and the signal box recorded to the west of the station under this entry is now demolished, substantially reducing the significance of this asset and negating any contribution of Oldham Road Overbridge (MVL3/28) to this.

5.3.6 The former Wellington Mills site (6105.1.0) has been largely demolished and redeveloped as a supermarket, with only a single three-storey block retained to the north of Wellington Street. The Mill does not enjoy any visual relationship with the overbridge, and these assets do not derive significance from each other.

5.3.7 The remaining record comprises a findspot of medieval carved stone heads (9003.1.1), which have been recovered from the site and are no longer in-situ.

6. PROPOSALS

6.1 Background to proposals

6.1.1 In order to achieve the TRU Programme objectives of improving the reliability and resilience of the railway and to contribute to the sustainability agenda of a carbon neutral Britain by 2050, electrification of the line is required. This necessitates the installation of overhead lines along Route Section W2B.

6.1.2 Inadequate clearances to safely install OLE have been recognised as a challenge across much of TRU, preventing the installation of overhead lines below some existing overbridges. To reduce the requirement for intervention into structures along the route as far as possible, a scheme-specific pantograph has been developed which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment. A number of structures along the route also do not provide adequate gauge clearance for the required freight trains on the route, the requirement

for which has been considered as part of the design development process.

6.1.3 Even with use of the scheme-specific pantograph, Oldham Road Overbridge (MVL3/28) would be significantly foul, resulting in a significant clash between OLE and the structure. Similarly, the bridge does not have the required freight gauge clearance. A process of design optioneering to identify the optimal solution has therefore been undertaken.

6.2 Design development and justification

6.2.1 Design development for Oldham Road Overbridge (MVL3/28) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has also involved engagement with Historic England and OMBC (as detailed above in Table 4-1). This iterative and robust process ensures the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultees.

6.2.2 Based on Network Rail's extensive experience delivering comparable schemes, five options were identified for further consideration at the ES3 design stage in 2021[4]. As introduced in Section 6.1 the option of retaining the structure without undertaking any works would prevent the delivery of the TRU scheme. This option was therefore discounted at an early stage. The remaining four options considered at ES3 comprised:

1. Track Lower - Lowering the height of the track to achieve the required headroom while retaining existing bridge.
2. Bridge Jacking - Increasing the height of the bridge through structurally lifting the arch barrel up from the abutments. This would require diagonal cuts to be made to separate the arch barrel from the abutments, lifting of the arch, infilling of the resulting gaps and refacing.
3. Bridge Reconstruction – Removal of the bridge arch and replacement with a deck providing sufficient clearance.
4. Bridge Removal – demolition of the existing bridge, making good the embankments and re-routing of the existing footpath.

6.2.3 A summary of the ES3 optioneering process is provided in Table 6-1.

[4] The delivery of railway investment programmes is managed by Network Rail through the use of PACE (Project Acceleration in a Controlled Environment). This provides a flexible control framework for the delivery of rail projects. Under PACE, ES3 comprises optioneering and identification of a single design option, whilst ES4 is approval of design in principle.

Table 6-1 Optioneering for Oldham Road Overbridge (MVL3/28)

Option	Key Considerations	Advantages	Disadvantages	Preferred
1) Track Lower	• Sufficient clearance needs to be achieved to enable electrification of the line and allow freight gauge clearance. • Duration of road closures to be minimised as far as possible to reduce the level of disruption to members of the public. • Time required working within the railway corridor is required to be minimised as far as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service. • The bridge spans a railway cutting and carries a busy highway with multiple junctions. These factors restrict the accessibility of construction vehicles and the delivery of materials while the highway remains open. • Ground Investigation has revealed rock to be present at shallow depth within the railway cutting. • The bridge carries high and low voltage cables, a gas pipe, a water pipe and a number of telecoms ducts. The utilities would have need to be considered as part of any, jacking, reconstruction or removal. • The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regard for its preservation under the Planning (Listed Buildings & Conservation Areas) Act 1990.	• Lowering of the track would enable retention of the listed bridge with raising of the parapets undertaken prevent access to OLE.	To achieve the required clearance, the track would have to be lowered by 500mm. Due to the shallow depth of rock at this location, this is a substantial engineering operation. • The feasibility of a track lower is restricted by the proximity of Greenfield Station. Substantial alteration of platforms would be required to accommodate the lowered track position.	N
2) Bridge Jacking		• This option would enable the retention of the listed bridge. The abutments, deck and parapet would be retained, although in altered form.	• Bridge jacking for masonry arch bridges is a relatively untested methodology, having been delivered on very few historic structures to date. The feasibility of jacking masonry arch structures relies on optimal site conditions, where a high level of control can be achieved and long timescales allowed for implementation. The long-term viability of this option is currently unknown.. • Bridge jacking would incur extensive disruption to railway users, requiring all works be delivered on site and little scope for off-site construction. • The location of the bridge over a cutting with limited access has significant limitations for execution of a bridge jacking operation. • Jacking of the bridge would raise the level of the highway across the bridge and require greater intervention to the surrounding highway network. • Raising of the bridge arch would impact the form and appearance of the structure, interrupting architectural features such as the stringcourse and the stone coursing across the parapets, detracting from its architectural value and integrity.	N
3) Bridge Reconstruction		• Reconstruction of the bridge would enable the preservation of some elements of the historic structure, through the retention and reuse of the bridge abutments in conjunction with the new bridge deck. • Reconstruction of the bridge affords an opportunity to improve the layout of the highway at a site with a history of vehicle collisions and regular bridge strikes. • Reconstruction of the bridge also allows for the improvement of the footway, making the railway crossing safer for pedestrians. • Reconstruction of the bridge can be delivered substantially from track level. This would minimise the need for construction access by road at this constrained site. • The installation of a preconstructed deck would minimise railway possession time and disruption to the railway network.	• Reconstruction of the bridge would result in the loss of the bridge arch and a portion of the parapets and abutments. This would result in the removal of a significant proportion of the historic bridge, substantially altering its form and appearance, and negatively impacting the integrity of the structure. • Due to site topography and potential for disruption to the local highway network, the methodology for reconstruction would be constrained.	**Y**
4) Bridge Removal		• Removal of the bridge would minimise disruption to the railway network and provide a cost effective solution.	• This option would result in the complete removal of the bridge and the loss of a grade II listed structure. • Demolishing the bridge would require the re-routing of the A670, which would not constitute a deliverable option. • Demolishing the bridge would require the re-routing of existing utilities.	N

6.2.4 Option 1 Track Lower and Option 2 Bridge Jacking would both have enabled retention of the maximum amount of historic fabric. However, these options were discounted due to the difficulty of delivering these at this constrained site, and the significant cost and disruption required. Additionally, option 2 was also discounted given the uncertainties around the long term viability and largely untested nature of bridge jacking. Option 4, Bridge Removal, was discounted due both to its negative impact on the listed structure and the key importance of maintaining a highway crossing in this location. Option 3, Bridge Reconstruction, was therefore identified as the preferred option to achieve the required clearance for Oldham Road Overbridge (MVL3/28). Whilst this option would result in significant alteration of the listed bridge, it was found to represent the most deliverable solution and would realise multiple opportunities to improve the public interface and safety adjacent to the station. This took into account the constrained nature of the site; the aims of the TRU Scheme; minimising disruption to the railway network and enabling retention of historic fabric as far as possible.

6.3 Preferred option design development

6.3.1 Design development was subsequently undertaken to mitigate as much as possible the potential impact of reconstruction on the heritage significance of Oldham Road Overbridge (MVL3/28).

6.3.2 The sympathetic approach taken to bridge reconstruction during the restoration of the Huddersfield Narrow Canal prior to its reopening in 2001 was considered as a ‘Reference Design’. The reconstructed masonry canal bridges are in proximity to Route Section W2B of the Transpennine route and successfully integrated reconstructed bridges within the historic character of the canal corridor. It was recognised by heritage stakeholders that the reconstruction of these canal bridges had successfully achieved designs which responded to the significance of the historic bridges.

6.3.3 **Form of Replacement Deck**

6.3.4 A number of constraints which had the potential to influence the feasible options for the replacement deck design were identified. These have shaped the choice of the form of the proposed replacement deck. These constraints can be summarised as follows:

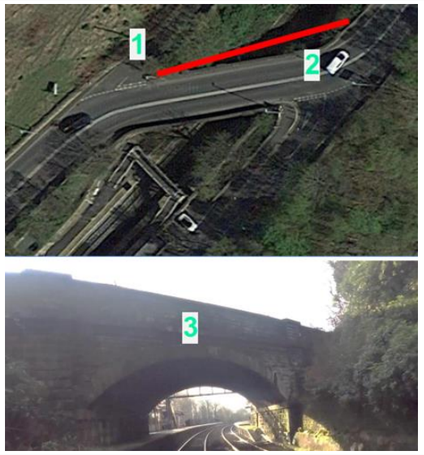
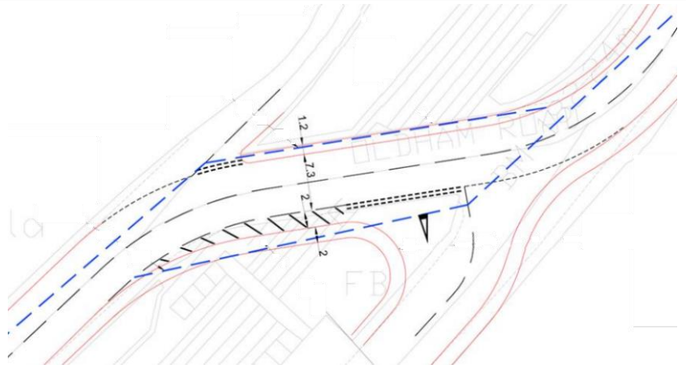
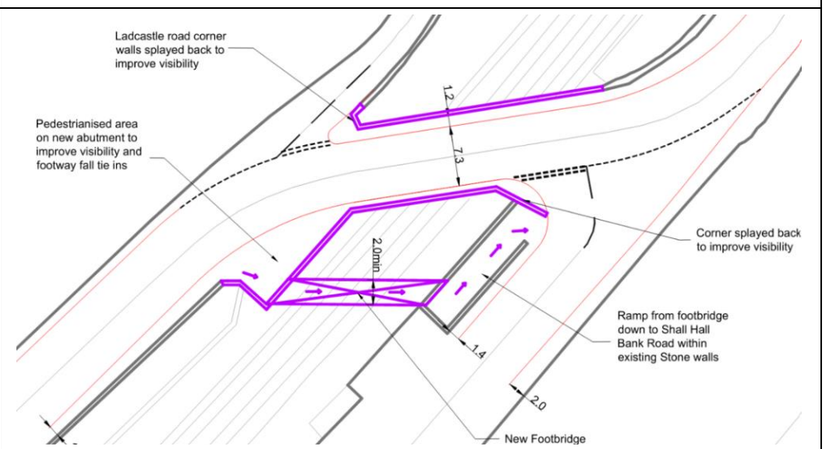
- Infrastructure constraints
    - Significant diversion of an important highways route required when full road closure is in place;

- Significant highway network geometrical constraints, with adjacent junctions, significant gradients, and limited flexibility to modify highway alignment; and
- Large number of utilities cross the bridge which impact duration of road closure during construction.

- Geometric constraints
  - Gauge clearance – the minimum distance of clearance required between the soffit of the deck and the proposed OLE;
  - The bridge sits over a cutting with dramatic elevation changes each side of the railway;
  - Alignment of the highway – the requirement to consider how bridge alignment impacts the safety of multiple junctions; and
  - Proximity of Greenfield Station defines both the horizontal and vertical alignment of the tracks beneath the structure.
- Construction Constraints
  - Lift limit <30 t – due to the layout of the site, there is limited access for a large capacity crane at road level, therefore all bridge components have to be delivered from the track and installed with use of a railway crane, with a maximum lift weight capacity of 30 t;
  - Minimisation of disruption to local residents and businesses given the disruption caused by extended road closure.; and
  - Minimisation of disruption to railway users caused by railway line closures. Shift hours are limited by the window within which work can be safely completed while minimising impact on railway users.

6.3.5 Careful consideration was given to the detailing of the reconstruction to realise to improve highway safety at a location which has a documented history of road accidents and regular bridge strikes. The existing footway across the bridge is also narrow, which combined with the high level of traffic crossing the bridge makes the existing pedestrian experience sub-optimal. Three options for reconfiguring the overbridge were considered which sought to remedy both of these existing problems. These options are presented in Table 6-2.

Table 6-2 Highway configuration optioneering

Option	Assessment	Preferred	Indicative Plan
1 – Widen on north side	Three key constraining factors were identified to be associated with this option: 1) The layout of Ladcastle Road restricts widening of the north-west corner without substantial works to this highway. 2) Splayed widening of the north-east corner only (in line with the indicative red line shown on the plan) would not solve the existing visibility or alignment issues and would also not facilitate the construction of a footway of sufficient width. 3) Widening into the rock cutting on the north side of the structure would be significantly more disruptive relative to the south side, given the limited access and restrictions related to the required utility diversions. Widening on the north side would therefore not sufficiently improve the highway safety concerns and would incur significant cost and disruption..	N	
2- Retain alignment and widen on south side	Widening on the south side of the structure would allow visibility to be improved on all four corners of the bridge, with views opened up along the length of the bridge facilitated by the reconfigured widened deck. Widening the structure would ease the angle of the left turn onto Oldham Road from Shaw Hall Bank Road. This widening would also allow the construction of footway on the south side of the structure. ○ The gradient of the footway would remain non-compliant in this option. ○ Considerable disruption would result from: ○ Multiple phases of utility diversion; ○ Road closures for temporary utilities diversions; ○ Demolition and reconstruction of the overbridge ;and ○ Permanent re-routing of utilities across the new span.	N	
3- Retain alignment and construct separate footbridge	Construction of a separate footbridge would improve highway visibility and provide a segregated compliant footway Disruption during the reconstruction of Oldham Road Overbridge (MVL3/28) minimised. Improved highway safety due to improved visibility from the reprofiling of parapets and approach walls, and widening of the highway enabled by the re-routing of the footway away from the structure, resulting in widened splays. Inclusion of sloped access to the east and new pedestrianised area with a fall tying in with the gradient of the footbridge would allow a compliant and inclusive design to be realised in the separate footbridge. Construction of the new footbridge in advance of reconstruction of the road bridge would enable utilities to be diverted in a single stage minimising disruption to utilities provision.	**Y**	

6.3.6 Option 3 as presented in Table 6-2 was progressed as the preferred option which would deliver the required highway safety improvements while also realising an opportunity to reduce the level of disruption arising from the reconstruction of Oldham Road Overbridge (MVL3/28) by allowing the existing utilities crossing the overbridge to be diverted in a single stage. Retaining the original alignment of the road bridge would also facilitate a neater junction between the retained historic abutments and proposed stone clad concrete risers by avoiding a change to the width or placement of the abutments.

6.3.7 Following the identification of a preferred option for the highway configuration, three forms of bridge deck were considered as potential options for the reconstruction of Oldham Road Overbridge (MVL3/28) (Table 6-3):

- Network Rail standard Conarch
- Portal deck
- Prestressed deck

Table 6-3 Summary of bridge deck design options

Option	Assessment	Preferred	Indicative Photo
1 – Standard Conarch	A standard Conarch is a portal bridge consisting of standardised precast concrete frames which conform with Network Rail's specification. Where the necessary specification requirements are met, these precast units can be transported to site and installed quickly and efficiently to form a portal overbridge, with deck cast in-situ to form a continuous structure. The use of a standardised Network Rail Conarch bridge (precast concrete arch) is not considered feasible at this site and was discounted at an early stage, primarily due to its geometric constraints. The span, skew and shallow profile required to achieve gauge clearance would not work with Network Rail technical standard. The lifting capacity limitations due to the use of a railway crane also discounted the use of standard Conarch edge beams due to their weight.	N	
2 - Portal	A portal bridge consists of a series of precast concrete frames which are then transported to site and installed, with deck cast in-situ to form a continuous structure. Unlike a standard Conarch, portal bridges can be designed to bespoke dimensions, allowing site specific geometry to be accommodated. Lift weight limitations alone ruled out the benefits of this option, with lifting limitation greatly exceeded without separating the portal legs entirely, at which point the deck would effectively become a flat span and a filler beam or prestressed deck would be preferred.	N	
3 – Prestressed Deck	A flat span solution is preferred at this site due to tight gauge clearance requirements and lifting limitations. A filler beam solution was considered to align with other proposals along the route, however due to the high skew and high vehicular containment requirements, this structural form is not suitable and does not meet the Eurocode requirements for filler beam design. A prestressed beam deck is therefore proposed. This is a concrete box beam deck with prestressed tendons and an *in-situ* top slab and stitched between beams to provide strength transversely. Lift limitations at the site along with the large span requires the parapet units to be separated from the edge beams and L-units. The prestressed box beam is very stable and allows these L-units to be anchored in and connected to central beams for temporary and permanent stability. This solution will allow for maximum off-site manufacturing and minuses road closures.	**Y**	

6.3.8 The prestressed beam deck was selected as the preferred design option and further consideration was given to ensuring the proposed works would be sympathetic to the existing aesthetic of the structure.

6.3.9 In order to visually integrate the proposed precast concrete riser units with the retained masonry abutments, it is proposed to clad their external face with natural stone. The riser units would also reference the form of the existing pilasters below deck level.

6.3.10 The form of the proposed Oldham Road Footbridge (MVL3/27B) has been designed to mirror the proposed form of the reconstructed Oldham Road Overbridge (MVL3/28). Stone cladding and copers are proposed, with new substructure stone clad with similar details. The footbridge would, however employ weathering steel I-beams to form the deck rather than pre-stressed concrete beams. This arises from the requirement of the footbridge to accommodate the multiple services currently situated in MVL3/28. This allows for a single stage diversion of utilities, significantly reducing the disruption to the local highway network from construction.

6.3.11 The proposed Oldham Road Footbridge (MVL3/27B) would be accessed from Shaw Hall Bank Road via a pedestrian ramp on its eastern side, and via a newly pedestrianised area formed via the installation of a new retaining wall on the bridge's eastern side. A staircase is proposed leading from platform 2, up to this pedestrian area. This staircase would act as a secondary means of escape from the platform, allowing egress in the event of fire or other serious incident, in line with Network Rail's standards.

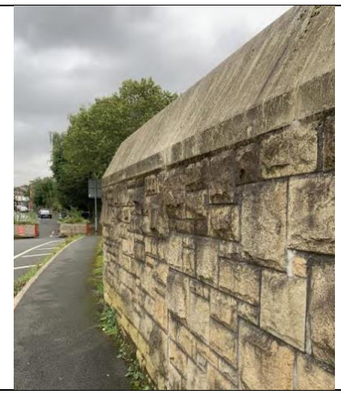
Parapet design

6.3.12 The parapet design for the reconstructed road bridge and the proposed footbridge have been carefully considered to reflect the character of the historic Oldham Road Overbridge (MVL3/28). The new road bridge parapet design is required to achieve a high level of vehicle containment and protection of bridge users from the electrified line, whilst responding to the significance of the existing bridge. The footbridge parapet design is required to comply with Network Rail's technical guidance and safety requirements governing the form and height of parapets over electrified railways. Numerous options for the proposed new parapet design were considered, these options are summarised below in Table 6-4, with optioneering for coping stone material presented in Table 6-5.

Table 6-4 Parapet Design Optioneering

Option	Core	Road Facing Elevation	Track Facing Elevation	Assessment	Preferred	Indicative photo
1	Concrete	Concrete with liner finish	Concrete with liner finish	Pre-cast concrete parapet with exposed concrete liner on both sides of parapet. This option would not be considered to result in a sensitive addition, with extensive amounts of concrete visible in views of and across the bridge.	N	
2	Concrete	Natural Stone cladding	Concrete with liner finish	Pre-cast concrete parapet with exposed concrete liner on track facing elevation and stone cladding installed to highway facing elevation. This option would not be considered to result in a sensitive addition, with extensive amounts of concrete visible in views of the bridge.	N	
3	Concrete	Natural stone cladding	Natural stone cladding	Concrete parapet units with natural stone cladding pre-cast onto the exterior and interior of the concrete units prior to installation. Off-site cladding would avoid the need for extended closure of this busy road to enable cladding in situ. The form of the concrete L-units can also be designed to include a feature line to reference the stringcourse present on the existing structure. This option is considered to represent the optimum balance between constructability, safety and a design sensitive to the significance of the structure. This option is considered suitable for use on both the reconstructed Oldham Road Overbridge (MVL3/28) and the proposed Oldham Road Footbridge (MVL3/27B).	**Y**	
4	Steel framework	Natural stone	Natural stone	This option comprises natural stone blocks built up in courses with joints reinforced by a stainless steel framework which is cast into the concrete edge beam. Due to the time limitations and safety implications of working in an active railway corridor coupled with the minor difference in appearance between Option 3 and Option 4, this option has not been progressed.	N	
5	Masonry	Rebuilt from original stone	Rebuilt from original stone	The new parapets are required to comply with the relevant standard for vehicle containment. Unreinforced masonry parapets using reclaimed stone would not achieve these standards and result in a safety risk that would be avoided with design option 3. Due to the time limitations and safety implications of working above an active railway corridor with limited edge protection during the rebuilding of parapets, coupled with the minor difference in appearance between Option 3 and Option 5 when viewed from the carriageway, this option has not been progressed. The quantity and quality of the stone able to be reclaimed from the site is also considered a limiting factor.	N	

Table 6-5 Coping stone optioneering

Option	Advantages	Disadvantages	Indicative image	Preferred
Option 1 – Natural Stone	• Natural stone would be sympathetic to the historic character of Oldham Road Overbridge (MVL3/28), in keeping with its architectural interest. • Natural stone copers would represent an honest intervention, with the form of the stones readable as a response to the electrification challenge, while sympathetically integrating with the existing and historic character of the bridge. • Over time, this material would weather to further integrate with the existing and proposed masonry elements of Oldham Road Overbridge (MVL3/28).	• Natural stone is the heaviest of the three options with a density of 25kN/m3, requiring consideration in the design of the structural elements of the parapet units and connection with deck. • The weight of natural stone also requires special consideration be given to manual handling safety protocols. • This option is determined to be the most expensive of the three options due to costs for quarrying and fees for masonry contractors.		**Y**
Option 2 – Coloured Concrete	• Lighter material than natural stone with a density of 18 kN/m3. • Concrete can be coloured to achieve a close visual match to the existing coping stones • This material would weather over time, increasing the similarity in appearance between coloured concrete and the existing stonework • Coloured concrete copers would be relatively cost effective, reducing the cost of this publicly funded project	• Introduction of modern material, would represent a departure from the materials historically used for coping stones. • While relatively sympathetic this material would risk negatively impacting on the architectural interest of the Oldham Road Overbridge (MVL3/28).		N
Option 3 – Glass Reinforced Plastic (GRP)	• Lighter material than natural stone. • Cost effective material, reducing the cost of this publicly funded project.	• There would be a stark visual disparity between the GRP copers and historic fabric, detracting from the architectural interest of Oldham Road Overbridge (MVL3/28). • GRP copers would not weather or soften in the way natural stone or concrete would, with the difference in material continuing to detract from the character of the historic bridge. • Of the options considered, GRP copers would result in the highest level of harm to the character of the bridge		N

6.3.13 Option 3 parapet design presented in Table 6-4 was selected as the preferred option and progressed to design given that it would ensure the proposed parapets visually integrate with the retained elements of the existing bridge, while enabling a degree of off-site construction. This approach would realise safe working for operatives constructing the Order Scheme at this location by avoiding working at height over the railway line. It would also successfully reduce the time required for line possession and highway closures compared to other options, thereby minimising disruption. The wider use of natural stone to clad the bridge riser units, concrete retaining wall to the west and ramp retaining walls to the east would contribute to a wider visually coherent intervention at this location. During removal of the existing arch, retention of historic fabric will be maximised as far as possible. Stone reclaimed from the removal of bridges along Route Section W2B may be used for elements with low impact to highway disruption as far as reasonably practicable (if construction times are increased) e.g. the ramp structure and approach walls. The form of the proposed L-Units also incorporates a feature line referencing the form of the existing string course.

6.3.14 The standard parapets height established by Network Rail's Design of Bridges (NR/L2/CIV/020) for alteration of bridges over an electrified lines is 1.8 m. However where this cannot be achieved, a minimum height of 1.5 m can be used provided sufficient justification and taking into account the risk profile of the bridge. This Network Rail Standard has its basis in ensuring safety on the railway delivers adequate protection for users and the public in line with Health and Safety legislation and Building Regulations. In this instance, risk assessments have been undertaken and it has been identified that a parapet height of 1.5 m is appropriate for the new Oldham Road Footbridge (MVL3/27B). However, as a busy highway Oldham Road Overbridge (MVL3/28) is assessed to present a high risk due to its likely use by a variety of users including heavy goods vehicles, motorcycles, cyclists and horse riders, necessitating the use of 1.8 m high parapets. Approach units are sufficiently far from the railway that this requirement does not apply, however 1.5 m min units are proposed on corners where vehicle containment/highway safety measures are beneficial.

6.3.15 Option 1 – Natural Stone is the was deemed the preferred option. As summarised in Table 6-5, the specification of natural stone copers on the road bridge and footbridge would contribute to the high-quality finish forming one of the factors embedded into the design which partially mitigates against the high level of harm arising from reconstruction. The use of stone copers across both the road bridge and footbridge would provide visual consistency between the two structures.

6.4 Description of proposals

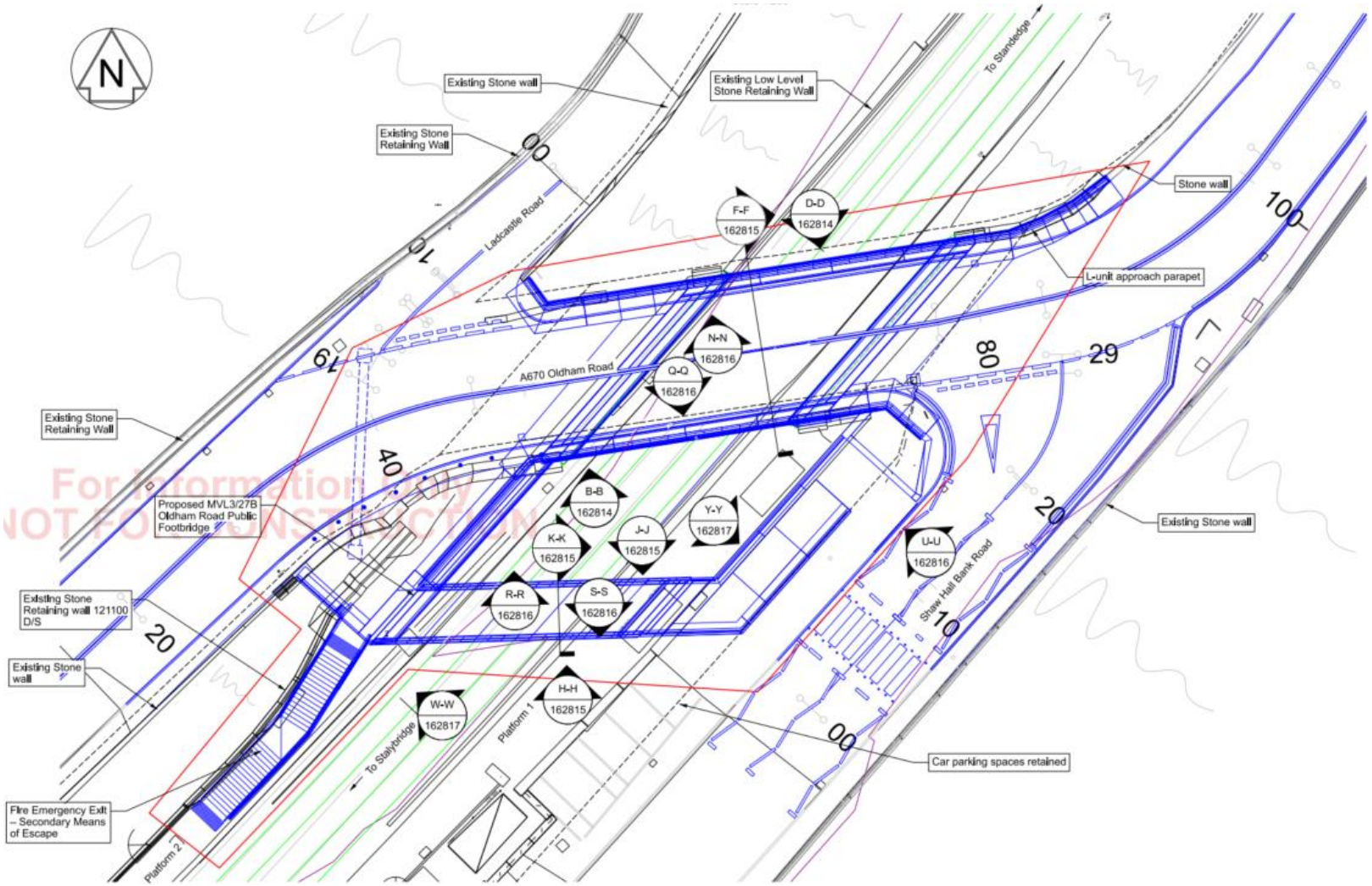
6.4.1 It is proposed to remove the deck of the grade II listed Oldham Road Overbridge (MVL3/28) and to construct a new prestressed concrete bridge deck with new parapets and structural elements designed in a style to respond to the architectural significance of the existing historic structure (Insert 6-1, Insert 6-2 and Insert 6-3). Additionally, it is proposed to construct a new footbridge (MVL3/27B) separating pedestrian traffic from the busy road bridge, improving highway alignment and visibility to enhance road safety. The efficient re-routing of utilities on to footbridge MVL28/A during the construction phase would greatly minimise road closures and ensure a pedestrian bridge is open at all times.

6.4.2 The reconstructed bridge would consist of retained stonework abutments beneath the level of the existing impost bands, above which natural stone-clad precast concrete risers would be installed. A concrete beam deck would be installed on bearings sited on concrete cill beams. These precast concrete cill beams would be lifted into position using a railway crane, as would the longitudinal pre-stressed concrete beams. An *in-situ* concrete deck would be poured tying the concrete beams together and forming a base for the highway surface. Due to limits on lifting weight, it is proposed to lift individual precast concrete L-units onto the structure to form the parapets rather than designing edge beams with integral parapets. The L-units would be clad off site with new natural stone. Natural stone steeple copers would then be installed bringing the overall height of the parapets to 1.8 m. Two electrification hazard signs would be attached to the inside face of each parapet, along with a bridge strike sign.

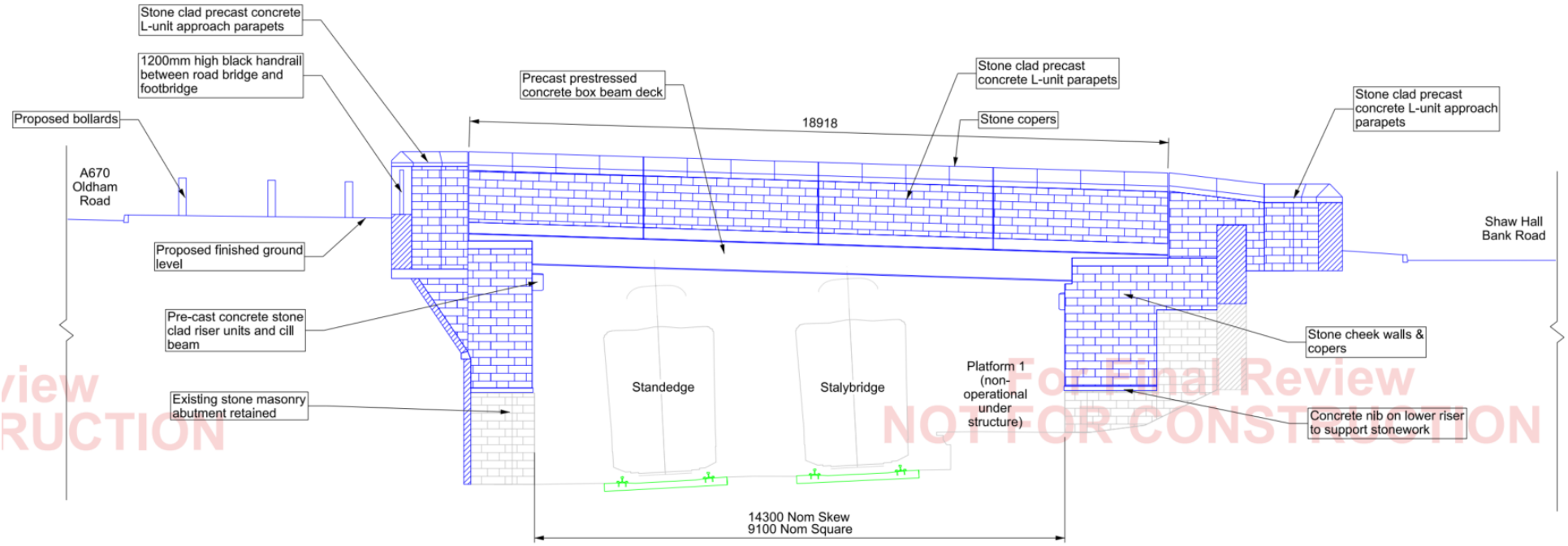
6.4.3 The proposed footbridge would consist of pairs of weathering steel I-beams with cast-in concrete ducts to accommodate the multiple utilities proposed to be re-routed across the bridge. Precast U-units with natural stone cladding cast into the external elevations would be positioned onto the steels and *in-situ* stiches poured into pockets within the precast unit around the girder studs and between the separate U-units. The parapet units would be clad off site with natural stone masonry cast into the interior and exterior of the parapets. Natural stone steeple copers would then be dowelled into the top of the parapet units to meet the minimum required parapet height of 1.5 m. Two electrification hazard signs would be attached to the inside face of each parapet.

6.4.4 The installation of the new footbridge (Oldham Road Footbridge, MVL3/27B), ramp and pedestrianised area to the west of the proposed footbridge would require the prior removal of the existing railway footbridge MVL3/27A (with a new footbridge constructed at

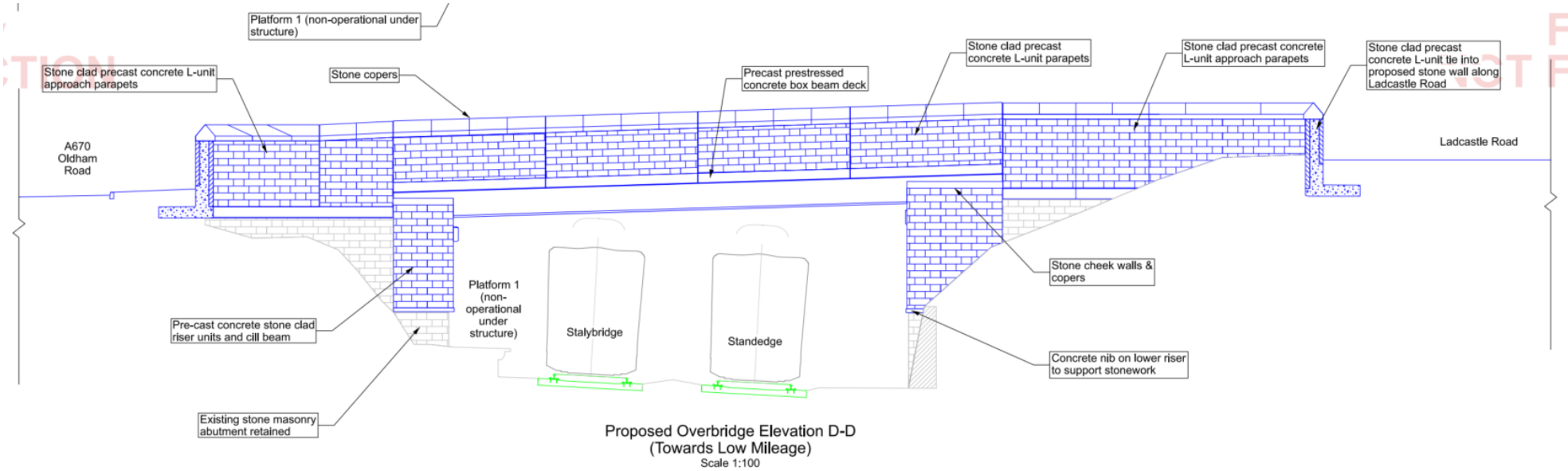
other end of the station, note MVL3/27A works are outside the scope of the TWAO). Construction of the foundations of Oldham Road Footbridge (MVL3/27B) would involve installation of precast footings, and retaining units with concrete backing poured in lifts. Precast L units would be installed on top of the concrete fill and retaining wall units, behind which engineered fill would be taken up to the required ground level. The facing of the precast retaining units would be clad with stone, and a 1.2 m handrailing installed to provide the required edge protection. To the east of the proposed footbridge, a ramp would be formed using similar principles of concrete elements, retaining concrete poured *in-situ* with external concrete faces clad with stone, above which engineered fill would be taken up to the required footway level. The re-routed utilities would be installed in this fill. 1.2 m high railings matching those installed in the pedestrian area to the west would provide edge protection and a planter constructed to provide visual interest. The proposed staircase from platform 2 would share a similar materiality to the proposed railings, ensuring continuity of appearance.



Insert 6-1 Proposed Plan for reconstruction of MVL3/28 and the proposed Oldham Road Footbridge (MVL3/27B)



Insert 6-2 Proposed south elevation of Oldham Road Overbridge (MVL3/28)



Insert 6-3 Proposed north elevation of Oldham Road Overbridge (MVL3/28)

Insert 6-4 Visualisation of Oldham Road Overbridge (MVL3/28) looking east.

Insert 6-5 Visualisation of Oldham Road Overbridge (MVL3/28) from Shaw Hall Bank Road looking north (visualisation prepared in 2024).

Insert 6-6 Visualisation of Oldham Road Overbridge (MVL3/28) from Oldham Road looking west.

Insert 6-7 Visualisation of Oldham Road Overbridge from aerial perspective showing footbridge (MVL3/28A) in the foreground (visualisation prepared in 2024).

Construction Methodology

6.4.5 Due to the constrained nature of the site and complexity of construction sequencing at Oldham Road Overbridge (MVL3/28), it is proposed to undertake construction of the footbridge (MVL3/28A) prior to works to road bridge.

6.4.6 The proposed works relating to the ancillary structures of the proposed Oldham Road Footbridge (MVL3/27B), western pedestrian area and eastern ramp would comprise:

- Removal of the existing Greenfield Station Footbridge MVL3/27A and construction of new station footbridge at the south end of the platforms (outside the scope of the TWAO).
- Removal of MVL3/27A foundations utilising a Road-Rail Vehicle to remove the arising spoil. Where existing mass concrete is to be retained, its face will be roughened to allow the installation of precast abutment and retaining wall units.
- Installation of the proposed retaining wall and footbridge foundations with the concrete cast in-situ having been delivered from the railway.
- Installation of the retaining wall and footbridge riser units and cill beams. A concrete pump would be positioned on Oldham Road to pour the concrete infill. The lightweight concrete would be built up in 1 m pours. L-Units would then be lifted into place using a railway crane and engineered fill installed to the required level. Natural stone cladding would be installed to the external face of the retaining wall. 1.2 m handrailing installed to provide

edge protection. Staircase installed to facilitate secondary means of escape from platform 2.

- Lifting into position of the proposed footbridge steel beams and U-frame parapet.
- The footbridge stitches would be poured in-situ with a concrete pump positioned on Shaw Hall Bank Road.
- The eastern ramp would be constructed consisting of excavation to the required level including the historic infill to the former station basements being broken out and removed, localised breaking down of the existing stone retaining wall, concrete blockwork retaining wall facing Shaw Hall Bank Road constructed, concrete infill poured in maximum 1 m lifts, installation of engineered fill accommodating re-routed utilities, installation of stone cladding to external faces of retaining concrete structure, installation of 1.2 m handrailing and the surfacing of new ramp.
- The utilities currently crossing Oldham Road Overbridge (MVL3/28) would be re-routed over the newly constructed footbridge, allow the reconstruction of the road bridge reducing disruption to the highway as far as possible.

6.4.7 The proposed works relating to the reconstruction of Oldham Road Overbridge (MVL3/28) would comprise:

- Careful demolition of the existing stone arch, deck and parapets.
- Reclamation of historic stonework as far as possible with transportation and secure storage at the site construction compound. Stone would be subject to preliminary rapid assessment for potential reuse and then palletised ready for transportation back to site where it will be redressed and used as appropriate across the Scheme.
- Installation of new bridge elements including natural stone clad pre-cast concrete riser units, cill beams, pre-cast concrete longitudinal beams, cast in-situ concrete deck slab, L-unit parapets and highway surface. The parapets would be clad in cut natural stone, precast into the unit and matched as closely as possible to coursing of retained fabric.
- Installation of 500 mm high natural stone steeple copers across the length of the parapets.

6.4.8 The proposed works to Oldham Road Overbridge (MVL3/28) are shown in the following drawings which accompany this application:

- MVL3/28 Oldham Road & MVL3/27B Existing and Proposed Plan (167037-TGP-25-MVL3-DRG-T-LP-162813);
- MVL3/28 Oldham Road & MVL3/27B Public Footbridge Existing and Proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-162814);
- MVL3/28 Oldham Road & MVL3/27B Public Footbridge Existing and Proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-162815);
- MVL3/28 Oldham Road & MVL3/27B Public Footbridge Existing and Proposed Elevation and Section (167037-TGP-25-MVL3-DRG-T-LP-162816); and
- MVL3/28 Oldham Road & MVL3/27B Public Footbridge Existing and Proposed Elevation (167037-TGP-25-MVL3-DRG-T-LP-162817).

7. IMPACT OF PROPOSALS

7.1 Oldham Road Overbridge (MVL3/28)

7.1.1 The proposed works to the grade II listed Oldham Road Overbridge (MVL3/28) are required in order to accommodate electrification of the Transpennine route as part of the wider TRU Programme. In order to construct the Scheme, the proposed works would require the removal of most of the grade II listed overbridge and its reconstruction. This will result in the loss of the majority of the structure, with the extent of retained fabric confined to the lower portions of the abutments.

7.1.2 The proposed works would largely erode the historic and architectural value of the structure through its substantial removal. The lower portions of the existing abutments would be retained, comprising isolated sections of limited architectural interest.

7.1.3 The proposed intervention will mean the substantial removal of a historic bridge that is part of the infrastructure associated with the Heroic Age (1841-50) of railway construction. It is not only a loss in its own right, but also detrimental to the historic character and group value that this structure contributes to as part of the Transpennine railway line.

7.1.4 The proposed reconstruction of the structure would have an impact on the group value of the bridges designed by A.S. Jee on the Transpennine route. The loss of Oldham Road Overbridge (MVL3/28) would remove one element of this group of 18 bridges designed by A.S. Jee (see paragraph 5.2.13) and one of the five bridges which share a common design language (see paragraph

5.2.14). The other bridges designed by Jee derive part of their value from their group relationship. The significance of each of the other bridges would therefore be slightly diminished by the removal of one of their number. The impact of this demolition would amount to less than substantial harm to the retained structures arising from a weakening of the extent to which group value contributes to their significance.

7.1.5 These proposals would therefore result in substantial harm to the significance of Oldham Road Overbridge (MVL3/28). The development of the design has embedded details to mitigate against this harm wherever possible. The use of natural stone cladding would reduce the degree to which concrete elements are visible, thereby maintaining natural stone as the visually dominant material. The use of natural stone cladding and copers would reduce the degree to which the proposed change is experienced when moving across the bridge. The reference to the existing pilasters in the form of the riser units (below deck level) would to a degree echo an aspect of the architectural language of the existing overbridge. The level of harm arising from the works would remain as substantial, but the careful consideration given to the finish of the proposed reconstructed bridge and its consistency with other listed bridge reconstructions along Route Section W2B would to a small degree offset the potential harm to Oldham Road Overbridge (MVL3/28).

7.2 Other heritage assets

7.2.1 The proposals would have no impact on any other nearby designated or non-designated heritage assets. The assets identified in Section 5.2.16 are not assessed to contribute to the significance of Oldham Road Overbridge (MVL3/28), neither are they considered to derive significance from their relationship with the listed overbridge. The proposed removal of Oldham Road Overbridge (MVL3/28) would therefore not result in any impact to the heritage significance of these surrounding assets.

7.3 Mitigation

7.3.1 The design proposals for Oldham Road Overbridge (MVL3/28) were developed through an iterative process which has robustly sought to avoid or reduce the impacts on the significance of the structure where possible. Additional information with respect to these elements of design development is included above in Section 6.2.

7.3.2 Regular consultation with historic environment stakeholders and the design team were held throughout the new bridge's design development process (see Table 4-1). Historic environment stakeholders, including Historic England and OMBC, have been

involved in the development of the design mitigation described below.

7.3.3 The design development process has resulted in mitigation being embedded within the design of the reconstruction of Oldham Road Overbridge (MVL3/28). The following design considerations have been taken into account in response to the magnitude of proposed alteration:

- The use of natural stone cladding to minimise the areas of visible concrete, reflecting the materiality of both the original bridge and many of the other retained structures along the Transpennine route. This approach would ensure natural stone remains the dominant material of the exterior faces of the bridge.
- Salvaged stone from the demolished span will also be considered for reuse on public facing elevations where additional highways disruption can be avoided.
- The form of the existing pilasters would be referenced beneath deck level in the form of the proposed stone clad riser units, referencing an aspect of the architectural language of the existing overbridge.
- A common approach taken to the design of the bridge reconstructions of Heyrod Hall Overbridge (MVL3/7), Wright's Overbridge (MVL3/20) and Oldham Road Overbridge (MVL3/28). It is considered that progressing comparable designs in tandem would enable a coherent approach and would provide a visible reference to the new phase of design upgrades taking place in the 21st century. This is another chapter in the story of the railway's development and improvement.

7.3.4 During construction of the works, toolbox talks to disseminate best practice for reducing potential impacts in relation to construction activity associated with Oldham Road Overbridge (MVL3/28) would also be delivered, for example to help avoid accidental damage.

Recommended compensation

7.3.5 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 3 standards in accordance with Historic England guidance (Historic England 2016). This would provide a permanent record of Oldham Road Overbridge (MVL3/28) in its current form and would be lodged with the Greater Manchester Historic Environment Record. This building recording would help to compensate for the harm to significance resulting from the demolition by providing the opportunity to document the structure which will be largely lost as a result of the proposed works. The historic building recording would include:
    - Drawings.
    - Photography.
    - Written account.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Oldham Road Overbridge (MVL3/28). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The reconstruction of Oldham Road Overbridge (MVL3/28) and resulting substantial harm is considered justified to ensure the realisation of the substantial public benefits of the Order Scheme, in accordance with paragraph 214 of the NPPF.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The reconstruction of Oldham Road Overbridge (MVL3/28) would directly facilitate the achievement of these aims by creating sufficient clearance beneath the bridge to accommodate electrification and the use of larger gauge trains, delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including reconstruction of Oldham Road Overbridge (MVL3/28), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 The reconstruction of Oldham Road Overbridge (MVL3/28) also presents an opportunity to improve highway safety at this location. The proposed design would result in improved visibility across the bridge which is situated at the confluence of a number of junctions. There is a history of road accidents in this location, with the prospect of improving visibility and providing a segregated footway assessed to comprise a significant public benefit.

7.4.6 As a vital constituent part of the Order Scheme, the proposed reconstruction would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.7 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four ‘express’, two ‘semi-express’ services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.8 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in

'greener' energy technology. This supports Network Rail's Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.9 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the reconstruction of Oldham Road Overbridge (MVL3/28).

7.4.10 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.11 To this effect, the proposals at Oldham Road Overbridge (MVL3/28) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Oldham Road Overbridge (MVL3/28) lies primarily in its historical and architectural interest. The bridge is a largely unaltered example of an 1840s skewed overbridge, dating from the Heroic Age (1841–50). The high quality of the bridge's architecture, including segmental arches with stepped rusticated voussoirs and keystones, together with the high quality workmanship of its construction is characteristic of A.S. Jee's work for the

Huddersfield & Manchester Railway. The bridge also derives significance from this direct historical relationship with the notable railway engineer A.S. Jee and the historic railway companies of the Huddersfield & Manchester Railway and LNWR. The setting of Oldham Road Overbridge (MVL3/28) makes a minor contribution to the significance of the structure, it also possesses group value as one of a number of A.S Jee structures on the Transpennine route which share a common design language.

8.1.2 A number of design options were pursued to achieve the clearance required for the OLE at Oldham Road Overbridge (MVL3/28). The OLE is a fundamental part of the Order Scheme to deliver a faster service (reduced journey time) and to make provision for electrification and the operation of a 'greener' transport solution. The development of a scheme-specific pantograph which enables the use of reduced overhead line wire height under structures, subject to a site-specific risk assessment, has not resolved the clash between proposed OLE and the listed structure.

8.1.3 A full and robust optioneering process was undertaken in consultation with the LPA and Historic England. This reviewed options comprising track lowering, bridge jacking, bridge reconstruction and bridge removal and considered these against a range of factors comprising:

- Local geology including the shallow depth of rock within the railway cutting;
- The topography of the site;
- Construction access from the highway network;
- Buildability within the constraints of working on an active railway and highway network;
- Highway and pedestrian safety requirements; and
- Whole life costs as a publicly funded project.

8.1.4 Reconstruction of the bridge was identified, on balance, to deliver the optimum solution in terms of delivering a feasible and cost-effective design solution, reducing disruption to rail and road users and the railway and highway network, and in achieving the aims of the Scheme.

8.1.5 Options were then pursued which accepted the loss of the historic bridge and made attempts to achieve an optimum reconstructed bridge design solution that retained the relationship with the railway and to an extent compensated for the removal of the existing structure. This was done through material choices (use of natural stone cladding referencing the character of the existing bridge), the

ambition to salvage stone from the demolished span for reuse on reconstruction of listed structures along the Scheme, and reference to the existing pilasters in the form of the stone clad concrete riser units.

8.1.6 The design process has been undertaken in a strongly collaborative manner and has sought historic environment professional support from the outset. The desire to maximise heritage benefits and limit harm was the primary position. Every effort was made to retain this historic structure as part of TRU. However, this was unachievable within the operational parameters set. Regular consultation with historic environment stakeholders and the design team were held throughout the design development process and several mitigation measures have been considered to attempt to avoid or reduce the impact on the significance of Oldham Road Overbridge (MVL3/28). Historic England and OMBC have accepted that the approach of reconstructing the structure is necessary to deliver the proposed Scheme, and that alternative approaches are not viable. The design development process, including engagement with historic environment stakeholders, resulted in mitigation being embedded within the design of the reconstruction as well as compensation measures being agreed, to be secured as conditions of the LBC (see Section 7.3).

8.1.7 With the reconstruction of Oldham Road Overbridge (MVL3/28), the Order Scheme can achieve key improvement objectives as outlined in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution);
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and
- Improving public health and safety in providing safe routes across the railway.

8.1.8 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.9 The reconstruction of Oldham Road Overbridge (MVL3/28), which is a grade II listed building, would result in substantial harm to the

significance of the listed building and should be considered exceptional. This will mean the loss of an irreplaceable piece of railway infrastructure, dating to the Heroic Age (1841-50) of railway building. It is also a loss to the collection of A.S. Jee bridges that are located along this section of the Transpennine route.

8.1.10 Whilst the reconstruction of Oldham Road Overbridge (MVL3/28) is regrettable; its loss would be outweighed by the substantial public benefits that accrue from enabling the Transpennine programme to be achieved, as set out in paragraph 214 of the NPPF. The proposals would satisfy the requirements of the Oldham Local Development Framework, namely clear and convincing justification provided to outweigh the strong presumption against demolition of listed buildings as outlined in Policy 24. It would also satisfy Policy JP-P2 contained within Greater Manchester Combined Authority's Places for Everyone (2024). The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to the significance of Oldham Road Overbridge (MVL3/28).

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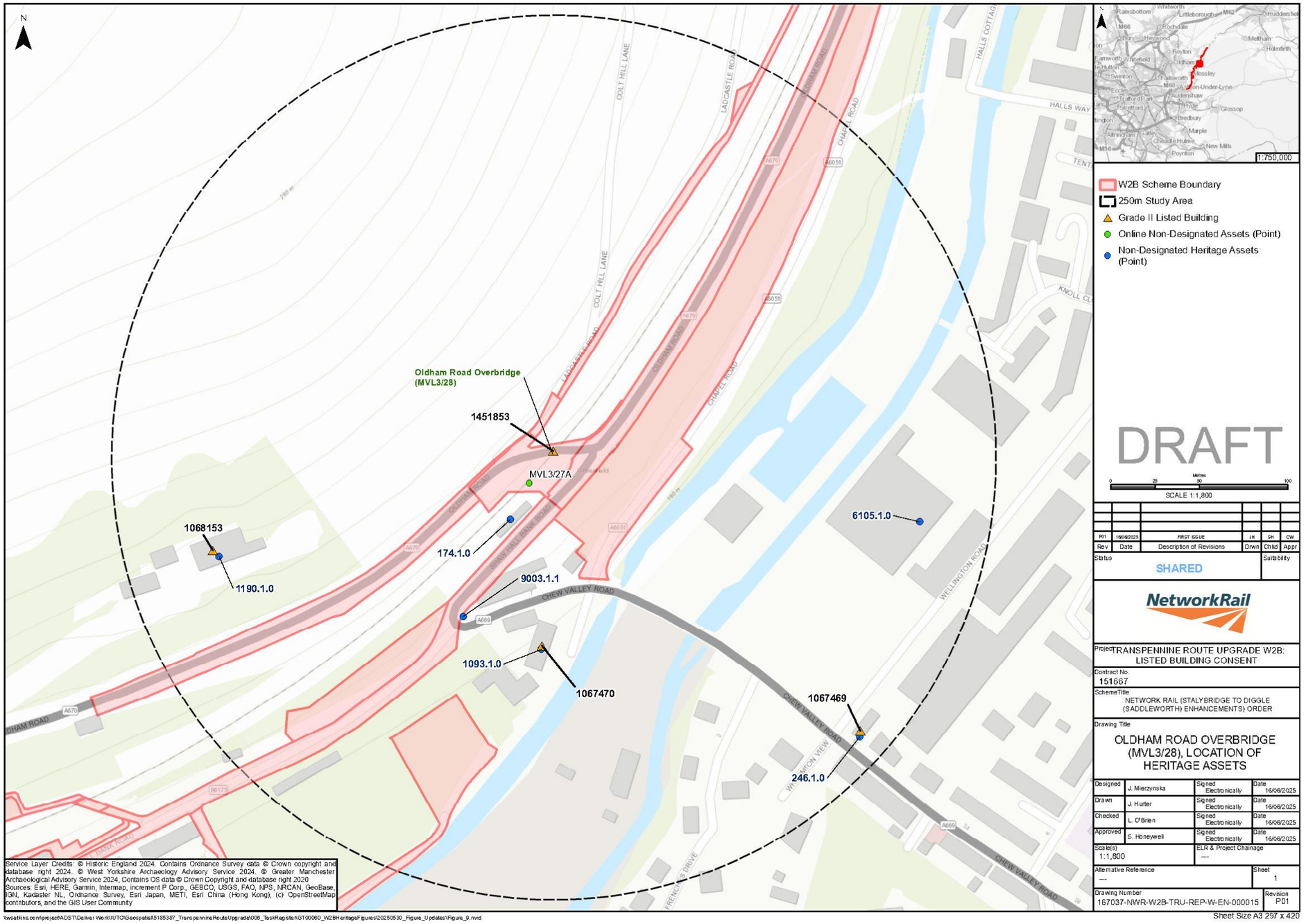
APPENDIX A – LOCATION PLAN



APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category: Listed Building

Grade: II

List Entry Number: 1451853

Date first listed: 23-Mar-2018

List Entry Name: Railway overbridge MVL3/28, Oldham Road

Location Description: Oldham Road, adjacent to Greenfield Station.

Location

The building or site itself may lie within the boundary of more than one authority.

District: Oldham (Metropolitan Authority)

Parish: Saddleworth

National Grid Reference: SD9920204728

Summary

Railway overbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.

Reasons for Designation

The overbridge MVL3/28 constructed in the mid-late 1840s by A S Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic interest:

* constructed during the heroic age of railway building and a little altered example of an 1840s overbridge on what is now one of the main railway lines in northern England;

* designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* as a well-designed and crafted stone bridge with attention to architectural detail in the use of a skew-coursed soffit, stepped, picked and tooled ashlar voussoirs with v-joints, ashlar impost

band and coping and contrasting rock-faced spandrels, parapets, piers and wing walls, all lifting it above the purely functional.

Group value:

* architecturally inter-related with the other listed structures designed by A S Jee on the Huddersfield & Manchester line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies, the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed between 1837 and 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the Stalybridge to Leeds route still

managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently (2018) owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

Oldham Road bridge dates to the construction of the Huddersfield & Manchester Railway between 1845 and 1849 when A S Jee was the lead engineer (it is depicted and named as Frenches Top Bridge on the first edition 1:10,560 OS map surveyed between 1849 and 1851 and published in 1854). The bridge was constructed to carry Oldham Road over the railway line adjacent to Greenfield Station.

Details

Railway overbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.

MATERIALS: rock-faced and ashlar sandstone (shale grit/Kinderscout grit/millstone grit).

DESCRIPTION: the skew overbridge is located on the north-east side of Greenfield Station and carries Oldham Road over the two-line track below. The bridge has segmental arches with stepped voussoirs and slightly taller keystones. The v-jointed voussoirs are of picked ashlar with tooled margins. They spring from an ashlar impost band with similarly detailed ashlar quoins to the bridge abutments, which are otherwise constructed of coursed, rock-faced stone blocks, as are the spandrels. The bridge soffit is constructed of skew-coursed, rock-faced stone blocks. The bridge arches are framed by slightly projecting piers of rock-faced stone, the rows coursing through to the wing walls, which are continued a considerable distance round the inner curves of the road on each side. The bridge, piers, and wing walls have parapets of coursed, rock-faced stone blocks with square-moulded stone coping and a lower string course of two square-moulded bands. At the west end of the southern parapet is a former opening, now blocked.

Sources

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APPENDIX C – HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTERS

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

29 November 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meetings on 6 and 21 November 2024 to review the proposals for bridges MVL3/9, 10, 23, 25, 26, 28, 29 and 31. As before, it was helpful to see the drawings in advance and then talk through the proposals with the team.

The impacts of the proposed changes and our comments are detailed below:

Proposals at *Manchester Road underbridge MVL3/10*, *Shaw Hall Bank Road underbridge MVL3/26* and *Wickens underbridge MVL3/29* will involve minor works, consisting of renewal of railings and strengthening of parapets with reinforced concrete. Visually, there will be only a minor impact, as the replacement railings are similar to the existing and the concrete strengthening will be hidden from view by the parapets. There will be a very low level of less than substantial harm to the physical fabric of the bridges due to the new railings being grouted into cored holes in the masonry parapet blocks. We do not have concerns over the works at these three bridges and recognise the efforts to maintain the visual appearance on the bridges.

The proposals for *Spring Bank Lane overbridge MVL3/9* and *Uppermill Viaduct MVL3/31* have been discussed at previous meetings, and it was helpful to see further details of the works at these structures. There will be a low level of less than substantial harm to *Spring Bank Lane overbridge* due to the introduction of raised copers, however the use of colour-matched concrete here will help to mitigate some of the harm caused by the visual impact of the new copers. Works to *Uppermill Viaduct* will likewise lead to a low level of less than substantial harm due to the introduction of brackets to support the OLE portals which will have an impact both physically and visually. We appreciate that care has been taken in the spacing of these portals so the rhythm of the bridge arches is not unduly interrupted, and so that the pattress plates are not affected.

More considerable impacts will result from proposals at *Wright's overbridge MVL3/23*, *Oaklands Road underbridge MVL3/25* and *Oldham Road overbridge (Greenfield*

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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Station) MVL3/28, all of which will result in substantial harm to the significance of the designated assets.

As mentioned in previous letters, the removal of *Wright's Overbridge* will cause substantial harm to its significance through the total loss of its historic form and all original fabric, and through the re-routing of a historic public footpath. Thorough justification will need to be presented in the supporting documentation to provide the reasoning for the total loss of this bridge.

The proposed reconstruction of *Oldham Road Overbridge* has also been discussed previously. This is a skew overbridge located on the north-east side of Greenfield Station which carries Oldham Road over the track below. The bridge currently has a masonry arch which will be dismantled, along with much of the approaching wing walls, resulting in very little historic fabric being retained. The works will also necessitate the removal of the ornate historic iron railway footbridge. There will be substantial harm to the significance of the listed asset due to the severity of changes to its physical appearance and the loss of historic fabric. We recognise that some fabric will be retained for reuse as cladding material, however this will need to be carefully managed to maintain the look of the structure. The stone coursing in the existing bridge runs through the parapets into the wing walls. We would like to see care taken to replicate this effect within the reconstructed bridge to avoid a disjointed appearance to the new structure, which could arise from using mismatched stone-cladded panels. The existing bridge features flat masonry pilasters that project slightly from the bridge to either side of the arch. These have not been articulated in the proposed design and we would like to see further investigation into whether they could be incorporated into the design. This location would be suitable for display of permanent interpretation materials which could help to mitigate some of the harm by informing the public about the history of the route and the upgrade works.

Oaklands Road underbridge MVL3/25 is a skew girder bridge carrying the two-track railway line over a bend in the road below. The angled abutments have distinctive semi-octagonal piers, and the parapets are ornate balustrades of decorative cast-iron panels of Gothic arcading. The craftsmanship of the stonemasonry and attention to architectural detail lifts the design of this bridge above the purely functional and it has considerable architectural interest. There will be substantial harm to the significance of this listed bridge resulting from the proposals to reconstruct and widen the bridge deck and to rebuild the octagonal piers. In order to minimise the harm, the design of the rebuilt piers and abutments will need to be careful managed to ensure there is meaningful articulation of the distinctive shape of the piers. This includes the contrasting shape and dimensions of the piers where they extend through and above the parapet. We are comfortable with the proposals to replicate the decorative cast-iron panels to minimise the visual impact of the loss of the original fabric here.

Next Steps

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We look forward to our continued involvement in the pre-application discussions for this scheme.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, October 2024

MVL3/25 Presentation, November 2024

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

25 June 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the pre-application meetings over the last five months. These have been extremely useful in explaining the significance of the heritage assets, the design team's approach, and in exploring issues and constraints associated with electrifying the track.

This letter covers our advice regarding proposals for change to eight listed railway structures between Stalybridge and Standedge Tunnel, within the Metropolitan boroughs of Tameside and Oldham in Greater Manchester. This section of the railway is referenced as W2B.

Significance

The section of railway between Stalybridge and Standedge Tunnel was constructed in stages between 1844 and 1849. This was at the height of "railway mania"; an intense period of activity when many competing companies formed and were racing to complete sections of railway. The Stalybridge and Standedge Tunnel railway eventually became part of a wider network of sections of track that extends from Selby and York to Manchester Victoria via Leeds.

The W2B route has considerable heritage value. It traverses areas of dramatic landscape and varied geology, and has remained well preserved and largely unaltered since its opening in the 1840s. The wider railway network from the Yorkshire cities to Manchester contributed hugely to the economic and urban development of the North and was a major factor in the industrial revolution and in the development of towns.

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The tricky geology and terrain of the W2B route presented challenges to the engineers of the 1840s, and many of the most notable surviving features of the railway are the impressively engineered bridge and viaduct structures. These structures are predominantly built from locally sourced stone, meaning they harmonise with the landscape and contribute to local views, adding to the aesthetic value of the route. The significance of the structures also lies in the fact that they survive well and in large numbers. There have been few alterations to bridges, mainly because this section of the line has not been widened as other parts of the wider route have been.

There are eight listed railway structures that will be affected by the proposed electrification works between Stalybridge and Standedge Tunnel; these are:

- Heyrod Hall Overbridge - MVL3/7
- Heyrod Footbridge Overbridge - MVL3/8
- Spring Bank Lane Overbridge - MVL3/9
- Roughtown Road Overbridge - MVL3/17
- Wright's Mill Overbridge - MVL3/20
- Wright's Overbridge - MVL3/23
- Oldham Road Overbridge - MVL3/28
- Saddleworth Viaduct - MVL3/31

All eight of the listed structures were designed by notable railway engineer Alfred Stanistreet Jee, lead engineer for the railway between Huddersfield and Manchester. They were built in the mid-late 1840s and share many architectural characteristics, adding to their group value and enhancing their significance.

Bridges MVL3/7, MVL3/9, MVL3/17, MVL3/20, MVL3/23, and MVL3/28 are all very similar in design. All are made from coursed local sandstone and have segmental arches formed from tooled voussoirs, with larger keystones. Each has dressed ashlar impost bands, sloping string courses above the arch, and parapet copings, with shallow pyramidal caps to the slender piers. They have considerable group value and are easily identifiable in the landscape as bridges associated with the original construction of the railway. The bridges are all well designed and adapted to their individual locations, some being skewed or sloped. High quality workmanship and

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details such as picked and tooled ashlar voussoirs elevate their design above what is purely function, enhancing their significance further.

Heyrod Footbridge (MVL3/8) and Saddleworth Viaduct (MVL3/31) are clearly recognisable as part of the same scheme of work but differ in their form. Heyrod Footbridge features a flat span, and retains its cast-iron edge beams and brick parapets, while Saddleworth Viaduct comprises 23 sandstone arches spanning the River Tame and Huddersfield Narrow Canal.

The structures are all Grade II listed in recognition of their special architectural and historic interest at national level. Saddleworth Viaduct was listed in 1986, while all seven overbridges were listed in 2017 or 2018 after a comprehensive review of the line.

Impacts

The proposals involve demolition and reconstruction of three structures, total removal of one structure, and modifications to four structures. These works are deemed necessary to achieve the clearance required for the OLE (overhead line equipment) and to ensure safety for bridge users. The impacts of proposed works at each structure are discussed below.

Bridges requiring demolition works:

Heyrod Hall Overbridge MVL3/7 carries a short section of private road over the railway to Heyrod Hall. This bridge is in a rock cutting with very hard rock beneath the track, prohibiting track lowering.

Wright's Mill Overbridge MVL3/20 carries the public footpath and bridleway over the railway where it passes through a steep-sided rock cutting. Options to lower the track at this bridge have been investigated but discounted due to the location on the bridge in a rock cutting with very hard rock beneath. Track lowering would also have a knock-on effect to a nearby underbridge.

Oldham Road Overbridge MVL3/28 is a skew overbridge located on the north-east side of Greenfield Station and carries Oldham Road over the track below. There will be

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the addition of a new footbridge alongside the reconstructed road bridge. Options to lower the track at this bridge have been investigated but would be difficult to achieve due to the proximity to the station.

Proposals at these three bridges involves the complete dismantling of each bridge and reconstruction to create a raised, flat deck with sufficient clearance for OLE. Stone would be reclaimed and used to clad the inside faces of parapet walls; however matching stone is likely to be needed to clad the external sides of the parapets. New copers would also be needed to ensure parapets were the correct height.

The demolition and reconstruction of these bridges will cause substantial harm to their significance through the total loss of historic form and loss of much of their original fabric. The proposals will also diminish the group value of the historic bridges on the railway.

Wright's Overbridge MVL3/23 is a footbridge that carries a public footpath from north-west to south-east across the railway. The railway here is in a steep cutting and due to gradients, the bridge slopes down towards the south-east. Proposals involve the total removal of this bridge and diversion of the public right of way across the railway at another point.

The removal of Wright's Overbridge will cause substantial harm to its significance through the total loss of its historic form and all original fabric. Its removal will necessitate the re-routing of a historic public footpath, which is part of a network of paths in the area connecting mills and farms with workers' housing, and contributes to the landscape character of the area and to the setting of the bridge. The proposals will also further diminish the group value of the historic bridges on the railway.

Bridges requiring modifications:

Heyrod Footbridge Overbridge MVL3/8 carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane which are also listed.

Spring Bank Lane Overbridge MVL3/9 (also known as Heyrod Bridge) carries Spring Bank Lane over the railway. Due to the lie of the land the bridge slopes down towards the east. The splayed projecting wing walls are also covered by the listing.

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Roughtown Road Overbridge MVL3/17 carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The projecting wing walls are also covered by the listing.

Minimal interventions are proposed at these three bridges, the most significant changes being the introduction of new triangular copers to ensure the correct and safe parapet heights.

The introduction of triangular copers to raise the parapet heights to 1.5m will result in a low level of less than substantial harm to the significance of the bridges through the changes to their appearance and the loss of original copers. This harm could be further lowed by using stone copers instead of concrete, and by undertaking any other restoration works required such as replacing the recently rendered section of parapet copings in the south-west corner of Roughtown Road Bridge.

Saddleworth Viaduct MVL3/31 (also known as Uppermill Arches and Uppermill Viaduct) carries the railway over a series of roads and lanes, and the River Tame and Huddersfield Narrow Canal. Due to the lack of space available on the viaduct deck, proposals here involve attaching brackets to the exterior of the viaduct for the OLE supports.

The proposed works at Saddleworth Viaduct will result in a low level of less than substantial harm to the significance of the structure through the change to its appearance and in the physical impact on the elevations of the viaduct from the brackets. This harm could be further lowed by ensuring the spacing of the masts responds to the structural and architectural rhythm of the viaduct to lessen their visual impact.

Policy

National policy relating to the conservation and enhancement of the historic environment is articulated in section 16 of the National Planning Policy Framework (NPPF, 2023). These policies state that heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so they can be enjoyed for their contribution to the quality of life of existing and future generations (NPPF para 195). Also, when considering the impact of a proposed development, great weight should be given to an asset's conservation (NPPF para 205).

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
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Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification (NPPF 206).

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss. In practice this means that less harmful alternative solutions should be explored through the pre-application and application processes.

In addition to section 16 of the NPPF, we refer you to Section 12 'Achieving well-designed and beautiful places' when considering the design for replacement bridge structures. Para 132 states that being sympathetic to local character and history is important, along with a consistent and high-quality standard of design (para 133).

Position

The proposed works to upgrade the W2B section of the Transpennine route network will be the first major programme of work since its construction in the 1840s. The wider public benefits of the upgrade work to this key transport network will be vast and will have positive knock-on effects across the region. The challenging geology and hydrology across the route still present issues to engineers today, and we welcome the work that has gone into investigating alternative options to demolition and reconstruction for the bridges affected.

The proposals will result in substantial harm to the significance of bridges MVL3/7, MVL3/20, MVL3/23, and MVL3/28, with the highest level of harm to bridge MVL3/23 which will be dismantled and not reconstructed. The proposals will cause harm through the loss of the form of the arched bridges and though the loss of historic fabric. There will be the additional harm to the group value of the bridges.

We agree that the bridges are predominantly experienced from the bridge deck, and that re-use of original fabric should be focussed on the inside faces of the parapet walls to ensure the look of the bridge when crossing it is not unacceptably altered, however this re-use of materials does not lower the harm to less than substantial levels. It will be for decision takers to weigh the balance of this substantial harm against the public benefits of the scheme.

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Works to bridges MVL3/8, MVL3/9 and MVL3/17 is largely limited to raising the parapets to ensure they are the safe and correct height. We acknowledge that Network Rail has a legal obligation to take reasonable steps to prevent people from coming into contact with the OLE by ensuring parapets cannot be climbed or walked on. We appreciate the work undertaken to investigate various options for different types of pantographs to limit the height at which the parapets need to be raised to. The use of triangular copers will introduce a change in the appearance of the bridges and cause a low level of less than substantial harm to their significance, but the impact can be lessened by use of stone rather than concrete copers which will be less visually obtrusive. Parapet design should be tailored to the individual circumstances of each bridge to ensure the least harmful solution is used.

There will also be a low level of less than substantial harm at Saddleworth Viaduct from the introduction of brackets to the structure to support the OLE. This can be further lowered by thoughtful spacing of the brackets.

We welcome the detailed options appraisals undertaken during the design of the proposed works to listed structures on the W2B route. We recommend that details are finalised using bespoke designs that respond to the particular character of each structure and its setting.

Next Steps

Thank you for involving us at the pre-application stage of this project. The above advice is the response that we would give if the same proposals were put forward unamended for statutory approval.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
HistoricEngland.org.uk

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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Wickens Underbridge (MVL3/29) - Heritage Statement

Rule 10(6)(d)

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Condition 3
1.4 Summary of proposal 4
2. LEGISLATION AND POLICY CONTEXT 6
2.1 Legislation 6
2.2 National Policy 7
2.3 Local planning policy 10
3. ASSESSMENT METHODOLOGY 15
3.1 Research 15
3.2 Significance and setting 16
4. CONSULTATION 16
5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE 21
5.1 History of the W2B Transpennine Route 21
5.2 Wickens Underbridge (MVL3/29) 23
5.3 Surrounding heritage assets 31
6. PROPOSALS 32
6.1 Background of proposals 32
6.2 Design development and justification 33
6.3 Description of proposals 33
7. IMPACT OF PROPOSALS 37
7.1 Wickens Underbridge (MVL3/29) 37
7.2 Other heritage assets 39
7.3 Mitigation 39

7.4 Public Benefit 40

8. CONCLUSION.....42

9. REFERENCES 45

APPENDIX A – LOCATION PLAN 47
APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION..... 48
APPENDIX C: HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER 52

LIST OF TABLES

Table 4-1 Consultations for Wickens Underbridge (MVL3/29) 17

LIST OF INSERTS

Insert 1-1 South elevation of Wickens Underbridge (MVL3/29) 4

Insert 1-2 Wickens Underbridge (MVL3/29), loose, displaced and bulging stonework. 5

Insert 1-3 Wickens Underbridge (MVL3/29) fracture in masonry on arch. 5

Insert 5-1 Extract from the 1st edition 6" Ordnance Survey map of 1854. Wickens Underbridge (MVL3/28) is located just below the label for Wade Lock Bridge on the railway line. 24

Insert 5-2 Historic line plan of Huddersfield and Manchester Railway and Canal by LNWR in 1905 in which Wickens Underbridge (MVL3/29) is illustrated. Wickens is annotated 29 on the map. 24

Insert 5-3 Wickens Underbridge (MVL3/29) east elevation. 26

Insert 5-4 Wickens Underbridge (MVL3/29) west elevation. 26

Insert 5-5 The setting of Wickens Underbridge (MVL3/29) looking west. 27

Insert 5-6 Wickens Underbridge (MVL3/29) looking west towards its east elevation 27

Insert 6-1 Proposed East Elevation Wickens Underbridge (MVL3/29) 35

Insert 6-2 Proposed west elevation Wickens Underbridge (MVL3/29) 36

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the "Order Scheme"). This section of the Transpennine route follows the Tame Valley from Stalybridge to Diggle and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a listed building. The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade II listed Wickens Underbridge (MVL3/29) (NHLE 1451854). This bridge is located in Uppermill (NGR SD 99465), Oldham. A location plan is provided in Appendix A.

1.1.7 The Historic England list description (included in full in Appendix B) names the listed building as “Railway accommodation underbridge MVL3/29, Wickens”. Throughout this Heritage Statement the structure is referred to as “Wickens Underbridge (MVL3/29)” in accordance with Network Rail’s naming of the structure.

1.1.8 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates, 2024) and the Route-wide Statement of Significance (Alan Baxter Associates, 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF, revised 2025) specifically paragraph 207, which seeks an assessment proportionate to the asset’s importance and sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail’s requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to appraise the nature and extent of any impact upon setting and significance.

1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;

- Present the design requirements of the Order Scheme at the structure;
- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;
- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the National Planning Policy Framework, 2025 and the Oldham Local Development Framework.

1.3 Current Condition

1.3.1 Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854) is a mid to late 1840s masonry bridge, built to the design of Alfred Stanistreet (A.S.) Jee for the Huddersfield and Manchester Railway. The underbridge is located to the west of Uppermill and comprises a single span segmental-arched bridge which spans a footpath under the Transpennine route.

1.3.2 Wickens Underbridge (MVL3/29) was subject to detailed examination in June 2016 as part of Network Rail's maintenance regime which identified that the general condition of the structure was fair. A visual inspection was most recently undertaken in September 2021 and identified outstanding defects including:

- Defects in pointing;
- Fractures in stonework (Insert 1-1);
- Loose, displaced and bulging stonework (Insert 1-2);
- Overgrown vegetation around the structure including invasive species (Insert 1-3);
- High levels of ballast with potential to fall on the footpath; and
- Loose, corroded and missing sections of parapet handrails and safety fencing.

1.4 Summary of proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the Route is required. This would require the alteration of a number of existing underbridges, including Wickens Underbridge (MVL3/29) to accommodate OLE, higher line speed and increased freight trains. It has been determined necessary to strengthen the underbridge using precast reinforced units as well as replace the handrails with GRP in line with Network Rail safety regulations. These works will therefore enable the implementation of the Order Scheme.

Insert 1-1 South elevation of Wickens Underbridge (MVL3/29)

0

Insert 1-2 Wickens Underbridge (MVL3/29), loose, displaced and bulging stonework.

Insert 1-3 Wickens Underbridge (MVL3/29) fracture in masonry on arch.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990(as amended) (the "Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

2.1.3 'In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—

a) any object or structure fixed to the building;

b) any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.4 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

'(1) Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

(2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving and enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

(3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.5 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) ' the preservation of particular features of the building, either as part of it or after severance from it;

b) the making good, after the works are completed, of any damage caused to the building by the works; [and]

c) the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.

2.1.6 It is also defined in s.17 (2) that a condition 'may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'.

2.1.7 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.1.8 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) also governs duties of the local planning authority relating to conservation areas, particularly Sections 69, 72 and 74.

- Section 69 requires local planning authorities to define as conservation areas any '*areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance'*.
- Section 72 confers a general duty '*with respect to any buildings or other land in a conservation area… special attention shall be paid to the desirability or preserving or enhancing the character or appearance of that area'.*
- Section 74 defines that demolition of a building in a conservation area is not permitted '*without the consent of the appropriate* authority'.

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective 'to protect and enhance our natural, built and historic environment'. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.2.3 This Heritage Statement aims to address relevant policy within the NPPF in relation to Section 16 'Conserving and enhancing the historic environment' and includes guidance on plan making, managing Historic Environment Records; how to determine proposals affecting the historic environment; and how to consider potential impacts on significance.

2.2.4 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance.'*
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance.'*
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*
    - *a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;*
    - *b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:*

  a) the nature of the heritage asset prevents all reasonable uses of the site; and

  b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

  c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

  d) the harm or loss is outweighed by the benefit of bringing the site back into use.'

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.'*

- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset.'*

- Paragraph 219 - '*Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.'*

Planning Practice Guidance

2.2.5 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of

the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.6 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.7 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.8 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.9 In relation to substantial harm, the PPG states that 'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

Oldham Joint Core Strategy and Development Policies

2.3.1 Local planning policy for Oldham is provided by the Joint Core Strategy and Development Management Policies of the Oldham Local Development Framework, adopted in November 2011 (Oldham Council, 2011), and a small number of retained policies from the Unitary Development Plan (2006) (Oldham Council, 2009).

2.3.2 Policy 24 relates to the Historic Environment and is reproduced in full below:

Policy 24 Historic Environment

'Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

- *National and local guidance and policies on the historic environment.*
- *Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.*
- *Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.*

2.3.3 *Conservation Area Appraisals and Management Plans, where appropriate.*

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

a. *Listed buildings.*
b. *Conservation areas.*
c. *Registered parks and gardens (their historic character and setting).*
d. *Scheduled ancient monuments (their archaeological value and interest).*
e. *Significant archaeological remains.*

2.3.4 *Locally significant buildings, structures, areas or landscapes of architectural or historic interest (including non-designated locally significant assets identified in the local lists compiled by the council).*

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional. Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.*

Conservation Areas

Development within or affecting the setting of a conservation area, including views in or out, must serve to preserve or enhance the character or appearance of the area. Proposals for all new development, including alterations and extensions to buildings and their re-use, must have a sensitive and appropriate response to context and good attention to detail. Proposals must not adversely affect important architectural or historic features or distinctive local features or structures unless it can be demonstrated that the development brings substantial benefits to the community. Proposals for the demolition of a building in a conservation area must demonstrate that it is unrealistic for the building to continue in its existing use and a suitable alternative use cannot be found, or the building is in poor structural condition and the cost of repairing and maintaining it would be disproportionate to its importance and value and the demolition would preserve or enhance the character or appearance of the conservation area. In exceptional circumstances, the fact that a demolition would bring substantial benefits to the local community may outweigh the balance in favour of the preservation of the building.

Registered Parks and Gardens

Development which would lead to the loss of, or cause harm to, the historic character or setting of any part of registered park and garden will not be permitted.

Scheduled Monuments

Development which would lead to the loss of, or cause harm to, scheduled ancient monuments should be wholly exceptional.

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits

of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

Places for Everyone

2.3.5 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Oldham, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by:

1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.6 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.7 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the 'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance' (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.8 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not

have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.9 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Wickens Underbridge (MVL3/29). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the asset, its condition, use and setting has been obtained from a survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 May 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team.

3.2 Significance and setting

3.2.1 Assessment of the significance of the heritage asset and its setting has been undertaken in consideration of guidance issued by Historic England. Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in Annex 2 of the NPPF as historical interest, archaeological interest, artistic interest, and architectural interest.

3.2.2 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence; and
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and OMBC have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of the TRU.

4.1.2 Regular meetings with Historic England and OMBC have been held to discuss the design development of the proposal in relation to Wickens Underbridge (MVL3/29). Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall route and design development for all structures along Route Section W2B.

4.1.3 The design development for Wickens Underbridge (MVL3/29) was presented and discussed with historic environment stakeholders on the following dates:

Table 4-1 Consultations for Wickens Underbridge (MVL3/29)

Date	Stakeholder in attendance	Key agreements/items discussed
15 February 2021	• OMBC	Project briefing on the bridge structures in order to identify the location and Order Scheme output, Network Rail electrification challenge, structures overview and next steps. • Structures presentation included MVL3/29 and identified the need to upgrade the handrails with a non-conductive material. Given that this would result in a change to the structure which is not like-for-like, this was identified to require listed building consent.
May 2021	• Historic England • OMBC • Kirklees Council	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II overbridges and underbridges which are noted for their heritage significance, particularly as essential railway structures. The group value of the bridges was identified as a key contributor to significance. • Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. • Reassurance was provided to the councils that they will be involved in the GRIP 3 design process which will be used within the detailed design development of GRIP 4 (Single Option Development). Clarification was also provided on the sustainable heritage initiatives. • Historic England stated that they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.

Date	Stakeholder in attendance	Key agreements/items discussed
6 February 2024	• Historic England	• Overview of listed structure, and details of the challenges of the electrification of the route in relation to listed overbridges were presented. • The design approach for electrification across / under existing railway bridges was noted to have been agreed in principal by Network Rail and following consultation with the Local Authorities & Historic England at the preceding design stage.
22 April 2024	• OMBC	• Overview of preferred options for structures along the route within Oldham. This included the preferred option for Wickens Underbridge (MVL3/29) which consists of installation of GRP handrails and potential spandrel strengthening and ballast retention.
7 May 2024	• Historic England	• Presentation of development of next steps for the underbridges, including Wickens Underbridge (MVL3/29). • All of the underbridges are of masonry arch construction (apart from MVL3/25) and would be progressed once the track designs are received.
6 November 2024	• Historic England	• Draft listed building consent drawings presented for discussion • Presentation of interventions required to strengthen Wickens Underbridge (MVL3/29) and replace handrails in compliance with Network Rail safety standards. Acknowledgement that there will be minimal change to the bridge's appearance. • Confirmation that this will not entail raising the parapet, and no additional OLE equipment will be required.

Date	Stakeholder in attendance	Key agreements/items discussed
29 November 2024	• Historic England	• In their formal pre-application advice letter, Historic England confirmed that proposals for Wickens Underbridge (MVL3/29) would result in *'a very low level of less than substantial harm'* (Appendix C.1).
2 April 2025	• OMBC	• Presentation of overview of the aims and objectives of TRU to OMBC heritage officers, with emphasis on the historic context of Route Section W2B and the 12 listed building consents applications which are being prepared for the various works to the grade II listed bridges and viaduct along the route section. • Network Rail requested for the draft Heritage Statement to be reviewed by the Council for comment and feedback. • Presentation of overview of electrification challenges caused by the existing arch profile of a number of existing bridges and have developed bespoke solutions for these to achieve the required clearance.
4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits. • Historic England were content with the assessment of significance for all structures, and noted that the optioneering tables were helpful. Historic England requestion for further details on the heritage interpretation as part of the heritage benefits.
12 May 2025	• OMBC	• Proposals for Wickens Underbridge (MVL3/29) presented to OMBC heritage officers, noting less than substantial harm to the structures. • Existing handrail across the structure noted to be modern and metallic, and proposed to be replaced with non-metallic fitting of similar appearance.
24 June 2025	• OMBC	• Pre-application advice letter received from OMBC outlining local planning authority advice following review of the draft listed building consent application material. • OMBC found that the proposals at Wickens Underbridge (MVL3/29) would result in a low level of less than substantial harm arising from minor physical intervention.

Date	Stakeholder in attendance	Key agreements/items discussed
		• OMBC highlight that clear and convincing justification will be required for any harm arising to designated heritage assets, with substantial benefits required to outweigh substantial harm. • A high level of harm was also found to the group value of the bridges designed by A.S Jee on the TransPennine Route, due to the proposed demolition of Wright's Mill Overbridge (MVL3/20) and reconstruction of four other bridges and a limited level of harm to group value arising from the alteration of three other structures (including Wickens Underbridge (MVL3/29)).
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (See Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is very much welcomed by Historic England.

5. HERITAGE ASSSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs over Uppermill Viaduct (MVL3/31) in Uppermill, was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the Heroic Age of railway building (Historic England, 2017b). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774km to 11,703km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after its authorisation (Alan Baxter Associates, 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is *'indisputably significant as a major engineering achievement'* (Alan Baxter Associates, 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Uppermill Viaduct (MVL3/31) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at over three miles long

was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associates, 2019). This was produced to characterise the overall heritage significance of the Transpennine route.

5.2 Wickens Underbridge (MVL3/29)

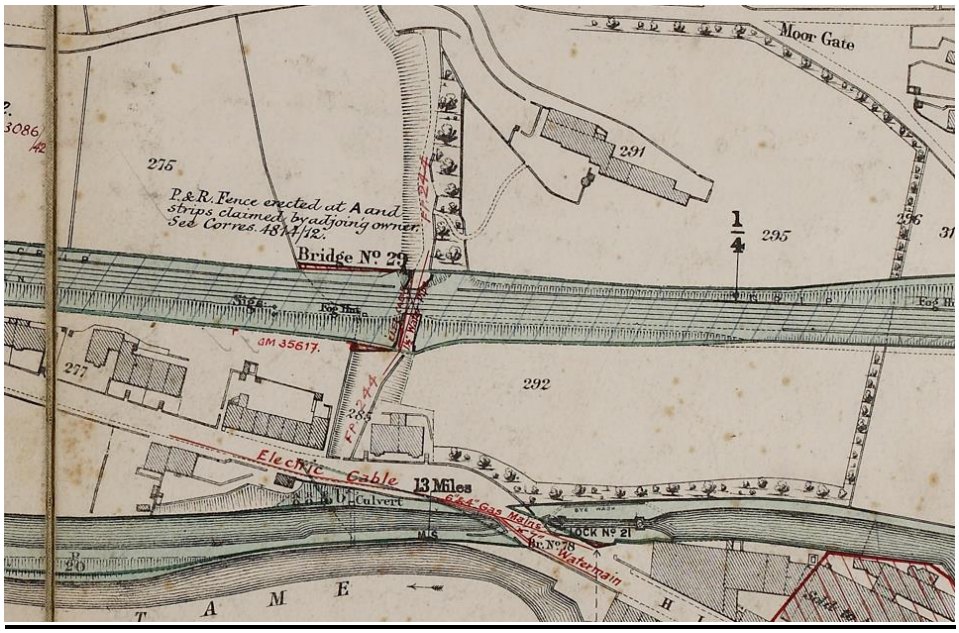
History

5.2.1 Wickens Underbridge (MVL3/29) was constructed between 1845 and 1849 during the Heroic Age of railway building. The single-span accommodation bridge was designed by A.S. Jee for the Huddersfield & Manchester Railway.

5.2.2 In the mid-19th century, the village of Uppermill was industrial in character. Within Uppermill there were numerous textile mills, the growth of which had been fuelled by the position of the settlement on the Huddersfield Narrow Canal which opened in 1811. Located on the south edge of the village, Wickens Underbridge (MVL3/29) is not depicted on the 1st edition 6" Ordnance Survey map of 1854, although the footpath to the bridge is indicated (Insert 5-1). This is likely to be a drafting error, as construction of the underbridge was undertaken as an integral part of the railway embankment's construction between 1845 and 1849. To the west of the railway line a large building named as Wickens is labelled to the north-west of the underbridge. The building remains extant today, continuing in use as a farm. Wickens also gave its name to a sandstone quarry located to the south of the building and a watercourse running down the hillside to the west of this which is labelled as Wickens Clough. To the east of the line, the River Tame and Huddersfield Canal run in proximity to the end of High Street. Wickens Underbridge (MVL3/29) provided access from Wickens Farm and Wickens Quarry to the base of High Street and the Huddersfield Narrow Canal, providing an important link through the railway embankment to enable access to these important communication routes.

5.2.3 Subsequent Ordnance Survey map editions show a similar situation, through fully depicting the underbridge. Residential development is shown to gradually extend southwards from Uppermill, with the land to the west of the railway remaining undeveloped, likely due to its steep topography.

Insert 5-1 Extract from the 1st edition 6" Ordnance Survey map of 1854. Wickens Underbridge (MVL3/28) is located just below the label for Wade Lock Bridge on the railway line.



Insert 5-2 Historic line plan of Huddersfield and Manchester Railway and Canal by LNWR in 1905 in which Wickens Underbridge (MVL3/29) is illustrated. Wickens is annotated *29* on the map.

Description

5.2.4 Wickens Underbridge (MVL3/29; Insert 5-3 and Insert 5-4) comprises a single semi-circular accommodation underbridge which provides access east-west under the embankment for the Transpennine route. The bridge survives in its original form, with no evidence of significant alteration.

5.2.5 Wickens Underbridge (MVL3/29) is constructed in regular-coursed, quarry-faced buff sandstone, with smaller coursed ashlar blocks employed across the arch soffit. The underbridge is formed by a deep semi-circular arch with rusticated v-joined picked ashlar voussoirs with projecting keystones with diagonal tooling. The arch springs from squared and tooled ashlar impost bands. A square moulded band above the arch supports the deep, plain ashlar parapet across the top of the structure. The parapet is formed of discrete stone blocks and a metallic tubular handrail is fixed into this. The wingwalls project at right angles from the arch, and are raked and splayed, terminating in slightly projecting piers of rock-faced stone blocks with squared-moulded ashlar coping stone.

5.2.6 The setting of Wickens Underbridge (MVL3/29) is localised due to the presence of mature planting to the east and west of the structure (Insert 5-5 and Insert 5-6). Whilst the underbridge accommodates a pedestrian footpath, it is set back from Oldham Road and is screened from the road by dense vegetation. Views of the underbridge are gradually revealed as one moves along the footpath and under the structure. The relationship of the bridge with the Transpennine route is its key contributor towards its significance and continues to be legible today.

Insert 5-3 Wickens Underbridge (MVL3/29) east elevation.

Insert 5-4 Wickens Underbridge (MVL3/29) west elevation.

Insert 5-5 The setting of Wickens Underbridge (MVL3/29) looking west.

Insert 5-6 Wickens Underbridge (MVL3/29) looking west towards its east elevation

Significance

5.2.7 Wickens Underbridge (MVL3/29) was designated as a grade II listed building in March 2018. The Historic England List Entry description identifies the bridge to be of special interest for the following reasons:

- Historic interest:
    - Constructed during the heroic age of railway building and a little altered example of an 1840s accommodation underbridge on what is now one of the main railway lines in northern England;
    - Designed by the notable railway engineer Alfred Stanistreet Jee.
- Architectural interest:
    - As a well-designed bridge, with good quality stone masonry and attention to architectural detail in its use of picked and tooled, v-jointed voussoirs with larger keystones, ashlar impost bands, parapets, coping and soffit and contrasting rock-faced stonework of the spandrels, abutments and raked and splayed wing walls which all lift it above the purely functional.
- Group value:
    - Architecturally inter-related with the other listed structures designed by A S Jee on the Huddersfield and Manchester line.

5.2.8 Wickens Underbridge (MVL3/29) is of significance as an unaltered example of an 1840s accommodation underbridge, dating from the Heroic Age (1841–50) of railway building and the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The bridge's direct historic relationship with historic railway companies of the period, comprising the Huddersfield & Manchester Railway and LNWR, and the notable railway engineer A. S. Jee, who also designed similar structures along the route give the structure historical value from which it derives significance. The underbridge remains in use as a part of the operational railway network and, together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.9 Wickens Underbridge (MVL3/29) derives significance from the quality of its architecture and construction, a characteristic feature of Jee's work for the Huddersfield & Manchester Railway. Architectural elements such as the rusticated voussoirs and the quality of workmanship across the structure are notable features of Jee's design which elevates the structure above the purely functional. The

design language used is consistent with other bridges built by A.S. Jee for the Huddersfield & Manchester Railway, which further contributes towards a consistency in architectural character and an appreciation of their group value. The bridge survives in its original form, with no evidence of significant intervention or alteration, and remains in use for its original purpose. The integrity of the structure enables Jee's original design intent and the historic function of the structure to be understood, contributing to its significance.

5.2.10 The setting of Wickens Underbridge (MVL3/29) makes a limited contribution to its significance, deriving principally from the continued historic and functional relationship between the bridge and the Transpennine route.

Group value

5.2.11 As identified in the list description, Wickens Underbridge (MVL3/29) is recognised to be of group value with other listed structures by A.S. Jee on the Huddersfield & Manchester Railway[1]. These comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wright's Mill Overbridge (MVL3/20) (grade II listed, NHLE 1452406);
- Wright's Overbridge (MVL3/23) (grade II listed, NHLE 1452409);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);

[1] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade, and will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Oldham Road Overbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Uppermill Viaduct (MVL3/31) (grade II listed, NHLE 1068120);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[2]

5.2.12 Wickens Underbridge (MVL3/29) shares a common design language with Heyrod Hall Overbridge (MVL3/7), Springbank Lane Overbridge (MVL3/9), Roughtown Road Overbridge (MVL3/17), Roughtown Road Overbridge (MVL3/17), Wright's Mill Overbridge (MVL3/20) and Wright's Overbridge (MVL3/23), all of which utilise the same architectural detailing and architectural articulation to the arch As a group, these bridges are substantially unaltered, and evidence Jee's characteristic finely detailed construction, with elegantly skewed stone soffits.

5.2.13 The group value which Wickens Underbridge (MVL3/29) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age of railway building (1825–41) more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it) as coherent features of a single historic route.

5.2.14 Masonry railway bridges across the historic Huddersfield & Manchester Railway route have been characterised as being of local or regional interest, depending on their architectural quality, contribution to wider historical interest of the route, and their group value (Alan Baxter and Associates, 2024). It has been noted in the Route Wide Statement of Significance, however that, as a group,

[2] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

they are not of substantial national interest due to their dating from a period of railway development when thousands of similar structures were erected (Alan Baxter and Associates, 2024).

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated heritage assets

5.3.2 There are no listed buildings present within 250m of Wickens Underbridge (MVL3/29).

5.3.3 Wickens Underbridge (MVL3/29) is located adjacent to the Uppermill Conservation Area, the boundary of which follows the base of the railway embankment to the east of the Transpennine route. The conservation area covers the core of the historic village of Uppermill and the Huddersfield Narrow Canal which runs parallel to the railway along the west edge of the village. Close to Wickens Underbridge (MVL3/29), the conservation area is characterised by the presence of residential buildings of 18th to 20th century date, lining Oldham Road, looking eastwards across the canal and river. The railway does not form a prominent feature in the setting of the conservation area in this locale, being set up a steep slope and largely screened by buildings and mature planting. Wickens Underbridge (MVL3/29) is screened by vegetation and buildings along the roadside and does not form a prominent or contributing element in the setting of the conservation area.

Non-designated heritage assets

5.3.4 The Greater Manchester Historic Environment Record (HER) records six non-designated heritage assets and 2 findspots within 250m of Wickens Underbridge (MVL3/29). These comprise:

- Station Brow, Diggle (stone heads) (9003.1.0) located c. 210 m to the south-east;
- 146 Carr Lane (stone head) (9017.1.0) located c.165 m to the east;
- Oldham Road (19032.1.0) located c.20 m to the east;
- Canal Lock 21W on the Huddersfield Narrow Canal (19036.1.0) located c.85 m to the north-east;
- Sacred Heart & St William Catholic Church (19046.1.0) located c.230 m to the north-east;

- K6 Telephone Kiosk (19045.1.0) located c.200 m to the north-east;
- Alexandra Mill (6108.1.0) located c. 210 m to the north-east; and
- Victoria Mill (6107.1.0) located approximately 200 m to the north-east.

5.3.5 2 Oldham Road (19032.1.0) is an early 20th century red brick villa designed in a classical revival style. Sited on the hillslope adjacent to the Transpennine route, the building is oriented to the east to enjoy views across the Tame Valley and form a formal and imposing structure on the approach to Uppermill. Whilst located in proximity to the Wickens Underbridge (MVL3/28), the underbridge does not contribute to the significance of 2 Oldham Road, due to its historic functional association with the railway and screening by vegetation in views to and from the asset.

5.3.6 Canal Lock 21W (19036.1.0), the Sacred Heart & St William Catholic Church (19046.1.0), K6 Telephone Kiosk (19045.1.0), Alexandra Mill (6108.1.0) and Victoria Mill (6107.1.0) are located between 150 m and 230 m from Wickens Underbridge (MVL3/29) within the built-up townscape of Uppermill. These assets do not enjoy a historic or visual relationship with the bridge and do not derive any contribution to significance from its presence.

5.3.7 The remaining records (9003.1.0 and 9017.1.0) comprises findspots of carved stone heads (9003.1.1), which have been removed and therefore do not contribute to setting.

6. PROPOSALS

6.1 Background of proposals

6.1.1 In order to achieve the TRU Programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. Works to the underbridges along the route are required to accommodate the resulting additional loadings on the structures resulting from increased line speeds and increased train loading.

6.1.2 Wickens Underbridge (MVL3/29) is currently understrength. As such, provisions to safeguard the structure ahead of the increase in line speed are required. The increased line speed and train loading will impose increased forces on the underbridge. Without mitigation, this has the potential to affect the structural condition of the underbridge. The proposed design has therefore been developed to address these considerations, whilst safeguarding the significance of the structure.

6.2 Design development and justification

6.2.1 Key constraints taken into consideration during the development of proposals for Wickens Underbridge (MVL3/29) comprised:

- Time required working within the railway corridor is required to be minimised as much as possible to reduce risk to construction staff and the length of line possession (closure of the railway) and resulting disruption to railway service.
- The bridge is location within an area characterised by dense vegetation. This constrains the accessibility of the site to construction vehicles and the delivery of materials/components.
- The designation of the bridge as a grade II listed structure places a requirement on Network Rail to have special regards for its preservation under the Planning (Listed Building & Conservation Areas) Act 1990.

6.2.2 During the ES3 design stage3, proposals for Wickens Underbridge (MVL3/29) considered only installing upgraded GRP Handrails. During ES4 design stage, a comprehensive review was undertaken of the preferred options identified at ES3 across the Route Section W2B as part of a validation exercise. At this time, the requirement for strengthening of Wickens Underbridge (MVL3/29) was identified and proposals for the structure developed. The proposals for these works have been developed to minimise intervention into the historic structure and alteration of its appearance as far as possible, whilst mitigating the impact of increased lien speed and heaver trains.

6.2.3 The proposals have been developed in consultation with Historic England and OMBC). This iterative and robust design process has been undertaken to minimise the extent of interventions to the grade II listed underbridge in order to maintain the existing appearance and significance of the structure.

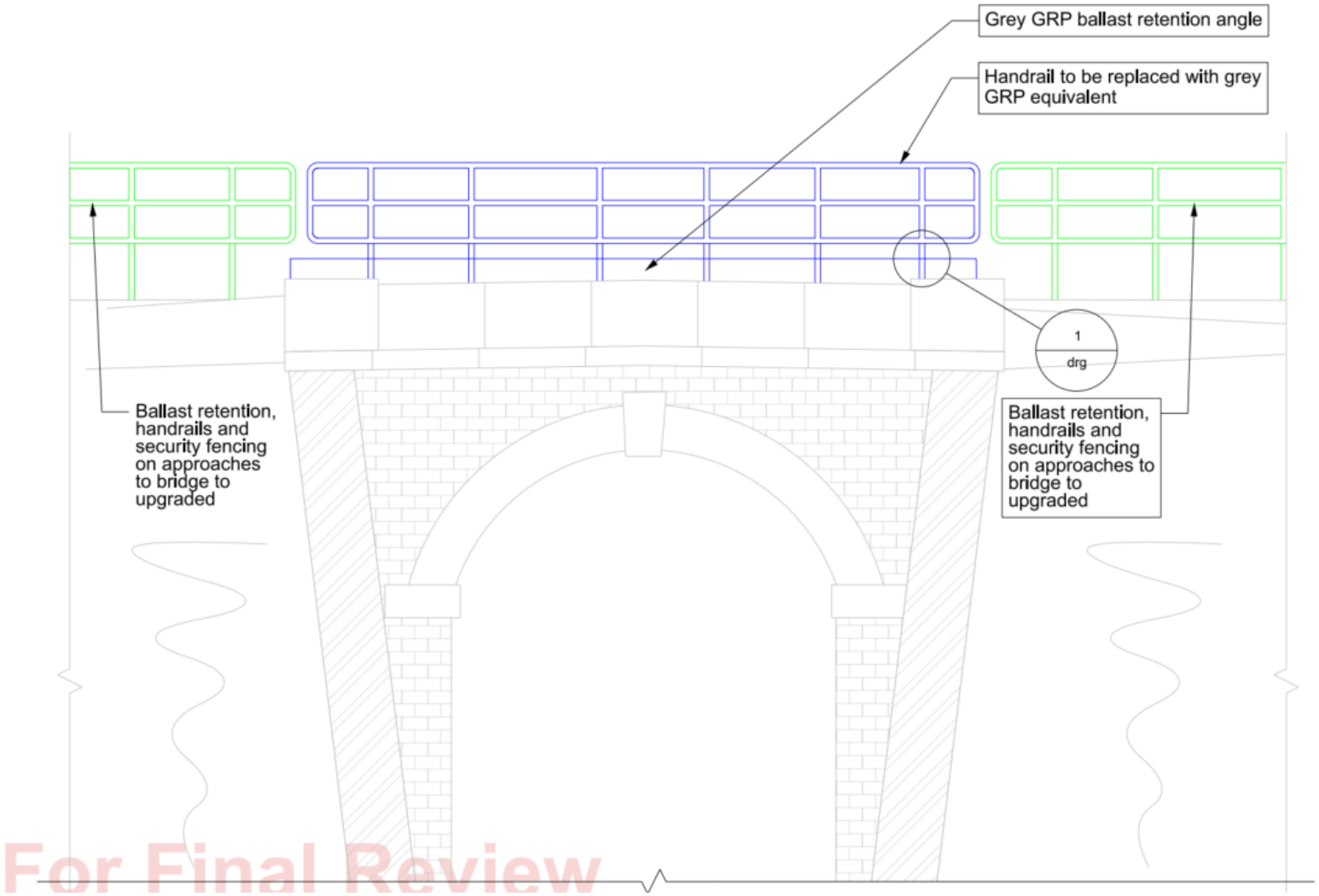
6.3 Description of proposals

6.3.1 In order to achieve the aims of the TRU programme it is necessary to re-align the track over Wickens Underbridge (MVL3/29), to increase ballast depth and to strengthen the structure to accommodate increased loading resulting from increased line speed and heavier trains (Insert 6-1 and Insert 6-2). It is also proposed to replace the existing modern handrail in compliance with Network Rail safety standards.

[3] The delivery of railway investment programmes is managed by Network Rail through the use of PACE (Project Acceleration in a Controlled Environment). This provides a flexible control framework for the delivery of rail projects. Under PACE, ES3 comprises optioneering and identification of a single design option, whilst ES4 is approval of design in principle.

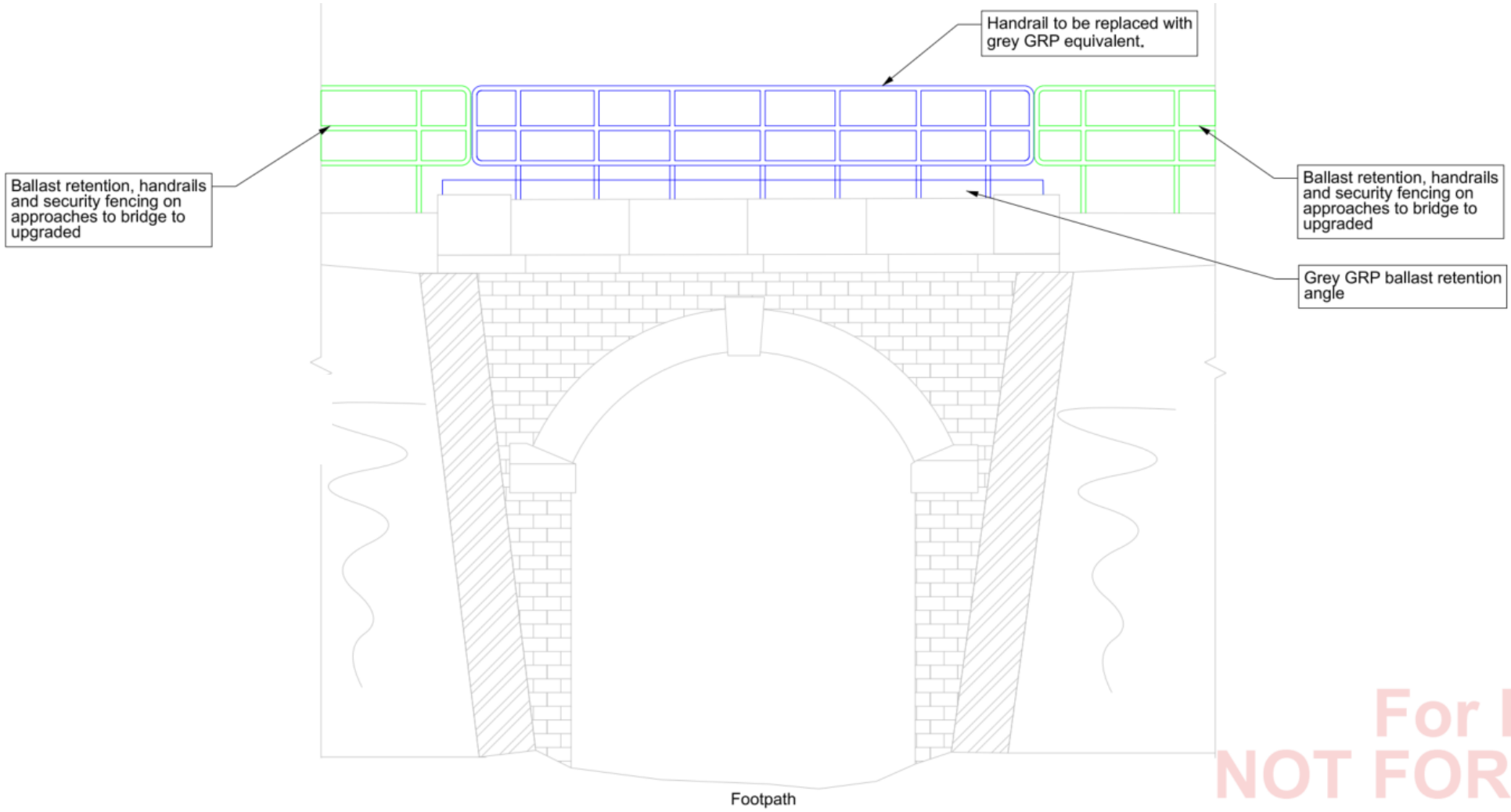
6.3.2 The alterations to the listed bridge would comprise the adjustment of the existing track bed on both railway lines to lean into the new line speed. Two precast reinforced 'L' units would be installed to the inside of the underbridge parapets, below ballast level. Grout infill to the rear of the precast reinforced units and sand/cement bedding underneath would secure these in place and would not require drilling into the stone parapet or the stone arch below. An in-situ concrete stitch would be installed between the precast reinforced units to help further secure these. These measures would enable the precast reinforced units to perform as a singular structural unit, increasing the strength of the structure and relieving the load from the existing parapets.

6.3.3 The existing tubular metal 'kee klamp' type barrier will be replaced with a grey tubular GRP which will be installed ahead of the electrification of the railway to comply with Network Rail safety standards. These will be attached to the structure by means of stainless steel anchors, resin-fixed into the stone. Holes from the existing fittings would be made good using mortar, colour-matched to the surrounding stone. This will not result in any appreciable visual change to the structure given that the new handrail will follow the same height as the existing.



For Final Review

Insert 6-1 Proposed East Elevation Wickens Underbridge (MVL3/29)



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Insert 6-2 Proposed west elevation Wickens Underbridge (MVL3/29)

Construction Methodology

6.3.4 The proposed works to Wickens Underbridge (MVL3/29) will comprise the following:

- Temporarily divert signalling and telecom (S&T) cables on top of the parapet.
- Install lateral restraint to outside of parapet if required.
- Remove track from the Up and Down line.
- Excavate ballast using tracked excavator
- Prepare sand/cement bed ahead of placing precast reinforced concrete units.
- Install precast reinforced units using tracked excavator.
- Fix precast reinforced units and install concrete stitch along centre of precast reinforced concrete units.
- Backfill in-situ grout to rear of precast reinforced units.
- Anchor GRP angle resin into concrete with stainless steel fixings to provide ballast retention.
- Reinstate ballast, S&T cables, and track.
- Replace handrails with GRP equivalent.

6.3.5 The proposed works to Wickens Underbridge (MVL3/29) are shown in the following drawings which accompany this application:

- Existing and Proposed Plan (167037-TGP-26-MVL3-DRG-T-LP-162902); and
- Existing and Proposed Elevation and Section (167037-TGP-26-MVL3-DRG-T-LP-162903).

7. IMPACT OF PROPOSALS

7.1 Wickens Underbridge (MVL3/29)

7.1.1 The proposed works to the grade II listed Wickens Underbridge (MVL3/29) are required in order to safeguard the structure ahead of the upgrade of the line as part of the TRU Programme. These works would result in permanent minor alterations to the underbridge due to the installation of precast reinforced units and new GRP handrails.

7.1.2 Though the installation of reinforced concrete strengthening to the bridge deck and parapets would result in a permanent addition to the underbridge, this would be located on the inside of the bridge deck and substantially below ballast level. The strengthening units would

be secured in place using grout infill and sand/cement bedding, avoiding the need to fix into the masonry parapets. Though these works would result in some minor intervention into the existing underbridge, it would enable for retention of the entire underbridge and would result in only slight physical impacts to the historic fabric.

7.1.3 The proposed reinforced concrete units have been sensitively and sympathetically developed to minimise visual impact on the listed underbridge. Whilst the majority of the precast reinforced concrete units would be located below ballast level on the bridge deck, the top portion of these would rise above the ballast along the inside elevation of the parapets and would be visible only from the bridge deck. These would, however, not be visible in views of the external bridge elevations. The design for the reinforced concrete units would retain the ability to appreciate the overall historic form, features and legibility of the underbridge which contributes towards its overall significance. Whilst the ballast retention angles would slightly protrude above the parapets, these would form very small elements in the elevations and would not be prominent or intrusive. Elements of interest recognised by Historic England, including the ashlar impost bands, voussoirs, rock-faced stonework and splayed wing walls, would be wholly retained and unaltered. Given the nature of these works, there would be very limited visual impact to the structure which would not detract from its aesthetic value.

7.1.4 The proposed works for the replacement of the existing modern handrails with new GRP handrails would result in some, albeit very light tough, localised physical impact to the masonry parapet. Whilst the handrail will be doweled into existing fixing locations where possible, additional cores into the masonry parapet may be required to fix the new handrail into place. Where existing cores are not used, these will be infilled with mortar, colour-matched to the surrounding fabric to makes good these areas. These works will have negligible visual impact as the new handrails would match existing, maintaining the current appearance of the bridge.

7.1.5 Wickens Underbridge (MVL3/29) derives significance from its association with the historic railway and engineer A.S. Jee, its construction within the Heroic Age (1841-1850) of railway building, and the quality of its architectural design. Though these works would introduce contemporary materials, they would result in only slight physical and visual changes which would not detract from its design, which is a major contributing factor to its significance. Following the implementation of proposals, the historic value derived from associations with the Heroic Age of railway building and, A.S. Jee would continue to be understood and continue to contribute towards the underbridge's overall significance.

7.1.6 Wickens Underbridge (MVL3/29) does not derive particular significance from its setting, save for its relationship with the historic operational railway. The proposed works would not result in any appreciable change to the relationship between the underbridge and the railway.

7.1.7 Wickens Underbridge (MVL3/29) also derives significance from its group value with other A.S. Jee structures which share a common design language identifiable across parts of the Huddersfield & Manchester Railway, and particularly Heyrod Hall Overbridge (MVL3/7), Springbank Lane Overbridge (MVL3/9), Roughtown Road Overbridge (MVL3/17), Roughtown Road Overbridge (MVL3/17), Wright's Mill Overbridge (MVL3/20) and Wright's Overbridge (MVL3/23). The proposed works would not have any impact on the ability to appreciate its group value given that the historic form, architectural quality of Jee's design and contribution as part of the historic railway would not be impacted. The proposals have been devised with an appreciation for their group value by ensuring the appearance of the new precast reinforced units and GRP handrails are sensitively incorporated into the historic underbridge.

7.1.8 The proposals would therefore result in less than substantial harm at the lower end of the scale as stated in the pre-application advice provided by Historic England on 29 November 24.

7.2 Other heritage assets

7.2.1 Due to the minor nature of the works, the proposals would not result in any impact to any surrounding non-designated heritage assets

7.2.2 The Uppermill Conservation Area is located to the east of Wickens Underbridge (MVL3/29). However, it is not anticipated that these works would have an impact on the character and appearance of the conservation area given that it is significantly screened, and the underbridge does not contribute to its setting, character or appearance.

7.3 Mitigation

7.3.1 The design proposals have been developed to minimise impacts on the fabric, form and appearance of Wickens Underbridge (MVL3/29). This has been achieved through the design development, undertaken in consultation with Historic England and OMBC. Measures incorporated into the design to mitigate impacts on the significance of the underbridge include:

- Ensure the continued viable use of the structure as a part of the TRU network, and to safeguard it ahead of the electrification of the railway.
- Placement of precast reinforced units on the inside of the bridge deck to minimise visual and physical interventions into the historic structure.
- Replace the current modern handrails to match the appearance of the existing fittings.

7.3.2 In addition to these measures, Toolbox Talks would be undertaken in advance of construction works to Wickens Underbridge (MVL3/29). These talks would disseminate best practice for reducing potential impacts in relation to construction activities, for example to help avoid accidental damage.

Recommended compensation

7.3.3 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 1 in accordance with Historic England guidance (Historic England, 2016). This would provide a permanent record of Wickens Underbridge (MVL3/29) in its current form and would be lodged with the Greater Manchester Historic Environment Record.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Wickens Underbridge (MVL3/29). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public Benefit

7.4.1 The works proposed to be undertaken to Wickens Underbridge (MVL3/29) are required to ensure the realisation of the substantial public benefits of the Order Scheme.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of

England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight, reducing the number of heavy vehicles on the highway network and associated air pollution. The completion of the proposed works to strengthen Wickens Underbridge (MVL3/29), would contribute towards delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including Wickens Underbridge (MVL3/29), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed works to Wickens Underbridge (MVL3/29) would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four 'express', two 'semi-express' services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in 'greener' energy technology. This supports Network Rail's Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the works to Wickens Underbridge (MVL3/29).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021. These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Wickens Underbridge (MVL3/29) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Wickens Underbridge (MVL3/29) lies primarily in its historic and architectural interest. The underbridge is a largely unaltered example of a masonry underbridge dating to the Heroic Age (1841-1850) of railway building. The underbridge derives significance from its direct historic relationship with the notable railway engineer A.S. Jee and the historic railway companies namely the Huddersfield & Manchester Railway and LNWR. The high quality of the underbridge's architecture together with the quality of workmanship, are characteristic of A.S. Jee's work recognised across the wider Huddersfield & Manchester Railway. It also retains group value as one of a number of A.S. Jee structures on the Transpennine route which share a common design language.

8.1.2 The proposals for strengthening Wickens Underbridge (MVL3/29) have been developed and undertaken in consultation with Historic

England and TMBC and have been developed to minimise the impact on the listed underbridge as far as possible. Special regard has been given to the desirability of preserving or enhancing the structure or its setting or any features of special architectural or historic interest which it possesses. The proposals therefore comprise:

- Strengthening of the bridge through installation of precast reinforced units to the inside of the ridge parapets, below ballast level;
- Attachment of parapet blocks by steel dowels; and
- Replacement of the existing kee-clamp handrail with new GRP handrails.

8.1.3 These works will result in minor alteration of the structure and will preserve key aspects that contribute to its overall significance including its architectural quality, detailing and construction. Whilst the proposals would introduce modern materials into the historic structure, these works have been developed to be as visually unobtrusive as possible. Additionally, the group value of Manchester Road Underbridge (MVL3/10) with other A.S. Jee bridges for the Huddersfield & Manchester Railway would be maintained.

8.1.4 The proposals would result in less than substantial harm to the significance of the Wickens Underbridge (MVL3/29) at the lower end of the scale, as defined under paragraph 215 of the NPPF. These impacts are necessary in order to deliver the TRU programme, and would enable the achievement of key improvement objectives as outlined in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity).
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution)
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy.
- Improving public health and safety in providing safe routes across the railway.

8.1.5 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.6 These substantial public benefits would outweigh the less than substantial harm to the significance of the Wickens Underbridge (MVL3/29). These proposals therefore meet the requirements of the NPPF (paragraph 215) in relation to the justification for less than substantial harm. The proposals would also satisfy the requirements of Policy 24 of the Oldham Local Development Framework in relation to the impact on the character of the listed building, and preservation of its architectural style and features. It would also satisfy Policy JP-P2 contained within Greater Manchester Combined Authority's Places for Everyone (2024). The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to the significance of Wickens Underbridge (MVL3/29).

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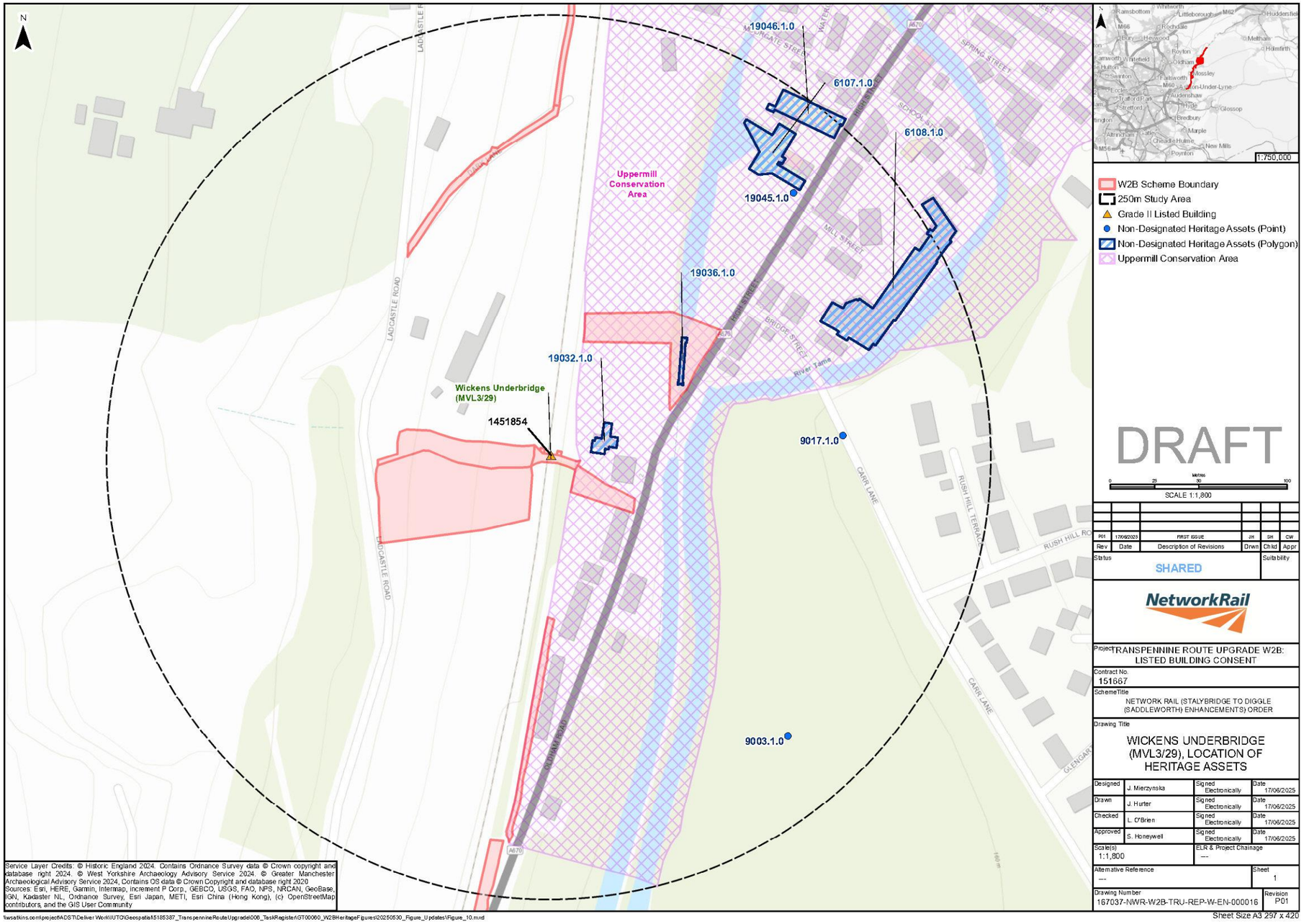
APPENDIX A – LOCATION PLAN



APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1451854
Date first listed:	23-Mar-2018
List Entry Name:	Railway accommodation underbridge MVL3/29, Wickens
Location Description:	Oldham Road, Wickens, Upper Mill.

Location

The building or site itself may lie within the boundary of more than one authority.

District:	Oldham (Metropolitan Authority)
Parish:	Saddleworth
National Grid Reference:	SD9946505410

Summary

Accommodation underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.

Reasons for Designation

The accommodation underbridge MVL3/29, Wickens, constructed in the mid-late 1840s by A S Jee for the Huddersfield & Manchester Railway, is listed at Grade II for the following principal reasons:

Historic interest:

* constructed during the heroic age of railway building and a little altered example of an 1840s accommodation underbridge on what is now one of the main railway lines in northern England;

* designed by the notable railway engineer Alfred Stanistreet Jee.

Architectural interest:

* as a well-designed bridge, with good quality stone masonry and attention to architectural detail in its use of picked and tooled, v-jointed voussoirs with larger keystones, ashlar impost bands, parapets, coping and soffit and contrasting rock-faced stonework of the spandrels, abutments and raked and splayed wing walls which all lift it above the purely functional.

Group value:

* architecturally inter-related with the other listed structures designed by A S Jee on the Huddersfield & Manchester line.

History

In contrast to the main trunk lines of the late 1830s that were constructed by single railway companies, the route from Stalybridge to Leeds had fragmented origins and was the work of three different railway companies: the Huddersfield & Manchester Railway, Leeds, Dewsbury & Manchester Railway, and the Manchester & Leeds Railway.

The Huddersfield & Manchester Railway was authorised in 1845 and followed the route of the Huddersfield Narrow Canal for much of its length, including a railway tunnel through the Pennine hills set alongside the earlier Standedge Canal Company tunnel of 1811; in 1846 the railway company also acquired the canal. Joseph Locke and Alfred Stanistreet Jee were appointed to survey and design the new line, the two engineers having already worked

together on a major project linking Manchester and Sheffield. Jee became the lead engineer for the Huddersfield line, which passed through challenging terrain, assisted by resident engineers that included his brother Moreland Jee (until 1848) and Herbert F Mackworth. Construction of the line was divided into various contracts, with many contractors being only responsible for a single cutting, viaduct or tunnel portal. The largest contract for the Standedge Tunnel between Diggle and Marsden was let to a single contractor, Thomas Nicholson in 1847. The tunnel's completion in 1849 marked the opening of the line.

The Leeds end of the route, which was also authorised in 1845, was constructed by the Leeds, Dewsbury & Manchester Railway. The engineer was Thomas Grainger who had previously largely worked in Scotland, and the line was completed in 1849.

A short three-mile section of the route between Heaton Lodge Junction and Thornhill Junction near Mirfield was developed by the Manchester & Leeds Railway and was constructed between 1837 and 1840, with George Stephenson as the chief engineer. The structures on this line were designed by Thomas Gooch under the oversight of Stephenson. In 1847 the railway company changed its name to the Lancashire & Yorkshire Railway.

In 1847 the Huddersfield & Manchester Railway and the Leeds, Dewsbury & Manchester Railway were acquired by the London & North Western Railway (LNWR) so that the company could access the city of Leeds and the textile towns of West Yorkshire. This pitted them as rivals to the Lancashire & Yorkshire Railway, although at points on the route the two companies had to work together. By 1851 the London & North Western Railway had an overall mileage of railway track of 800 miles and it became the most prominent railway company in the country and the largest joint-stock concern in the world in the late C19. Although the LNWR had a general manager, Captain Mark Huish, the lines of the Stalybridge to Leeds route still managed their own affairs. LNWR later carried out expansion works, including the widening of tracks and bridges, the construction of additional tunnels, and station alterations. In 1923 the line became part of the London Midland & Scottish Railway, and subsequently part of the nationalised British Railways in 1948. The line, its structures and track are currently (2018) owned by Network Rail, and the passenger services operated by TransPennine Express and Northern Rail.

This underbridge accommodates a track beneath the railway line. It was designed by A S Jee and dates to the construction of the Huddersfield & Manchester Railway between 1845 and

1849 (the railway line is shown on the first edition 1:10,560 OS map surveyed between 1849 and 1851 and published in 1854.)

Details

Accommodation underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.

MATERIALS: rock-faced and ashlar sandstone (shale grit/Kinderscout grit/millstone grit).

DESCRIPTION: the accommodation bridge carries the two-track railway line over a footpath which slopes down to the south. The bridge has deep, segmental arches with v-jointed voussoirs of picked ashlar with tooled margins and slightly projecting, taller keystones with diagonal tooling. They spring from a similarly detailed, ashlar impost band. The bridge abutments and spandrels are of coursed, rock-faced stone blocks and the bridge soffit is of smaller, coursed, ashlar blocks. The ashlar parapets have a slightly projecting, square-moulded band with deeper panels above. The raked and splayed wing walls terminate in slightly projecting, rectangular piers and are of coursed, rock-faced stone blocks with square-moulded ashlar coping.

Sources

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APPENDIX C: HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

29 November 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meetings on 6 and 21 November 2024 to review the proposals for bridges MVL3/9, 10, 23, 25, 26, 28, 29 and 31. As before, it was helpful to see the drawings in advance and then talk through the proposals with the team.

The impacts of the proposed changes and our comments are detailed below:

Proposals at *Manchester Road underbridge MVL3/10*, *Shaw Hall Bank Road underbridge MVL3/26* and *Wickens underbridge MVL3/29* will involve minor works, consisting of renewal of railings and strengthening of parapets with reinforced concrete. Visually, there will be only a minor impact, as the replacement railings are similar to the existing and the concrete strengthening will be hidden from view by the parapets. There will be a very low level of less than substantial harm to the physical fabric of the bridges due to the new railings being grouted into cored holes in the masonry parapet blocks. We do not have concerns over the works at these three bridges and recognise the efforts to maintain the visual appearance on the bridges.

The proposals for *Spring Bank Lane overbridge MVL3/9* and *Uppermill Viaduct MVL3/31* have been discussed at previous meetings, and it was helpful to see further details of the works at these structures. There will be a low level of less than substantial harm to *Spring Bank Lane overbridge* due to the introduction of raised copers, however the use of colour-matched concrete here will help to mitigate some of the harm caused by the visual impact of the new copers. Works to *Uppermill Viaduct* will likewise lead to a low level of less than substantial harm due to the introduction of brackets to support the OLE portals which will have an impact both physically and visually. We appreciate that care has been taken in the spacing of these portals so the rhythm of the bridge arches is not unduly interrupted, and so that the pattress plates are not affected.

More considerable impacts will result from proposals at *Wright's overbridge MVL3/23*, *Oaklands Road underbridge MVL3/25* and *Oldham Road overbridge (Greenfield*

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
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Historic England

Station) MVL3/28, all of which will result in substantial harm to the significance of the designated assets.

As mentioned in previous letters, the removal of *Wright's Overbridge* will cause substantial harm to its significance through the total loss of its historic form and all original fabric, and through the re-routing of a historic public footpath. Thorough justification will need to be presented in the supporting documentation to provide the reasoning for the total loss of this bridge.

The proposed reconstruction of *Oldham Road Overbridge* has also been discussed previously. This is a skew overbridge located on the north-east side of Greenfield Station which carries Oldham Road over the track below. The bridge currently has a masonry arch which will be dismantled, along with much of the approaching wing walls, resulting in very little historic fabric being retained. The works will also necessitate the removal of the ornate historic iron railway footbridge. There will be substantial harm to the significance of the listed asset due to the severity of changes to its physical appearance and the loss of historic fabric. We recognise that some fabric will be retained for reuse as cladding material, however this will need to be carefully managed to maintain the look of the structure. The stone coursing in the existing bridge runs through the parapets into the wing walls. We would like to see care taken to replicate this effect within the reconstructed bridge to avoid a disjointed appearance to the new structure, which could arise from using mismatched stone-cladded panels. The existing bridge features flat masonry pilasters that project slightly from the bridge to either side of the arch. These have not been articulated in the proposed design and we would like to see further investigation into whether they could be incorporated into the design. This location would be suitable for display of permanent interpretation materials which could help to mitigate some of the harm by informing the public about the history of the route and the upgrade works.

Oaklands Road underbridge MVL3/25 is a skew girder bridge carrying the two-track railway line over a bend in the road below. The angled abutments have distinctive semi-octagonal piers, and the parapets are ornate balustrades of decorative cast-iron panels of Gothic arcading. The craftsmanship of the stonemasonry and attention to architectural detail lifts the design of this bridge above the purely functional and it has considerable architectural interest. There will be substantial harm to the significance of this listed bridge resulting from the proposals to reconstruct and widen the bridge deck and to rebuild the octagonal piers. In order to minimise the harm, the design of the rebuilt piers and abutments will need to be careful managed to ensure there is meaningful articulation of the distinctive shape of the piers. This includes the contrasting shape and dimensions of the piers where they extend through and above the parapet. We are comfortable with the proposals to replicate the decorative cast-iron panels to minimise the visual impact of the loss of the original fabric here.

Next Steps

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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We look forward to our continued involvement in the pre-application discussions for this scheme.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, October 2024

MVL3/25 Presentation, November 2024

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
HistoricEngland.org.uk

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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
Telephone 0161 242 1416
HistoricEngland.org.uk

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Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

SUITES 3.3 AND 3.4 CANADA HOUSE 3 CHEPSTOW STREET MANCHESTER M1 5FW
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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: Uppermill Viaduct (MVL3/31) - Heritage Statement

Rule 10(6)(d)

Author	Network Rail
Date	October 2025
Document Reference	167037-NWR-W2B-TRU-REP-W-EN-000027
Revision Number	Revision 1 – Final

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CONTENTS

1. INTRODUCTION 1
1.1 Transpennine Route Upgrade 1
1.2 Scope 2
1.3 Current Condition 3
1.4 Summary of Proposal 4
2. LEGISLATION AND POLICY CONTEXT 5
2.1 Legislation 5
2.2 National Policy 6
2.3 Local planning policy 9
3. ASSESSMENT METHODOLOGY 15
3.1 Research 15
3.2 Significance and setting 15
4. CONSULTATION 16
5. HERITAGE ASSETS AND THEIR SIGNIFICANCE 23
5.1 History of the W2B Transpennine Route 23
5.2 Uppermill Viaduct (MVL3/31) 25
5.3 Surrounding heritage assets 41
6. PROPOSALS 44
6.1 Background of proposals 44
6.2 Design development and justification 45
6.3 Development of Preferred Option 47
6.4 Description of proposals 50
7. IMPACT OF PROPOSALS 53
7.1 Uppermill Viaduct (MVL3/31) 53
7.2 Other heritage assets 55

7.3 Mitigation 55

7.4 Public benefit 56

8. CONCLUSION 58

9. REFERENCES 60

Appendix A – Location Plan 62

Appendix B – National Heritage list description 63

Appendix C - Historic England Pre-application Response Letter 64

List of Tables

Table 4-1 Consultation for Uppermill Viaduct (MVL3/31) 16

Table 6-1 OLE placement optioneering for Uppermill Viaduct (MVL3/31). 46

Table 6-2 Optioneering for placement of OLE portals 48

List of Inserts

Insert 1-1 Uppermill Viaduct (MVL3/31), viewed from the south. 3

Insert 1-2 Example of a typical vertical fracture in one of the arch piers. 4

Insert 1-3 Example of typical vegetation around one of the downpipe hoppers. 4

Insert 5-1 Ordnance survey County Series 1854 Map 27

Insert 5-2 Landscape painting by James Carse (1859) of the River Tame Valley, featuring Uppermill Viaduct (MVL3/31). 28

Insert 5-3 County Series Map 1890-92 28

Insert 5-4 Uppermill Viaduct (MVL3/31) viewed from the canal to the north-west with Lock 23 of the Huddersfield Narrow Canal visible in the foreground. 29

Insert 5-5 Uppermill Viaduct (MVL3/31) viewed from the canal from the south-east. 30

Insert 5-6 Deck of Uppermill Viaduct (MVL3/31), viewed from the southern end of the structure, showing parapets 32

Insert 5-7 View of typical span detailing on the western elevation of the Uppermill Viaduct (MVL3/31) 34

Insert 5-8 Placement of Concrete reinforcement added in 1919 to Uppermill Viaduct (MVL3/31) from an archival drawing held by Network Rail. 35

Insert 5-9 View of Uppermill Viaduct (MVL3/31) from the Brownhill Nature Garden to the north, showing an example of a restricted view of the structure. 35

Insert 5-10 View of Uppermill Viaduct (MVL3/31) from Wool Road. 36

Insert 5-11 Uppermill Viaduct (MVL3/31), eastern elevation viewed from Den Lane. 36

Insert 5-12 Uppermill Viaduct (MVL3/31) and tail bridge No.75 (NHLE 1356719) on the Huddersfield Narrow Canal showing their close relationship and use of skew arch. 37

Insert 6-1 Pier location and location Optioneering for placement of OLE portals 48

Insert 6-2 Detail of typical OLE fixing bracket showing avoidance of pattress plate and drainage pipe. 49

Insert 6-3 Proposed east elevation of Uppermill Viaduct (MVL3/31) showing the proposed spacing of OLE. 51

Insert 6-4 Proposed west elevation of Uppermill Viaduct (MVL3/31) showing proposed spacing of OLE. 51

Insert 6-5 Visualisation of OLE portals at Uppermill Viaduct (MVL3/31) from pedestrian perspective 52

Insert 6-6 Visualisation of OLE Portals at Uppermill Viaduct (MVL3/31) from an aerial perspective 52

1. INTRODUCTION

1.1 Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound program of improvements to increase capacity, improve journey time and reliability performance of rail services on the Transpennine Route.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 42-44mins;
- An improved journey time for York to Manchester Victoria of 65-67mins;
- Capability to operate four 'express' and two 'semi-express' services an hour;
- Capability to operate up to two 'local services' an hour on the route;(subject to future operating timetables);
- Performance of the Transpennine Route to be 92.5% or higher each period;
- Larger freight containerisation capability (W12 gauge);
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail's Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the "Order Scheme"). This section of the Transpennine route is referred to hereafter as Route Section W2B

1.1.4 The TRU programme in Route Section W2B involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure); reconstruction and modification of existing bridges to facilitate electrification of the railway, construction of a new station at Mossley, closure of Stockport Road Level Crossing and Moorgate Halt Level Crossing, railway works at Greenfield Station to support the upgrade and electrification of the railway track reconfiguration works and track lowering works through Stalybridge and Scout Tunnels.

1.1.5 Under the Planning (Listed Buildings and Conservation Areas) Act 1990, consent is required from the local planning authority for any proposed works that would affect the character of a listed building.

The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to "call-in" for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.1.6 This Heritage Statement has been compiled in support of an application for listed building consent by Network Rail in respect of the proposed works on the grade II listed Uppermill Viaduct (MVL3/31) (NHLE 1068120). This bridge is located in Uppermill (NGR SD 99579 06310), Oldham. A location plan is provided in Appendix A.

1.1.7 The preparation of this assessment has been informed by the Statement of History and Significance: West of Leeds (Alan Baxter Associates 2024) and the Route-wide Statement of Significance (Alan Baxter Associates 2019).

1.2 Scope

1.2.1 The requirement for assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF, 2025) specifically paragraph 207, which seeks an assessment proportionate to the importance of the affected heritage asset sufficient to understand the potential impacts of development. The specific scope of this assessment is determined by Network Rail's requirement to provide an objective assessment of the heritage value of assets that may be affected by the Order Scheme, and to appraise the nature and extent of any impact upon setting and significance.

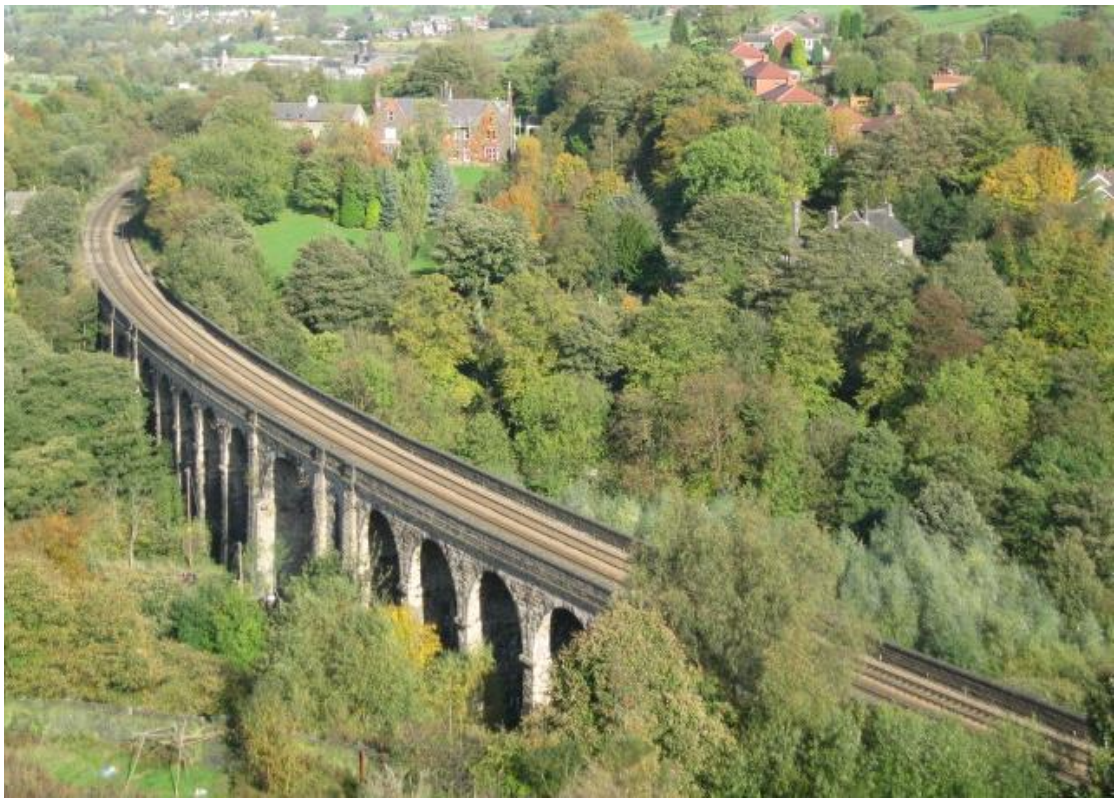
1.2.2 This Heritage Statement will:

- Identify and discuss the heritage significance of the listed structure, including the contribution of setting;
- Present the design requirements of the Order Scheme at the structure;
- Present the process of development and optioneering which has led to the design proposal for the Order Scheme in relation to the structure;
- Identify the impacts of the design proposal on the significance of the structure, in the context of current national and local planning policy and guidance;

- Discuss any mitigation recommended in relation to the structure; and
- Consider the public benefits to be gained from the Order Scheme weighed against the impact on the significance of the structure, in line with the National Planning Policy Framework, 2025 and the Oldham Local Development Framework (2011).

1.3 Current Condition

1.3.1 Uppermill Viaduct (MVL3/31) (Insert 1-1) is a mid to late 1840s masonry viaduct of 23 spans, designed by Alfred Stanistreet (A.S.) Jee for the Huddersfield & Manchester Railway. It carries the Transpennine railway across the River Tame valley to the north-west of the settlement of Uppermill, located c. 7km east of Oldham, Greater Manchester. The structure spans the A370 High Street, Den Lane and Brownhill Lane, as well as the watercourses of the Huddersfield Narrow Canal and the River Tame.



Insert 1-1 Uppermill Viaduct (MVL3/31), viewed from the south.

1.3.2 The structure was subject to a detailed examination as part of Network Rail's maintenance regime in November 2011, which identified that the viaduct is in an overall fair condition. A more recent visual inspection in March 2020 identified no change in the overall condition

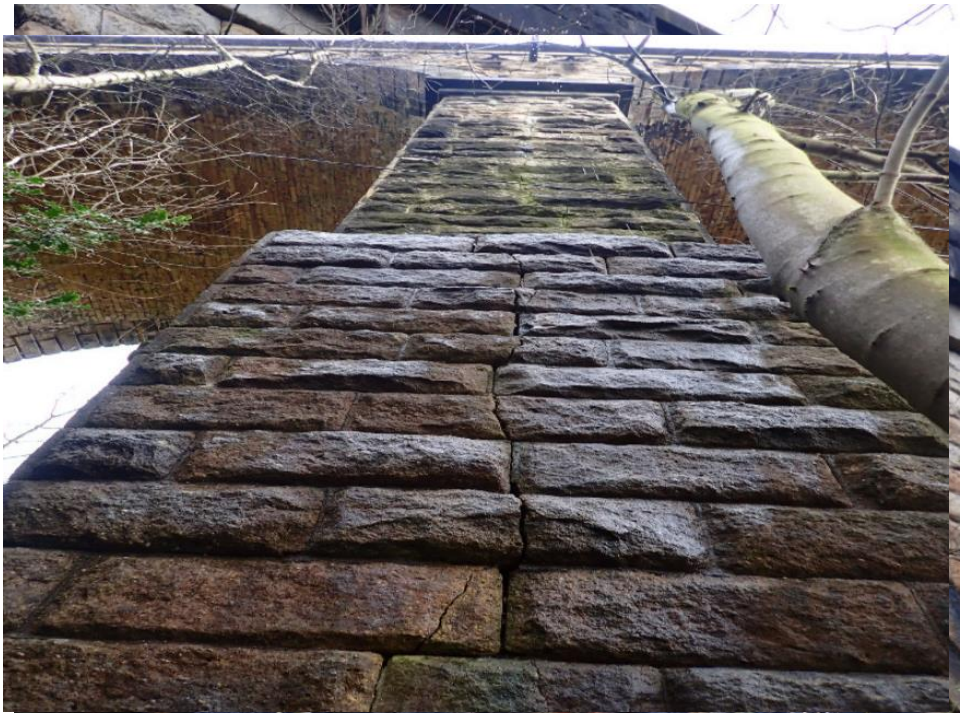
of the structure since the detail inspection. A number of small defects were identified, including:

- Open joints in the masonry elevations;
- A number of small vertical and transverse fractures in piers and buttresses (Insert 1-2);
- Vegetation infiltrating through spandrel walls and parapets (Insert 1-3);
- Isolated examples of displacement or dropped masonry in some arch barrels and buttresses; and
- Minor corrosion of pattress plates.

1.4 Summary of Proposal

1.4.1 In order to achieve the TRU Programme objectives, electrification of the Route is required. This would require the alteration of a number of existing structures, including Uppermill Viaduct (MVL3/31), in order to accommodate OLE, higher line speed and increased freight trains. It has been determined to be necessary to undertake works to Uppermill Viaduct (MVL3/31) in order to accommodate provisions for OLE portals. These works will therefore enable implementation of the Order Scheme.

Insert 1-2 Example of a typical vertical fracture in one of the arch piers.



Insert 1-3 Example of typical vegetation around one of the downpipe hoppers.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

2.1.1 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) (the "Act") governs the designation and works to listed buildings in England.

2.1.2 The Act states in s.1 (5):

'In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—

a. any object or structure fixed to the building;

b. any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'

2.1.3 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

1) 'Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.

2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses.

3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'

2.1.4 In relation to the granting of listed building consent, Section 17 of the Act stipulates that conditions attached to listed building consent may include those with respect to:

a) 'the preservation of particular features of the building, either as part of it or after severance from it;

b) the making good, after the works are completed, of any damage caused to the building by the works; [and]

c) the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.

2.1.5 It is also defined in s.17 (2) that a condition '*may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'*.

2.1.6 The Act also states in s.66 (1):

'In considering whether to grant planning permission or permission in principle for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving or enhancing the building or its setting or any features of special architectural or historic interest which it possesses'.

2.1.7 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) also governs duties of the local planning authority relating to conservation areas, particularly Sections 69, 72 and 74.

2.1.8 Section 69 requires local planning authorities to define as conservation areas any '*areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance'*.

2.1.9 Section 72 confers a general duty '*with respect to any buildings or other land in a conservation area… special attention shall be paid to the desirability or preserving or enhancing the character or appearance of that area*'.

2.1.10 Section 74 defines that demolition of a building in a conservation area is not permitted 'without the *consent of the appropriate authority'.*

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF, 2025) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development, supported by the Planning Practice Guidance (updated July 2019) (MHCLG, 2019).

2.2.2 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective '*to protect and enhance our natural, built and historic environment*'. Paragraph 9 sets out that these objectives should be delivered

through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals specifically with the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance

2.2.3 The following paragraphs as set out in the NPPF include key provisions considered of particular importance to this application:

- Paragraph 207 – '*In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance*.'
- Paragraph 212 – '*When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance*.'
- Paragraph 213 – '*Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of:*

    a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;

    b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.'*

- Paragraph 214 – '*Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss, or all of the following apply*:

    a) the nature of the heritage asset prevents all reasonable uses of the site; and

b) no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and

c) conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and

d) the harm or loss is outweighed by the benefit of bringing the site back into use.'

- Paragraph 215 – '*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use*.'
- Paragraph 216 – '*The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgment will be required having regard to the scale of any harm or loss and the significance of the heritage asset*.'
- Paragraph 219 **–** ***'Local planning authorities should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably***.'
- Paragraph 220 **–** ***'Not all elements of a Conservation Area or World Heritage Site will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World Heritage Site should be treated either as substantial harm under paragraph 214 or less than substantial harm under paragraph 215, as appropriate, taking into account the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole***.'

Planning Practice Guidance

2.2.4 The Planning Practice Guidance (PPG) (MHCLG, 2019) provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making. The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the

heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).

2.2.5 The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.2.6 The extent and importance of setting is often expressed by reference to visual considerations. Although views of or from an asset will play an important part, the way in which an asset is experienced in its setting is also influenced by other environmental factors such as noise, dust and vibration from other land uses in the vicinity, and by our understanding of the historic relationship between places.

2.2.7 Paragraph 013 of the PPG recognises that the contribution that setting makes to the significance of the heritage asset does not depend on there being public right or the ability to experience that setting. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may also need to consider the implications of cumulative change (Paragraph: 013 Reference ID: 18a-013-20190723 Revision date: 23 07 2019).

2.2.8 In relation to substantial harm, the PPG states that 'it is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed' (paragraph 017). Harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.3 Local planning policy

<u>Oldham Local Development Framework</u>

2.3.1 Local planning policy for Oldham is provided by the Joint Core Strategy and Development Management Policies of the Oldham Local Development Framework, adopted in November 2011, and a small number of retained policies from the Unitary Development Plan (2009).

2.3.2 Policy 24 of the Local Development Framework relates to the Historic Environment and is reproduced in full below:

Policy 24 Historic Environment

'Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

- *National and local guidance and policies on the historic environment.*
- *Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.*
- *Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.*
- *Conservation Area Appraisals and Management Plans, where appropriate.*

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

- *Listed buildings.*
- *Conservation areas.*
- *Registered parks and gardens (their historic character and setting).*
- *Scheduled ancient monuments (their archaeological value and interest).*
- *Significant archaeological remains.*

a. Locally significant buildings, structures, areas or landscapes of architectural or historic interest (including non-designated locally significant assets identified in the local lists compiled by the council).

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional. Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.*

Conservation Areas

Development within or affecting the setting of a conservation area, including views in or out, must serve to preserve or enhance the character or appearance of the area. Proposals for all new development, including alterations and extensions to buildings and their re-use, must have a sensitive and appropriate response to context and good attention to detail. Proposals must not adversely affect important architectural or historic features or distinctive local features or structures unless it can be demonstrated that the development brings substantial benefits to the community. Proposals for the demolition of a building in a conservation area must demonstrate that it is unrealistic for the building to continue in its existing use and a suitable alternative use cannot be found, or the building is in poor structural condition and the cost of repairing and maintaining it would be disproportionate to its importance and value and the demolition would preserve or enhance the character or appearance of the conservation area. In exceptional circumstances, the fact that a demolition would bring substantial benefits to the local community may outweigh the balance in favour of the preservation of the building.

Registered Parks and Gardens

Development which would lead to the loss of, or cause harm to, the historic character or setting of any part of registered park and garden will not be permitted.

Scheduled Monuments

Development which would lead to the loss of, or cause harm to, scheduled ancient monuments should be wholly exceptional.

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

Significant archaeological remains.

Locally significant buildings, structures, areas or landscapes of architectural or historic interest'.

Places for Everyone

2.3.3 Places for Everyone (Greater Manchester Combined Authority 2024) is a joint development plan covering nine Greater Manchester districts including Oldham, setting out a framework for sustainable development. Policy JP-P2 concerns Heritage and is of relevance to this assessment:

Policy JP-P2: Heritage

We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place.

Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This

knowledge should be used to inform the positive management and integration of our heritage by:

1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*

2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*

3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value. Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy. Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's

heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan. Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.

Historic England Guidance

2.3.4 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 – Managing Significance in Decision-taking (Historic England, 2015), GPA3 – The Setting of Heritage Assets (Historic England, 2017), and AN12, Statements of Heritage Significance (Historic England, 2019).

2.3.5 GPA2 – Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the 'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its significance' (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.6 GPA3 – The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.7 AN12, Statements of Heritage Significance outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of NPPF. It includes a suggested reporting structure for a 'Statement of Heritage Significance', as well as guidance on creating a statement that is proportionate to the asset's significance

and the potential degree of impact of a proposed development. The AN also offers an interpretation of the various forms of heritage interest that an asset can possess, based on the terms provided in the NPPF Glossary (Annex 2); namely archaeological, architectural, artistic, and historic.

3. ASSESSMENT METHODOLOGY

3.1 Research

3.1.1 In accordance with Historic England guidance and as determined by policy requirements, this assessment identifies the baseline heritage interest of Uppermill Viaduct (MVL3/31). The historical narrative informing the baseline has been derived from a review of various resources including maps and other cartographic and photographic sources. Statutory information in relation to the designated assets has been obtained from the National Heritage List for England maintained by Historic England and the Historic Environment Record maintained by Greater Manchester Archaeology Advisory Service.

3.1.2 Additional information concerning the assets, their condition, use and setting has been obtained from a survey undertaken by suitably qualified and experienced heritage specialists on 21 and 22 May 2024, including observation from surrounding vantage points and informed by appraisal and observation derived from close working with other disciplines within the project team. A site visit was undertaken on 1 July 2024 with a Landscape and Visual specialist to assess potential visual impacts of electrification across the viaduct.

3.2 Significance and setting

3.2.1 Assessment of the significance of heritage assets and their setting has been undertaken in consideration of guidance issued by Historic England. A methodology for the assessment of significance of heritage assets is outlined in Advice Note 12 (Historic England, 2019) whilst Historic England GPA3 (Historic England 2017a) provides the basis of a methodology for the assessment of setting.

3.2.2 Significance is often established by statutory designations such as listed buildings, scheduled monuments and conservation areas. More particular advice as to what makes up significance is set out in AN12, which establishes a method for thinking consistently about the heritage values that can be ascribed to a place. When making an assessment of significance, numerous aspects are considered including architectural interest, historic interest, group value, social value, former uses and local distinctiveness. These aspects are grouped into four values defined in Annex 2 of the NPPF as historical

interest, archaeological interest, artistic interest, and architectural interest.

3.2.3 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence; and
- Consequential effects.

4. CONSULTATION

4.1.1 Historic England and Oldham Metropolitan Borough Council (OMBC) have been involved in ongoing stakeholder consultation with Network Rail through the development of Route Section W2B of TRU.

4.1.2 Regular meetings with Historic England and OMBC have been held to discuss design development in relation to Uppermill Viaduct (MVL3/31). Initial meetings were held periodically throughout 2021 and resumed in 2024 to discuss the overall route and design development for all listed structures within Route section W2B.

4.1.3 The design development for Uppermill Viaduct (MVL3/31) was presented and discussed with the historic environment stakeholders on the dates outlined in Table 4-1:

Table 4-1 Consultation for Uppermill Viaduct (MVL3/31)

Date	Stakeholder in attendance	Key agreements/items discussed
12 January 2021	• TMBC • Historic England	• Presentation of detailed structures along Route Section W2B. • Network Rail addressed the requirements for OLE to be attached on the outside of the viaduct due to limited clearance on the trackside of the viaduct.

Date	Stakeholder in attendance	Key agreements/items discussed
16 February 2021	• TMBC • Historic England	• Presentation overview of the Order Scheme, objectives and its scope which included the full electrification and works to Uppermill Viaduct (MVL3/31). • Works to Uppermill Viaduct (MVL3/31) to help achieve the objectives of the overall Order Scheme, works to install Overhead Line Electrification (OLE) gantry fixing to the pier locations along the viaduct.
16 March 2021	• OMBC	• Presentation of early optioneering for Uppermill Viaduct (MVL3/31) and overview of the grade II listed viaduct including its location, historic background and problem statement. • Decision to install OLE portals was required in order to accommodate the electrification of the railway over the viaduct and increase the line speed from 65mph to 80mph. Gauge constraints on the existing deck and the need for a slight track slew would result in insufficient clearance to install the portals on the inside of the deck. However, given the concrete strengthening measures which were installed in 1919, these would provide ideal areas to attach these portals. • Presentation of OLE portal locations adopting a red, amber, green rating system based on natural viewpoints and surrounding vegetation. The following was determined: o Piers 0-4: Preferred (green)

Date	Stakeholder in attendance	Key agreements/items discussed
		○ Piers 5-7: Preferred (green) ○ Pier 8: Acceptable (amber) ○ Piers 9-10: Unfavourable (red) ○ Piers 11-12: Acceptable (amber) ○ Piers 13-14: Preferred (green) ○ Piers 15-16: Unfavourable (red) ○ Pier 17: Acceptable (amber) ○ Piers 18-20: Preferred (green) ○ Piers 21-22: Acceptable (amber) ○ Pier 23: Preferred (green)
26 May 2021	• OMBC • TMBC • Historic England	• Overview of the structures along Route Section W2B which are of historic interest, including the grade II viaducts which are noted for their inherent significance, particularly as essential railway structures and their shared common themes, significance and group value with each other. Acknowledgement that these are monumental examples of 19th century engineering and prominent elements of local townscape and landscape.

Date	Stakeholder in attendance	Key agreements/items discussed
		• Presentation of the purpose of Heritage Statements and their assessment of impact with the emerging GRIP 3 designs[1]. • Early-stage recommendations to minimise harm to significance against the requirements for justification of proposals and opportunities to pursue sensitive design and compensation. The proposed OLE on the viaducts were presented and included the recommendation for feasibility and optioneering around location of portals taking into account setting and how setting of the viaducts contributes towards its overall significance. The viaducts were flagged as amber on a RAG scale. • Reassurance was provided to the council that they will be involved in the GRIP 3 design process which will be used within the detailed design development of GRIP 4. Clarification was also provided on the sustainable heritage initiatives. • Historic England stated how they expect to get an understanding of significance at this stage and that they anticipate options to be shared for comment. Also stressed the importance of minimising harm.
6 February 2024	• Historic England	• Meeting with Historic England to discuss the approach taken to significant interventions to designated structures, including Uppermill Viaduct (MVL3/31).

[1] At the time of consultation in 2021, the delivery of railway investment programmes was managed by Network Rail as a staged process through use of the GRIP (Governance for Railway Investment Projects) process. GRIP 3 comprised option selection. This has since been replaced by PACE (Project Acceleration in a Controlled Environment).

Date	Stakeholder in attendance	Key agreements/items discussed

		• Electrification is required across the grade II listed viaduct and increase in line speed from 65mph to 80mph. The design consideration for the OLE portals were as follows:
		  ○ The restricted width of the viaduct which would necessitate the siting of OLE masts on the exterior face of the parapet;
		  ○ The 1920 concrete saddle has the potential for anchoring the OLE; and
		  ○ Key views of the viaduct will inform the proposed siting of the OLE Masts.
		• At this stage, the concept designs for OLE brackets have been shared with Historic England.

22 April 2024	• OMBC	• Overview of proposed works to the structures within Oldham which included the OLE portal attachments to Uppermill Viaduct (MVL3/31).
7 May 2024	• Historic England	• Agreement in principle with Historic England on the principle of attachment of OLE across Uppermill Viaduct (MVL3/31). • Justification for design of location for OLE which has been devised to avoid Den Lane, Huddersfield Narrow Canal and the High Street, and other locations would be hidden by vegetation or obscured • At this stage the development of the OLE support brackets was still being developed however these are expected to be to standard Network Rail design.

Date	Stakeholder in attendance	Key agreements/items discussed
25 June 2024	• Historic England	• Pre-application advice letter from Historic England for the OLE attachments to Uppermill Viaduct (MVL3/31) on the exterior of the viaduct would result in less than substantial harm to its significance (Appendix C.1). • Historic England summarised that less than substantial harm would arise from the change in the physical appearance on the elevations of the structure from the brackets. • Historic England conclude that harm can be lowered by following the architectural rhythm of the viaduct to lessen the visual impact.
6 November 2024	• Historic England	• The draft listed building consent drawings were shared prior to the meeting, with feedback requested from Historic England on the works shown in the drawings. Discussion also took place regarding the justification for proposed works. • Confirmation from Network Rail that the works to Uppermill Viaduct (MVL3/31) will be primarily in the inclusion of OLE Gantries and their locations have been chosen to maximise the current viewing corridors near larger spans over the road or canal, in which Historic England was in agreement with the approach and did not express any concerns.
29 November 2024	• Historic England	• In their formal pre-application advice letter (see Appendix C), Historic England confirmed that proposals for Uppermill Viaduct (MVL3/31) would result in '*a low level of less than substantial harm*'

Date	Stakeholder in attendance	Key agreements/items discussed
		• It was acknowledged that the design adhered to the rhythm of the viaduct spans to minimise visual impact and the pattress plates would not be affected (see Appendix C.2).
2 April 2025	• OMBC	• Presentation of overview of the aims and objectives of TRU to OMBC heritage officers, with emphasis on the historic context of Route Section W2B and the 12 listed building consents applications which are being prepared for the various works to the grade II listed bridges and viaduct along the route section. • Presentation of overview of electrification challenges caused by the existing arch profile of a number of existing bridges and have developed bespoke solutions for these to achieve the required clearance. • Overview of the current status of each structure within OMBC's jurisdiction, including the installation of OLE brackets to Uppermill Viaduct (MVL3/31).
4 April 2025	• Historic England	• Overview of draft comments from Historic England. Request to draw out the heritage interpretation in the reports as part of the heritage benefits. • Historic England were content with the assessment of significance for all structures, and noted that the optioneering tables were helpful. Historic England requestion for further details on the heritage interpretation as part of the heritage benefits.
12 May 2025	• OMBC	• Presentation of proposals for Uppermill Viaduct (MVL3/31) to OMBC heritage officers. • Low level of harm to listed buildings noted with minimal physical impact to structure and arrangement of OLE portals to avoid key viewing corridors.
24 June 2025	• OMBC	• Pre-application advice letter received from OMBC outlining local planning authority advice following review of the draft listed building consent application material. • OMBC found that the alteration of Uppermill Viaduct (MVL3/31) would result in a low level of less than

Date	Stakeholder in attendance	Key agreements/items discussed
		substantial harm arising from the physical intervention, the impact of which is limited by the considered placement of portals to maintain key views. • OMBC highlight that clear and convincing justification will be required for any harm arising to designated heritage assets, with substantial benefits required to outweigh substantial harm. • A high level of harm was also found to the group value of the bridges designed by A.S Jee on the TransPennine Route, due to the proposed demolition of Wright's Overbridge (MVL3/23) and reconstruction of four other bridges, and a limited level of harm to group value arising from the alteration of three other structures (including Uppermill Viaduct (MVL3/31)).
18 July 2025	• Historic England	• Pre-application advice letter received from Historic England providing overarching feedback on proposals affecting listed bridges between Stalybridge and Standedge Tunnel (see Appendix C). • Acknowledgment given to the collaborative approach taken at pre-application stage, to fully explore alternative options to reconstruction and for the opportunity for Historic England to feed into design plans. • The heritage statements adjudged to be well considered with clear justification having been provided for the substantial harm identified to those structures proposed for removal or reconstruction. • The inclusion of interpretation at Greenfield Station is welcomed by Historic England.

5. HERITAGE ASSETS AND THEIR SIGNIFICANCE

5.1 History of the W2B Transpennine Route

5.1.1 The railway connecting Stalybridge to Huddersfield, which runs over Uppermill Viaduct (MVL3/31) in Uppermill, was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania' which has been described by Historic England as the

Heroic Age of railway building (Historic England, 2017b). Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles (3774km to 11,703km) (Alan Baxter Associates, 2019). Constructed at the height of this boom, the Stalybridge to Leeds line was a product of this trend. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after its authorisation (Alan Baxter Associates, 2019). These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel and is 'indisputably significant as a major engineering achievement' (Alan Baxter Associates, 2024).

5.1.2 The development and expansion of the railways during the 19th century transformed the landscape and settlements through which they passed, fuelling industrial growth and settlement expansion. The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic Ordnance Survey maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harrop Dale, whilst settlements such as Mossley and Dobcross gradually expanded.

5.1.3 Uppermill Viaduct (MVL3/31) was constructed for the Huddersfield & Manchester Railway Company in the mid to late 1840s. The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at over three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

5.1.4 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the

Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

5.1.5 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration. The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A new junction to the south of Greenfield Station is shown on historic maps from the early 20th century as additional tracks toward Oldham were established from this station. However similarly to the Micklehurst loop, the additional lines diverged from the main Huddersfield line, running westwards at its intersection with Shaw Hall Bank Road Footway (MVL3/26). The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

5.1.6 Piecemeal change has occurred on the Huddersfield & Manchester Railway, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

5.1.7 The history and significance of the Transpennine route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associates, 2019). This was produced to characterise the overall heritage significance of the Transpennine route.

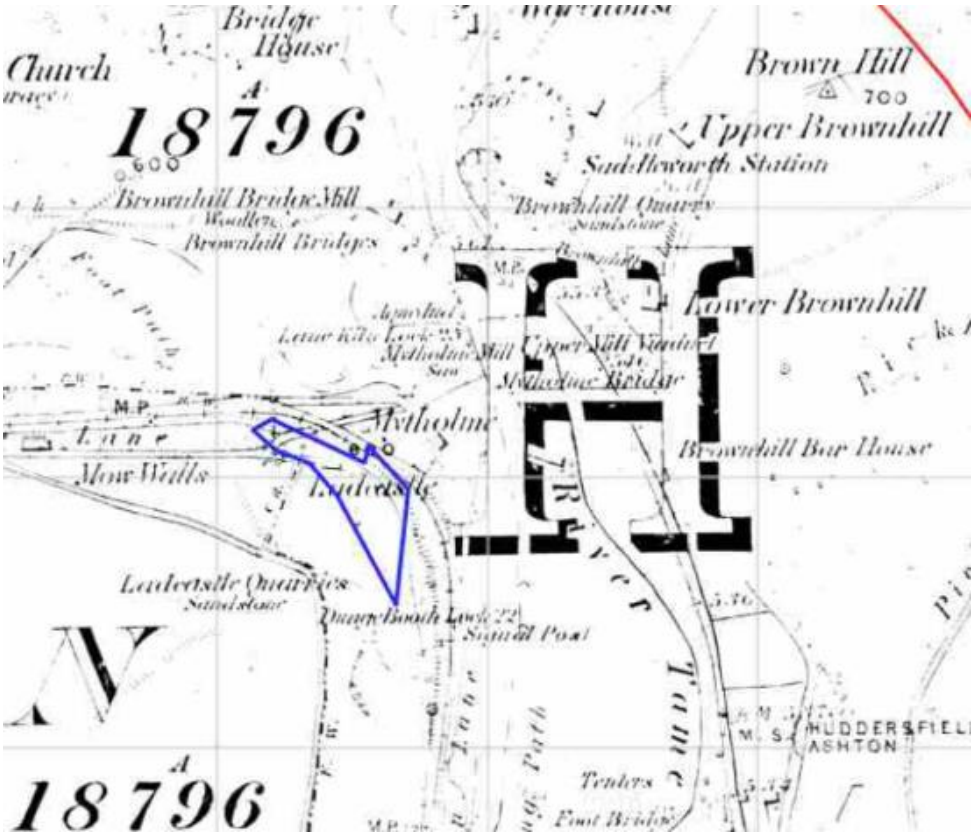
5.2 Uppermill Viaduct (MVL3/31)

History

5.2.1 Uppermill Viaduct (MVL3/31) was constructed between 1845 and 1847 during the Heroic Age of railway building (1841-1850). The 23-span viaduct was designed by A.S. Jee for the Huddersfield & Manchester Railway. The viaduct was built to carry two railway tracks over the Pennine valley, and passes over A670 High Street, Den Lane, Huddersfield Narrow Canal, the River Tame and Brownhill Lane.

5.2.2 Uppermill developed as a centre of textile production during the post-medieval period. Evidence of this can be seen in the survival of textile workshops within the town, as revealed by the presence of multi-light mullioned windows across the upper floors of some buildings of 18th century date, used to light weaving workshops. The 1828 County Map of Yorkshire (not reproduced here) shows pre-industrial Uppermill before the arrival of the railway and shows scattered buildings along Mow Halls Lane, Den Lane and the current A670 High Street extending to Knowl Top Lane and Gellfield Lane to the east. This was a dispersed settlement of farmsteads and domestic workshops were established around a central nucleus, which remains the core of Uppermill in the present day.

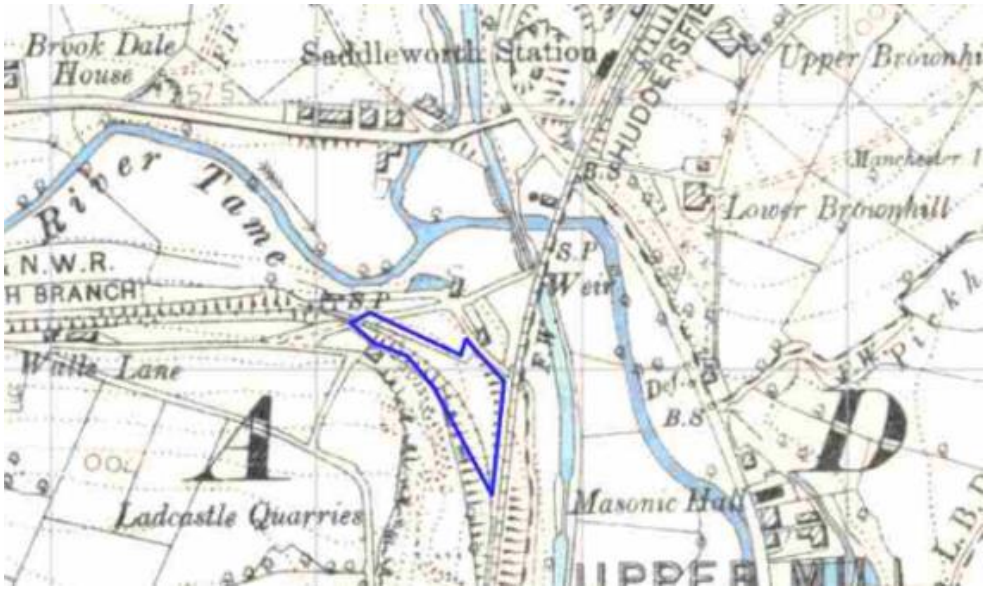
5.2.3 The mechanisation of the textile industry from the later 18th century onwards led to the development of larger-scale mills within the village, powered by the River Tame. The opening of the Huddersfield Narrow Canal in 1811 further fuelled industrialisation, enabling the import and export of raw materials and goods with Manchester and Huddersfield. The role of the canal was, however, superseded by the arrival of the Huddersfield & Manchester Railway in the late 1840s, further unlocking connections between the village and the industrial and trading centres of Manchester, Leeds and Huddersfield. Historic Ordnance Survey maps show this progression, with a shift from small-scale woollen mills and tenter grounds, as shown on the County Series Map of 1854, to larger-scale cotton and woollen mills by the time of the 2nd edition 25-inch map of 1893 (not reproduced here).



Insert 5-1 Ordnance survey County Series 1854 Map

5.2.4 The arrival of the railway resulted in significant and highly visible change to Uppermill, namely the construction of the 23-span Uppermill Viaduct (MVL3/31). The presence of the viaduct crossing the river, canal and roads in the north-west of the village formed a dominant new element and became a conspicuous symbol of Uppermill's connection to the wider north of England. The impact of the viaduct can be seen in James Carse's painting of the River Tame Valley from 1859 which shows the viaduct as a dominant element within the landscape (Insert 5-2). Other changes in Uppermill instigated by the railway included rerouting existing roads which forced the extension of High Street to pass underneath the viaduct as well as the construction of New Dobcross Road. A railway station was also constructed to the north of Uppermill and the viaduct and operated from 1849 to 1968. A second station was located to the east along the Stalybridge & Diggle Loop Line to the east of the settlement. The County Series map of 1890-92 (Insert 5-3), development, particularly to the north of the viaduct underwent some growth and expansion, as well as along the High Street in Uppermill.

Insert 5-2 Landscape painting by James Carse (1859) of the River Tame Valley, featuring Uppermill Viaduct (MVL3/31).



Insert 5-3 County Series Map 1890-92

5.2.5 Into the 20th century, Uppermill and Dobcross developed with an industrial character as can be seen in the presence of quarries, textile mills, sawmills and dyeworks on historic mapping of the period. The immediate environs of the viaduct, however, was largely surrounded by open land, the road network and some scattered buildings.

5.2.6 Since the mid-20th century, industry throughout the Pennines had slowly declined and, whilst the character of Uppermill recalls its industrial heritage, the area has developed with a more residential and commercial character. However, the viaduct is amongst the structures which help to recall the industrial heritage of Uppermill and remains a

landmark feature in the area which can be appreciated in views from the Huddersfield Narrow Canal, Den Lane and the High Street.

Insert 5-4 Uppermill Viaduct (MVL3/31) viewed from the canal to the north-west with Lock 23 of the Huddersfield Narrow Canal visible in the foreground.

Insert 5-5 Uppermill Viaduct (MVL3/31) viewed from the canal from the south-east.

Description

5.2.7 Uppermill Viaduct (MVL3/31) is comprised of 23 semi-circular arched spans and extends approximately 265m across the River Tame Valley. It runs on a slightly curved alignment with a north-east / south orientation. The viaduct carries the railway over three public roads: Den Lane (span 9), the A670 High Street (span 21) and Brownhill Lane (span 22), as well as the watercourses of the Huddersfield Narrow Canal (span 15) and the River Tame (span 18). The remaining spans accommodate the wooded open land of the River Tame valley sides and floor. Both ends of the structure have abutments buried into the valley sides and railway embankments.

5.2.8 The viaduct is constructed in rock-faced gritstone with dressings in ashlar and quarry-faced gritstone. The viaduct arches are semi-circular, with three broader skewed spans which traverse Den Road (span 9), the Huddersfield Narrow canal (span 15) and A670 High Street (span 21). The arches have rusticated v-channelled voussoirs with picked surfaces and tooled edges, which spring from squared ashlar impost bands. Two of the skewed arches, spans 15 and 21, feature corbels which would have supported wooden centres used during construction of the structure (Alan Baxter Associates, 2024).

5.2.9 The rectangular piers and spandrels of the viaduct are topped by a squared projecting string course and parapets. The piers on either side of the skewed arches feature flat pilasters, articulating these wider arches. In each case, the pilasters on the northern pier of each

of these spans essentially form double buttresses (visible in Insert 5-4).

5.2.10 On either side of the deck of the structure, parapets of squared and coursed rock-faced gritstone sit atop the projecting string course (see Insert 5-7). The parapets are relatively low, with only four and five courses of stonework visible above the ballast level on either side. A pitched ashlar coping runs across the parapets with recently installed GRP black handrail. The handrails are of dark colour and positioned slightly inbound of the centre of the coping of each parapet to minimise visual intrusions from ground level. Due to the partially buried arches of the southernmost spans (see below), the parapet on the western side of the structure commences between spans 2 and 3.

5.2.11 The viaduct does not feature wing walls at each end, with the structure instead being buried into the hillside on each approach. The topography of the surrounding valley sides defines the sub-structure of the viaduct in these locations, particularly at the southern end, where spans 1 to 4 are partially buried into the hillside on the western side of the viaduct. At the northern end, span 23 is also partly buried on both sides of the structure into the hillside.

5.2.12 The deck of the viaduct carries two tracks along its full length, supported on a track bed of ballast. In 1919, the viaduct deck was strengthened with a concrete saddle installed over the arches. The saddle was installed below the string course within the spandrel walls, sitting above the arches (Insert 5-8). This intervention was undertaken to improve the structural integrity of the viaduct, and is not visible externally. Evidence of earlier strengthening works can also be seen in the form of tie bars and pattress plates which were installed along the viaduct at the same time and remain in place today (Insert 5-7). Further pattress plating is also visible on the insides of the piers of the viaduct on a number of spans. Drainage downpipes are present between a number of the spans, some of which appear to have been later replacements or additions.

Insert 5-6 Deck of Uppermill Viaduct (MVL3/31), viewed from the southern end of the structure, showing parapets

5.2.13 The setting of Uppermill Viaduct (MVL3/31) contributes to the asset's significance. Uppermill Viaduct spans the Tame Valley, to the north of the village of Uppermill, crossing the watercourses of the Huddersfield Narrow Canal and River Tame, as well as the roads of Den Lane and High Street (A670). The surroundings of the viaduct are characterised by the presence of mature tree cover along the river, canal and flanking hillsides, restricting views of the structure principally to corridors along the canal, Den Lane and High Street. Whilst visibility is increased during the winter months due to lack of foliage, views towards the viaduct continue to be filtered by trees, preventing clear views of the structure outside the corridors of the canal, Den Lane, and the High Street. There are no views of the viaduct from the core of the settlement along High Street to the south of the viaduct. Uppermill Viaduct (MVL3/31) is visible as linear element in longer-range views from the hillsides above Uppermill or around Dobcross, however, it is not possible to appreciate the full monumental scale of the viaduct to in these views.

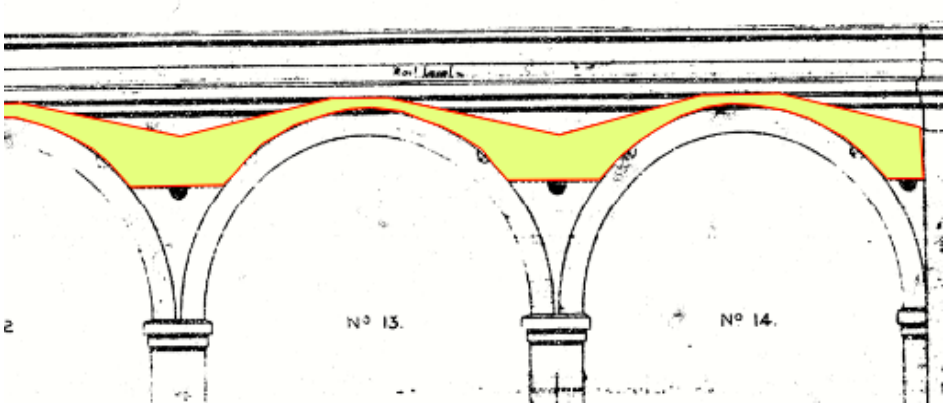
5.2.14 Views of the Uppermill Viaduct (MVL3/31) along the canal, Den Lane and the High Street/Wool Road are channelled towards and under the structure by the surrounding woodland, with the viaduct gradually being revealed on approach to it. These views enable the scale and grandeur of the viaduct to be appreciated, and allow understanding of its architectural and historic interest and the quality of Jee's design (Insert 5-6, Insert 5-10 and Insert 5-11). Even in close up views of the structure, visibility of the viaduct is limited by the presence of mature

trees, and it is not possible to view the structure in its entirety (Insert 5-11).

5.2.15 Uppermill Viaduct (MVL3/31) enjoys strong group value with Huddersfield Narrow Canal and the grade II listed Lock 23 and adjoining tailbridge No.75 (NHLE 1356719) (Insert 5-12 Uppermill Viaduct (MVL3/31) and tail bridge No.75 (NHLE 1356719) on the Huddersfield Narrow Canal showing their close relationship and use of skew arch. (Insert 5-12). Views north and south along the canal enable appreciation of this relationship and contribute to the historic, architectural and aesthetic value of the viaduct (Insert 5-4).

5.2.16 Those traveling by train over the viaduct are also afforded views of the surrounding landscape and villages, which evidence the historic character of Uppermill village and its association with the canal, and the Pennine landscape and this contributes towards its setting. Such views from the railway characterise the experience of passengers on the Transpennine route passing through the Tame Valley. These views allow the impact of the railway in the development of the area during the 19th century to be appreciated, with former mill buildings, chimneys and settlements characterised by gritstone and sandstone terraces visible along the valley floor.

Insert 5-7 View of typical span detailing on the western elevation of the Uppermill Viaduct (MVL3/31)



Insert 5-8 Placement of Concrete reinforcement added in 1919 to Uppermill Viaduct (MVL3/31) from an archival drawing held by Network Rail.

Insert 5-9 View of Uppermill Viaduct (MVL3/31) from the Brownhill Nature Garden to the north, showing an example of a restricted view of the structure.

Insert 5-10 View of Uppermill Viaduct (MVL3/31) from Wool Road.

Insert 5-11 Uppermill Viaduct (MVL3/31), eastern elevation viewed from Den Lane.

Insert 5-12 Uppermill Viaduct (MVL3/31) and tail bridge No.75 (NHLE 1356719) on the Huddersfield Narrow Canal showing their close relationship and use of skew arch.

Significance

5.2.17 Uppermill Viaduct (MVL3/31) is of significance as a largely unaltered example of an 1840s viaduct, dating from the Heroic Age (1841–50) of railway building and the period of 'railway mania' which marked a time of commercial confidence and expansion in the railways. The viaduct's direct historic relationship with historic railway companies of the period, comprising the Huddersfield and Manchester Railway and LNWR, and the notable railway engineer A.S. Jee, who also designed similar structures along the route, give the structure historical value from which it derives significance. The viaduct remains in use as a part of the operational railway network and together with surviving contemporary structures, evidences the historic infrastructure of the Huddersfield & Manchester Railway.

5.2.18 The viaduct derives significance from its architectural quality, evident in its design, detailing and monumental form. A.S. Jee's use of architectural elements such as the rusticated voussoirs and monumental pilasters, and the quality of detailing and construction, together with the quality of the craftsmanship, help to elevate the expression of the viaduct and raise it above the purely functional. The architectural interest of the viaduct is enhanced further by its presence within the landscape and the ways in which its monumental scale, architectural quality and engineering achievement can be appreciated in views towards and through the viaduct as it spans the valley.

5.2.19 Uppermill Viaduct (MVL3/31) has undergone some alterations including strengthening works and the attachment of modern handrails, all of which have been undertaken to ensure the ongoing

use of the structure for its original purpose. These works have not detracted from the historic and aesthetic interest of the structure. Jee's original design intent and the historic function of the structure continues to be understood and form key aspects of the structure's significance. The corbels along the string course on spans 15 and 21 reveal the construction techniques used by Jee to construct the complex arrangement of skew arches required to traverse the watercourses below. As a surviving component feature along the wider railway network, the design of Uppermill Viaduct (MVL3/31) contributes to the legibility of the Huddersfield & Manchester Railway in the contemporary landscape.

5.2.20 Historic Ordnance Survey maps show the setting of the viaduct formerly to have been characterised by the presence of quarry workings to the south-west and enclosed land along the base of the valley and dispersed development to the north, with only pockets of tree planting in this area. This would have afforded extensive views of the structure from the surrounding landscape. The setting of Uppermill Viaduct (MVL3/31) today, however, is more localised and screened due to extensive mature planting. Despite this, the setting of the viaduct contributes towards its overall significance. Spanning the River Tame and the Huddersfield Narrow Canal, the viaduct forms an imposing structure which, although visible in localised views only, forms a landmark structure within the settlement of Uppermill. The viaduct's position over and adjacent to local roads and waterways enable appreciation of its design and function (with the addition of the frequent movement of trains atop it), defines it as an element of the historic industrial and transportation network within the area. The close relationship of the viaduct and canal, and particularly views of the viaduct along the canal corridor, and its spanning over Lock 23 and tailbridge No.75 (NHLE 1356719) illustrate the close historic connection between the Huddersfield & Manchester Railway and the Huddersfield Narrow Canal. The engineering achievement of the viaduct is also vividly illustrated by the way in which the viaduct crosses over the tailbridge with a wider skew span. Experiencing the viaduct by passing under the spans on Den Lane and High Street, or along the canal, enables appreciation of the quality of its design and skill in construction. Views from the viaduct can also be appreciated by train passengers, with expansive views of Uppermill to the east and its setting within the Pennines. To this effect, the setting facilitates a different appreciation of the significance of Uppermill Viaduct (MVL3/31) not just as a mode of transportation but as a feature within a landscape characterised by the juxtaposition of its natural and industrial history.

Group value

5.2.21 As identified in the list description, Uppermill Viaduct (MVL3/31) is recognised to be of group value with other listed structures by A.S. Jee on the Huddersfield & Manchester Railway[2]. These comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wright's Overbridge (MVL3/20) (grade II listed, NHLE 1452409);
- Wright's Mill Overbridge (MVL3/23) (grade II listed, NHLE 1452406);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Overbridge(MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);
- Church Street (MVL3/82) (grade II listed, NHLE 1452083);

[2] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade, and will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 1223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[3]

5.2.22 The route is notable for the succession of viaducts, required due to the hilly terrain which it navigates. Along the Huddersfield & Manchester Railway there are four other viaducts designed by A.S. Jee. These comprise:

- Slaithwaite Viaduct (MVL3/61) (grade II listed , NHLE 1224049);
- Crimble Viaduct (MVL3/64) (grade II listed , NHLE 1233737);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);[4] and
- Milne (Lockwood) Viaduct (MVL3/76) (grade II listed , NHLE 1220121).

5.2.23 The viaducts at Slaithwaite (MVL3/61), Crimble (MVL3/64) and Milne (Lockwood) (MVL3/76) have similar design language to that at Uppermill Viaduct (MVL3/31) and are all of considerable scale with 17, 19 and 20 arches respectively. Golcar Viaduct (MVL3/70) is not as large in scale with only four arches but it is similar in style and construction. In each case, stylistic motifs are employed such as rusticated dressings and string courses which add architectural quality to the functional structures. Each viaduct also forms a prominent element of its surrounding landscape or townscape. Slaithwaite (MVL3/61), Crimble (MVL3/64) and Milne (Lockwood) (MVL3/76) Viaducts form a legible group with Uppermill Viaduct (MVL3/31), evidencing Jee's common approach to the engineering of these structures. That all four have been little altered adds to their group value. Though the similar aesthetics and scale of the viaducts place them in close relationship with one another, Uppermill Viaduct (MVL3/31) is also part of a wider group of structures constructed by Jee for the Huddersfield and Manchester Railway, which also includes underbridges and overbridges of both cast iron and masonry construction as well as the Standedge Tunnel.

[3] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

[4] MVL3/69 Golcar New Viaduct (constructed by the LNWR in c.1890) and MVL3/70 Golcar Viaduct are both Listed together under one designation. https://historicengland.org.uk/listing/the-list/list-entry/1276344

5.2.24 The largely contemporary construction of a number of individual railways which combined to form the wider Transpennine route mean that historic structures derive significance as part of wider groups across these various historic lines. As noted above, large-scale viaducts are a feature of those constituent historic railways which make up the Transpennine route today. In particular, a number of the viaducts engineered by Thomas Grainger for the Leeds, Dewsbury and Manchester Railway demonstrate similarities in scale and architectural detailing to Jee's viaducts on the Huddersfield and Manchester Railway, including Uppermill Viaduct (MVL3/31). Three examples from Grainger, in particular, demonstrate these similarities and form a legible group alongside Jee's viaducts:

- Batley (Union Mill) Viaduct (MDL1/27) (grade II listed , NHLE 1134650);
- Dewsbury Viaduct (MDL1/19) (grade II listed , NHLE 1313659); and
- Churwell Viaduct (MDL1/40) (grade II listed , NHLE 1451053).

5.2.25 The group value which Uppermill Viaduct (MVL3/31) derives from these relationships provides an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age of railway building (1841–50) more generally. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those following the rail line (traveling on it, or near it) as coherent features of a single historic route.

5.3 Surrounding heritage assets

5.3.1 The location of the designated and non-designated heritage assets discussed below are shown in Appendix A.

Designated heritage assets

5.3.2 A total of four listed buildings are present within 250m of the Uppermill Viaduct (MVL3/31). These comprise:

- Huddersfield Narrow Canal, Lock No. 23 (Lime Kiln Lock and adjoining Tailbridge No. 75 and Aqueduct No. 74) (grade II, NHLE 1356719), a lock, tail bridge and adjoining aqueduct over the River Tame built by Benjamin Outram between 1794-99, located directly below and to the west of the viaduct.
- Huddersfield Narrow Canal Lock No. 22W (Dunge Booth Lock) (grade II, NHLE 1163263), a lock built by Benjamin Outram in 1794-99 for the Huddersfield Narrow Canal, located c.180 m to the south.

- Brownhill Bridge Mill (grade II, NHLE 1309426), a water-powered woollen mill built in 1722, located c.160 m to the north.
- Lower Brownhill House (grade II, NHLE 1309706), a late 18th century vernacular stone house, located c.120 m to the east.

5.3.3 Huddersfield Narrow Canal, Lock No. 23 (NHLE 1356719) is situated directly to the west of the viaduct, the ramp for the tail bridge extending beneath span 15 of Uppermill Viaduct (MVL3/31). Whilst the lock predates the construction of the railway by c. 50 years and its significance is focused on its association with the Huddersfield Narrow Canal, the relationship of the lock and viaduct contributes to their significance, evidencing the development of transportation and communications through the Tame Valley in the 19th century. The viaduct forms a prominent feature in its setting of the lock, framing views of the lock and the canal.

5.3.4 Due to the curve of the canal and the presence of mature trees on its west bank, views towards Uppermill Viaduct (MVL3/31) from Huddersfield Narrow Canal Lock No. 22W (NHLE 1163263) are more oblique and filtered. The dominance of the viaduct is however understood when moving along the towpath to the next lock and contributes to the understanding of the historic interrelationship between the canal and railway.

5.3.5 Whilst filtered oblique views towards Uppermill Viaduct (MVL3/31) are possible from Brownhill Bridge Mill (NHLE 1309426), these views are incidental to the building and make limited contribution to its significance due to the lack of historic relationship between the structures.

5.3.6 The principal elevation of Lower Brownhill House (NHLE 1309706) looks south, parallel to the viaduct, with views west towards the viaduct constrained by mature tree planting. Dating from the 18th century, the building does not enjoy a significant historic relationship with the Uppermill Viaduct which does not make a notable contribution to its significance.

5.3.7 Uppermill Conservation Area (DGM3166) is located south-east of the Uppermill Viaduct (MVL3/31), which lies within its northwestern extent. The conservation area is characterised by the presence of post-medieval domestic and industrial buildings, dating principally from the 18th and 19th centuries. Within the historic core of the village along High Street, buildings are typically of two to three storeys in height and constructed in local stone. These include vernacular houses, some with weaving workshops on their upper floors, 19th century terraces and shops, villas, former mills, churches and pubs. The river and canal are located to the west of the conservation area and separated from the High Street by mature tree planting and

intervening buildings. Despite this, the viaduct forms a key element in the conservation area, forming a large-scale feature within the designated area and evidencing the contribution of the railway to the history and development of the settlement. Views from the canal are channelled along the towpath, with Uppermill Viaduct (MVL3/31) forming a landmark feature within the canal corridor. Views of the viaduct are possible from a small number of locations to the west of the conservation area. These views are generally constrained by surrounding planting, enabling only a few spans to be viewed simultaneously. Views of the viaduct from the canal towpath, and movement towards and under the viaduct form an important aspect of the conservation area's character and contribute to its significance. Views of the viaduct and conservation area from the surrounding hills also contribute to this significance, enabling its scale and form to be understood.

Non-designated heritage assets

5.3.8 The Greater Manchester Historic Environment Record (HER) records 10 non-designated heritage assets within 250m of Uppermill Viaduct (MVL3/31), four of which duplicate the listed buildings identified in paragraph 5.3.2 above. The remaining assets comprise:

- Buckley (New) Mill (6098.1.0), c. 240 m south-east of the southern end of Uppermill Viaduct (MVL3/31), which was subject to a field investigation in 2003 (EGM3497);
- Mytholm Mill (site of) (16625.1.0), located c. 55 m west of Uppermill Viaduct (MVL3/31);
- Saddleworth Station (former) (173.1.0), located c. 160m north of the northern end of Uppermill Viaduct (MVL3/31);
- Barrow on Brown Hill (site of) (1096.1.0), c. 190 m north-east of the northern end of Uppermill Viaduct (MVL3/31);
- Woolroad Canal Warehouse (site of) (13851.0), located c. 190 m north-west of the northern end of Uppermill Viaduct (MVL3/31); and
- Woolroad Canal Warehouse (at Stone Bottom Mills) (13850.1.0), located c. 240 m north of the northern end of Uppermill Viaduct (MVL3/31).

5.3.9 Saddleworth Station (former) (MGM291) was constructed contemporarily with the Huddersfield & Manchester Railway to serve the village of Uppermill. Now in residential use and privately owned, this is a two-storey building with gable and bay window, ornamental rood, veranda with cast-iron pillars. The former station retains a historic relationship with the railway viaduct given that they both

serviced the operation of the railway and helps to communicate the Huddersfield & Manchester route.

5.3.10 Woolroad Canal Warehouse (13850.1.0) is a modest canal-side warehouse dating to the early 19th century. The setting of this structure on the Huddersfield Canal is the key aspect of setting which contributes to its significance, and it does not enjoy any visual relationship with Uppermill Viaduct (MVL3/31).

5.3.11 Buckley (New) Mill (MGM7146), Mytholm Mill (MGM18723) and Woolroad Canal Warehouse (site of) (13851.1.0) are the former locations of mills, the setting of which does not contribute to their significance.

5.3.12 Barrow on Brown Hill (site of) (1096.1.0) comprises the possible site of a barrow or cemetery, destroyed in the mid-19th century. It was probably of late Neolithic or Bronze Age date and shares no historic or visual relationship with the railway or Uppermill Viaduct (MVL3/31) which therefore does not contribute towards its significance.

6. PROPOSALS

6.1 Background of proposals

6.1.1 In order to achieve the TRU Programme objectives of improving journey times, capacity, overall reliability and resilience, and delivering environmental benefits, the electrification of the railway line and achievement of increased line speed is required. This necessitates the installation of overhead line equipment (OLE) along Route Section W2B, and the installation of OLE across Uppermill Viaduct (MVL3/31).

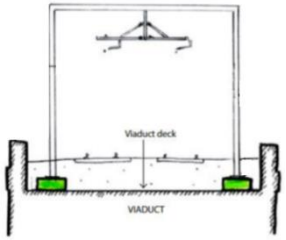
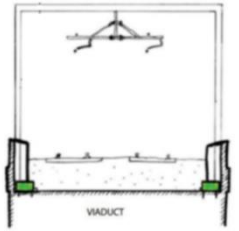
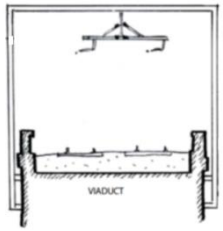
6.1.2 Due to the length and curve of Uppermill Viaduct (MVL3/31) and the required distance between OLE portals, it is not possible to span the OLE wires across the viaduct with portals only at either end. As such, it has been determined that portals need to be installed on the viaduct itself. These requirements have been considered as part of the optioneering process which has sought to minimise the visual presence of the portals on the structure. As part of this process, electrification across other historic listed railway viaducts was reviewed to inform the design and siting of proposed OLE across Uppermill Viaduct (MVL3/31).

6.2 Design development and justification

6.2.1 Design development for the installation of OLE at Uppermill Viaduct (MVL3/31) has taken into consideration a number of factors including the significance of the listed structure, operational requirements and constructability. The design development process has been undertaken with engagement with Historic England and OMBC (as detailed above in Section □). This iterative and robust process ensures the rigorous exploration of available options, incorporating multi-disciplinary review and ongoing engagement with the heritage consultees.

6.2.2 The design development process included optioneering to determine the position of the OLE portals on the structure. This process was undertaken to determine the most appropriate location, form and type of OLE structure that would accommodate the needs of TRU whilst also minimising impact on the fabric and views of the grade II listed viaduct. Three options were examined, as set out in Table 6-1:

Table 6-1 OLE placement optioneering for Uppermill Viaduct (MVL3/31).

Option	Considerations	Assessment	Preferred	Illustration
Option 1: trackside installation of OLE	Sufficient clearance required between tracks and parapet. No modification required to the viaduct deck, parapet or deck structure. Minimal impact to viaduct fabric and appearance.	Narrow deck width across Uppermill Viaduct (MVL3/31) is insufficient to accommodate OLE within parapets and provide necessary clearance to track alignment.	N	
Option 2 – install OLE in line with the parapet.	Localised reduction in width of parapet required to accommodate the OLE within the parapet thickness. Localised reconstruction of parapet required to accommodate OLE.	Narrow deck width across Uppermill Viaduct (MVL3/31) is insufficient to accommodate OLE within the parapet thickness and provide necessary clearance to track alignment. Parapet width insufficient to accommodate OLE foundations.	N	
Option 3 - fix the OLE portals to the external elevations of the viaduct	Viaduct piers required to be of sufficient strength to support OLE portals and may require strengthening to accommodate. Greatest visual impact of all three options.	Good structural condition of viaduct provides sufficient strength to accommodate installation of OLE portals to exterior elevations. External placement of portals provides suitable clearance and can accommodate freight gauges.	**Y**	

6.2.3 The minimum lateral clearance from the rail to parapet would require at least 3000 mm in order to fit the portal base adjacent to the track. The western side of the structure would require a clearance of 1470 mm and the eastern side of the structure would require 1600 mm. Option 1 trackside installation of OLE and Option 2 installation of OLE in line with the parapet were therefore discounted due to insufficient clearance between the tracks and parapet.

6.2.4 Option 3 fixing the OLE to the exterior of the viaduct was therefore identified as the preferred option and progressed for the design stages. This was recognised to be the most feasible option which would achieve the required clearance from the track alignment, although resulting in the greatest impact upon the appearance of the listed structure. Further consideration was then given to ensuring the proposed works would be sympathetic to the character and appearance of the historic structure.

6.3 Development of Preferred Option

6.3.1 Design development was subsequently undertaken to mitigate the potential impact of the OLE portals on the significance of Uppermill Viaduct (MVL3/31) as far as reasonably practicable and to develop a sensitive design solution which would ensure the structure complies with Network Rail safety standards.

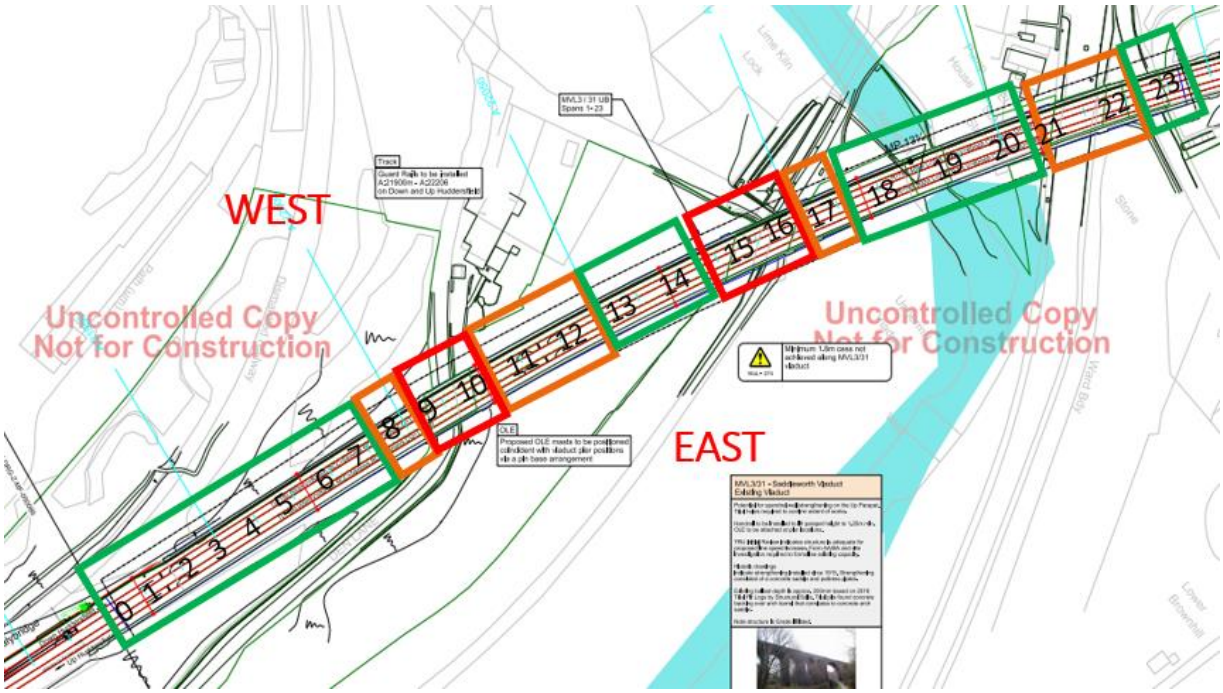
6.3.2 Optioneering was undertaken to determine the preferred location of the OLE portals. The objective of this exercise was to minimise visual impacts where possible, taking into consideration the architectural interest of the viaduct and its setting. This process took into consideration a range of factors including:

- The curve of the structure and the space of masts along this;
- The historic significance of the viaduct;
- The architectural rhythm and features of the viaduct;
- Views of the structure;
- Its prominence within its setting; and
- The structural requirements for the OLE portals.

6.3.3 The identification of suitable OLE locations was informed by analysis of the architectural form of the viaduct and its irregular span arrangement, as well as key views of the structure. The findings of this process are set out in **Table 6-2**.

Table 6-2 Optioneering for placement of OLE portals

Pier (south to north)	Suitability for OLE	Reason
0-4	Preferred	Viaduct buried on west, trees shielding on east.
5-7	Preferred	Trees shielding on both sides.
8	Acceptable	Span above Den Lane, however tree shielding views on both sides slightly.
9-10	Unfavourable	Avoided larger spans including Den Lane to minimise intrusion in views of the viaduct.
11-12	Acceptable	Trees shielding only on east.
13-14	Preferred	Trees shielding on both sides.
15-16	Unfavourable	Avoided larger spans including Huddersfield Narrow Canal and towpath to minimise intrusion in views of the viaduct.
17	Acceptable	Trees slightly shielding views of viaduct on both sides
18-20	Preferred	Trees shielding on both sides
21-22	Acceptable	Carriageway, trees shielding on both sides
23	Preferred	End of viaduct, trees shielding on both sides

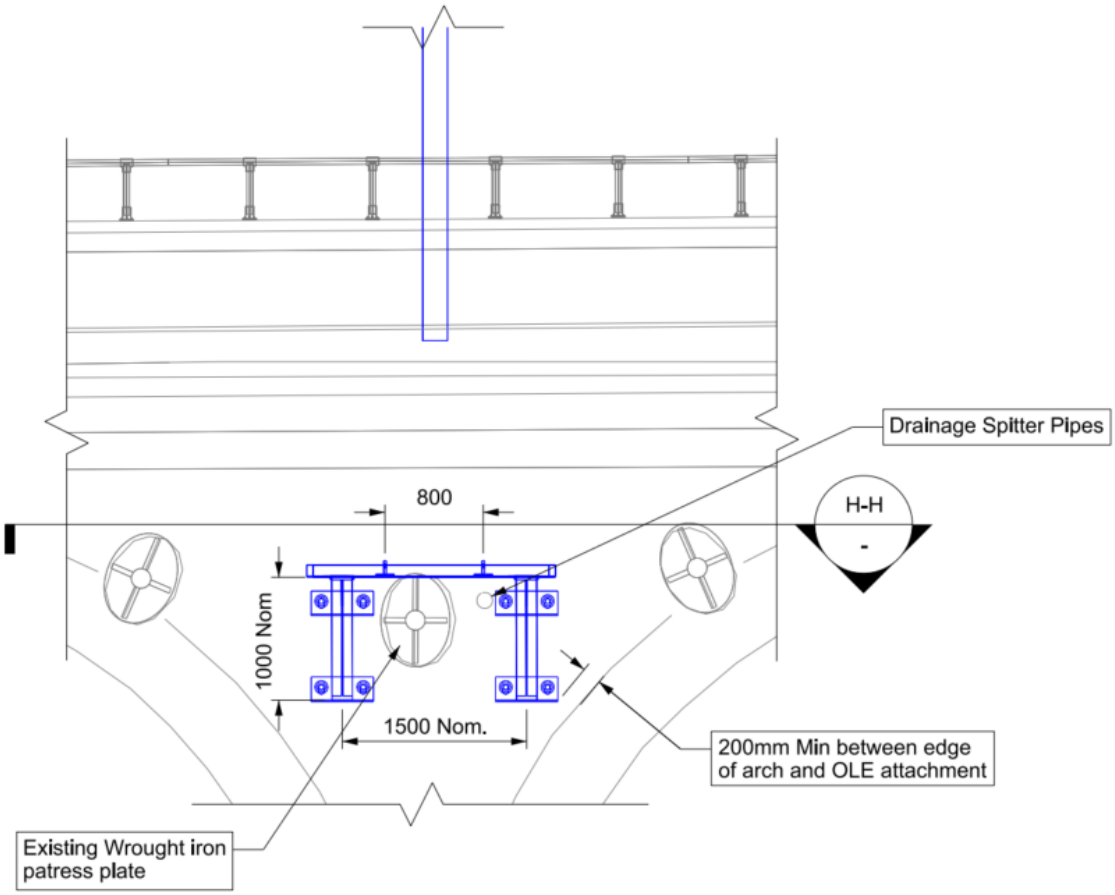


Insert 6-1 Pier location and location Optioneering for placement of OLE portals

6.3.4 Based on this assessment, it was determined that the OLE portals be placed over piers 5, 8, 11, 14, 17, 20 and 25.

6.3.5 Further design development was then undertaken of the wall brackets attached to the viaduct spandrels. This took into consideration factors including:

- The structural requirements of the OLE brackets;
- Attachment into the concrete saddle;
- The presence of pattress plates and drainage pipes on the viaduct spandrels; and
- The form of the viaduct and its architectural features.

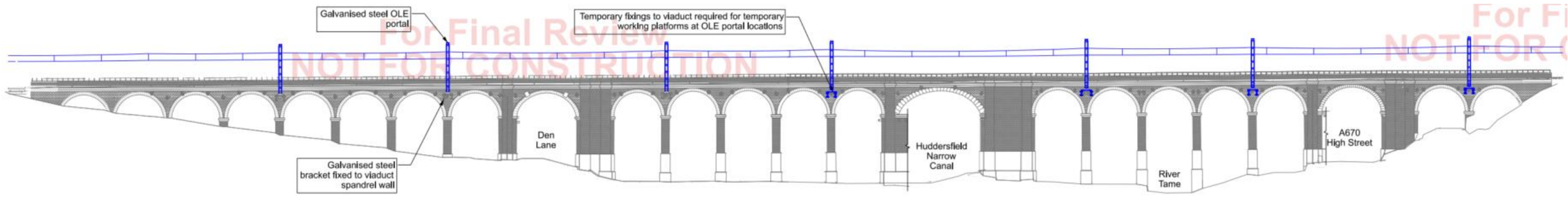


Insert 6-2 Detail of typical OLE fixing bracket showing avoidance of pattress plate and drainage pipe.

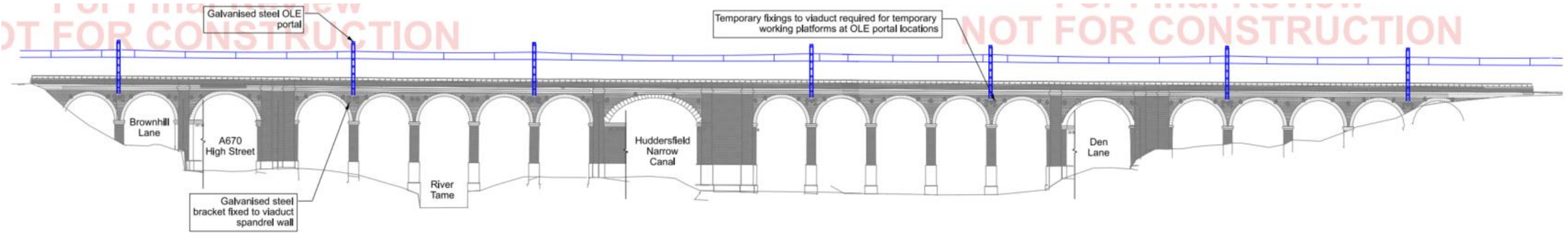
6.4 Description of proposals

6.4.1 It is proposed to install seven OLE portals along Uppermill Viaduct (MVL3/31) which would support the overhead wires along this section of the route. This would require the attachment of OLE portal brackets on the exterior of the viaduct on the spandrel walls.

6.4.2 The OLE portals would be placed over piers 5, 8, 11, 14, 17, 20 and 25 (Insert 6-3 and **Insert 6-4**). Each portal would be supported on galvanised steel wall brackets installed into the masonry spandrel walls above the piers. This would require holes to be drilled for insertion of anchors into the concrete saddle and attachment of the bracket steelwork on to these anchors. Bespoke bracketry has been proposed to avoid any clash with the viaduct's existing pattress plates and drainage downpipes on the face of the spans.



Insert 6-3 Proposed east elevation of Uppermill Viaduct (MVL3/31) showing the proposed spacing of OLE.



Insert 6-4 Proposed west elevation of Uppermill Viaduct (MVL3/31) showing proposed spacing of OLE.

Insert 6-5 Visualisation of OLE portals at Uppermill Viaduct (MVL3/31) from pedestrian perspective

Insert 6-6 Visualisation of OLE Portals at Uppermill Viaduct (MVL3/31) from an aerial perspective

Construction methodology

6.4.3 The proposed works to install the OLE portals to Uppermill Viaduct (MVL3/31) would comprise the following works for each bracket:

- Set up temporary working platform;
- Core eight holes 80mm wide through the viaduct face;

- Install eight M40 stainless steel ribbed Macalloy bars within the core holes and secure with grout;
- Attach bracket; and
- Remove the temporary working platform.

6.4.4 The proposed works to Uppermill Viaduct (MVL3/31) are shown in the following drawings which accompany this application:

- Existing and Proposed Plans (167037-TGP-26-MVL3-DRG-T-LP-163103);
- Existing and Proposed Elevations (167037-TGP-26-MVL3-DRG-T-LP-163104); and
- Existing and Proposed Sections (167037-TGP-26-MVL3-DRG-T-LP-163105).

7. IMPACT OF PROPOSALS

7.1 Uppermill Viaduct (MVL3/31)

7.1.1 The attachment of OLE infrastructure to the grade II listed Uppermill Viaduct (MVL3/31) is in order to deliver the electrification of the Transpennine route as part of the wider TRU Programme. These works would result in some minor physical intervention into the structure comprising the attachment of seven OLE portals to the viaduct and resulting alteration of its appearance, however due to the considered and sensitive approach to design, the proposed works would have limited impact on the overall significance of the viaduct.

7.1.2 Attachment of the OLE brackets would require the coring of eight 80mm holes into the spandrels each side of the viaduct over piers 5, 8, 11, 14, 17, 20 and 25, the insertion and grouting of stainless steel bars into these to enable attachment of the brackets and OLE portals. This would result in very minor impacts to the fabric of Uppermill Viaduct (MVL3/31) and would not impact any architectural features, being set below the level of the stringcourse and avoiding the arch voussoirs.

7.1.3 The presence of the OLE portals and bracketry would introduce new elements on the viaduct, altering its appearance, however, the extent of this impact on its aesthetic value is limited. The OLE portals are proposed to be sited to avoid the wider spans over Den Lane and the Huddersfield Narrow Canal and High Street (A670), being set back from these by a single, narrower span to either side (Insert 6-3 and **Insert 6-4**). This would minimise intrusion from the presence of the OLE portals in views of the structure along these important viewing corridors.

7.1.4 The architectural features, form and massing of the viaduct would continue to be appreciable following the installation of the OLE portals, and whilst the portals would form a modern intervention into the structure, they are proposed to be placed to respond to the architectural rhythm of the viaduct thus not detracting from its form. The significance which Uppermill Viaduct (MVL3/31) derives from its aesthetic value would therefore be maintained.

7.1.5 The proposed OLE portals would be installed in less visible locations where vegetation would largely obscure visibility from the setting of the viaduct. These measures would also ensure that the presence of the OLE portals would not be intrusive to the experience and views of the viaduct. The relationship of the Huddersfield Narrow Canal and particularly Lock 23 and the tailbridge would continue to be understood and appreciated in views along the canal. OLE bracketry would be visible in the limited oblique views along the elevations of Uppermill Viaduct (MVL3/31), however, these would be located up to c.15 m above ground level, forming a minor element in appreciation of the viaduct as a whole.

7.1.6 The proposed works would not affect the historic value of Uppermill Viaduct (MVL3/31) resulting from its association with the engineer A.S. Jee, the railway companies of the Huddersfield & Manchester Railway and LNER, and the Heroic Age of railway building (1841-1850). The features which contribute towards these associations namely the overall form, massing, architectural features and monumental presence of the viaduct in Uppermill would remain wholly legible following the installation of the OLE portals.

7.1.7 The group value of the structure with other bridges designed by A.S. Jee for the Huddersfield & Manchester Railway would be maintained. Whilst the establishment of OLE portals and bracketry would result in changes to the appearance of the viaduct, A. S. Jee's original design would continue to be understood, maintaining the group value of the succession of Jee viaducts along this section of the Transpennine route. The installation of OLE portals is required to enable the modernisation of the railway line through its electrification, and forms part of the ongoing use and modernisation of the historic railway network and the next chapter in the story of the railway's development and improvement.

7.1.8 The proposed works would therefore result in a low level of less than substantial harm to the significance of Uppermill Viaduct (MVL3/31).

7.2 Other heritage assets

7.2.1 Whilst the proposed overhead lines would be visible above the viaduct deck in views towards Lock 23 and tailbridge No.75 (NHLE 1356719), these would not form a prominent or intrusive element. Oblique views of the OLE portals and brackets would be possible on the approach to the lock and tailbridge, however, these would be at considerable height above the listed structures and would not detract from understanding of the historic relationship between the canal and railway.

7.2.2 OLE portals may be visible in views towards Uppermill Viaduct (MVL3/31) from Huddersfield Narrow Canal Lock No. 22W (NHLE 1163263), Lower Brownhill House (NHLE 1309706) and Brownhill Bridge Mill (NHLE 1309426), these would not form prominent or intrusive elements within these views and would be filtered by mature vegetation. This would result in no impact upon the contribution of setting to the significance of these assets.

7.2.3 The addition of OLE portals to Uppermill Viaduct (MVL3/31) would not result in any appreciable impacts on the Uppermill Conservation Area. Whilst the proposals would alter the appearance of viaduct to a limited extent, the extent of this impact would be limited due to the considered placement of the portals to maintain key views along the Huddersfield Narrow Canal, Den Lane and High Street (A670). The landmark status of the viaduct within the conservation area would be maintained, as would understanding of the role of the railway in the development of the settlement and its inter-relationship with the canal. Its significance would remain wholly appreciable in the conservation area and as would the contribution that the viaduct makes to the character and appearance of the conservation area.

7.3 Mitigation

7.3.1 The design proposals have been developed to minimise impacts on the fabric, form and appearance of Uppermill Viaduct (MVL3/31). This has been achieved through a robust process of optioneering, undertaken in consultation with Historic England and OMBC. This has informed the proposed placement of the OLE portals and brackets to reflect the architectural rhythm of the viaduct and to minimise physical intervention into the historic structure

7.3.2 During construction of the works, toolbox talks to disseminate best practice for reducing potential impacts in relation to construction activity associated with Uppermill Viaduct (MVL3/31) would also be delivered, for example to help avoid accidental damage.

Recommended compensation

7.3.3 In addition to these embedded measures, additional mitigation secured through the use of listed building consent conditions is recommended comprising:

- A scheme of historic building recording to Level 1 standards in accordance with Historic England guidance (Historic England, 2017). This would provide a permanent record of Uppermill Viaduct (MVL3/31) in its current form and be lodged with the Greater Manchester Historic Environment Record.
- A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee, such as Uppermill Viaduct (MVL3/31). Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

7.4 Public benefit

7.4.1 The works proposed to be undertaken to Uppermill Viaduct (MVL3/31) are required to ensure the realisation of the substantial public benefits of the Order Scheme.

7.4.2 As part of the wider TRU Programme, the Order Scheme would directly and indirectly play a role in improving regional connectivity and enhancing of some of Britain's busiest rail network, in turn realising economic, social and environmental objectives of the programme. The Transpennine route is identified as a key transport corridor, providing connections between cities in the North of England. The improvements in connectivity delivered by the TRU programme will support aspirations for economic growth and "levelling up" opportunities across the North of England.

7.4.3 The key objectives of the TRU programme are to achieve the part electrification of the Transpennine Route, improve journey times and capacity between key destinations, improve overall reliability and resilience of the route, and provide environmental benefits from modal shift from road to rail freight reducing the number of heavy vehicles on the highway network and associated air pollution. The completion of the proposed works at Uppermill Viaduct (MVL3/31) would contribute towards this, delivering electrification of the railway line across the viaduct, thereby delivering increases in line speed, capacity and resilience.

7.4.4 Electrification would deliver faster journey times and improved performance by allowing trains to accelerate faster, and brake more efficiently. The Order Scheme will deliver faster line speeds (80 mph throughout), improving journey times along the Transpennine Route, aiming to provide an improved journey time from Leeds – Manchester Victoria of 42-44 minutes and York to Manchester Victoria of 65-67 minutes. Works to the track and structures along the Route, including Uppermill Viaduct (MVL3/31), are required to accommodate this increase, and without these changes the Scheme would be unable to go ahead.

7.4.5 As a vital constituent part of the Order Scheme, the proposed works at Uppermill Viaduct (MVL3/31) would also facilitate indirect benefits associated with the wider programme of works, including station upgrades, track renewal and signalling improvements.

7.4.6 The reliability and resilience of the route and services operating on it will be improved by replacement of existing infrastructure with electrification equipment, new track drainage and signalling. Modern signalling equipment will reduce the headway between trains, allowing them to run closer together which will in turn provide increased capacity. The Scheme will provide the capability to operate four ‘express’, two ‘semi-express’ services and up to two local services an hour on the Route and will provide increased flexibility to timetable more train paths.

7.4.7 Electrification of the Scheme would provide substantial environmental and sustainability benefits and is an investment in ‘greener’ energy technology. This supports Network Rail’s Decarbonisation Strategy and is bolstering national targets for reducing harmful emissions that cause climate change, which are set out in Government legislation for achieving net zero carbon by 2050.

7.4.8 The Order Scheme will also deliver improved safety through measures including replacement of two level crossings, installation of additional safety measures on existing bridges; enhancements to the local highway networks and new pedestrian crossing points at locations including Greenfield and Mossley Stations. Accessibility of the railway network will also be improved with the provision of fully accessible stations at Greenfield Station and the relocated Mossley Station. These measures are being brought forward as part of the wider TRU Scheme to electrify and modernise the Route, as facilitated, in part, by the works to Uppermill Viaduct (MVL3/31).

7.4.9 Significant residual beneficial effects arising from the operation of the wider TRU Scheme have been previously identified in the Huddersfield-Westtown TWA Order Inquiry from December 2021.

These included recognition of improved journey times, reliability, and capacity at the Local Authority area and in turn the sub-regional and regional level. These improvements will bring direct significant benefits to local businesses and the labour market through improved access to the local regions along the section of the route from Stalybridge to Diggle.

7.4.10 To this effect, the proposals at Uppermill Viaduct (MVL3/31) are therefore essential in achieving the overall substantial public benefits of Route Section W2B and wider objectives of the Order Scheme, and without these interventions, the Order Scheme would not be able to be safely and successfully implemented. Alongside these substantial public benefits, the delivery of heritage interpretation adjacent to Greenfield Station would enable public engagement with the heritage of the Huddersfield & Manchester Railway, its architecture and significance.

8. CONCLUSION

8.1.1 The significance of Uppermill Viaduct (MVL3/31) lies primarily in its historic and architectural interest. The viaduct's dates to the Heroic Age (1841-1850) of railway building and demonstrates the high-quality design and craftsmanship of A.S. Jee's work for the Huddersfield & Manchester Railway, of which notable features include the monumental scale, quality of its architectural detailing and construction and integration of skew spans over Den Lane, the Huddersfield Narrow Canal and High Street (A670). The viaduct therefore derives significance from this direct historical relationship with notable railway engineer A.S. Jee and the historic railway companies namely the Huddersfield & Manchester Railway and LNWR. The setting of Uppermill Viaduct (MVL3/31) contributes to the significance of the structure, and particularly in its relationship with the canal. It also possesses group value as one of a number of A.S. Jee viaduct along Transpennine route which share a common design language.

8.1.2 The proposals to erect seven OLE portals and bracketry across Uppermill Viaduct (MVL3/31), will result in some localised changes to the structure, however, these have been developed through a robust optioneering process, undertaken in consultation with Historic England and OMBC and designed to minimise impact on the significance of the listed building as far as possible. These works would result in minor alteration of the structure, although the design measures have sought to preserve key aspects of its significance including its architectural quality, detailing and construction. Whilst the proposals would introduce modern materials into the fabric of the structure, these works are limited in extent and would be developed to be as visually unobtrusive as possible. The group value of Uppermill

Viaduct (MVL3/31) with other viaducts designed by A.S. Jee for the Huddersfield and Manchester Railway would be maintained.

8.1.3 The proposals would result in less than substantial harm to the significance of Uppermill Viaduct (MVL3/31), as defined under the NPPF in paragraph 215. These impacts are deemed necessary in order to deliver the TRU programme, and would enable the achievement of key improvement objectives as outlined in Section 7.4. It would also support the achievement of substantial public benefits related to:

- Improved efficiency and reliability of the railway (in journey time saving and increased capacity);
- Reduction of delays to trains and other highway users (improved efficiency of the railways means fewer heavy vehicles on the highway network causing traffic issues and contributing to air pollution);
- Supporting sustainable transport development in line with Network Rail's Decarbonisation Strategy; and
- Improving public health and safety in providing safe routes across the railway.

8.1.4 In addition to this, the delivery of a programme of heritage interpretation at Greenfield Station would provide the opportunity for engagement of the public with the heritage of the Huddersfield & Manchester Railway.

8.1.5 These substantial public benefits would outweigh the less than substantial harm to the significance of Uppermill Viaduct (MVL3/31). The proposals therefore meet the requirements of the NPPF (paragraph 215) in relation to the justification for less than substantial harm. The proposals would also satisfy the requirements of Policy 24 of the Oldham Joint Core Strategy and Development Management Policies (2011), in relation to the impact on the character of the listed building, and preservation of its architectural style and features. It would also satisfy Policy JP-P2 contained within Greater Manchester Combined Authority's Places for Everyone (2024). The proposals therefore satisfy both national and local policy requirements in relation to the justification for harm to significance of Uppermill Viaduct (MVL3/31).

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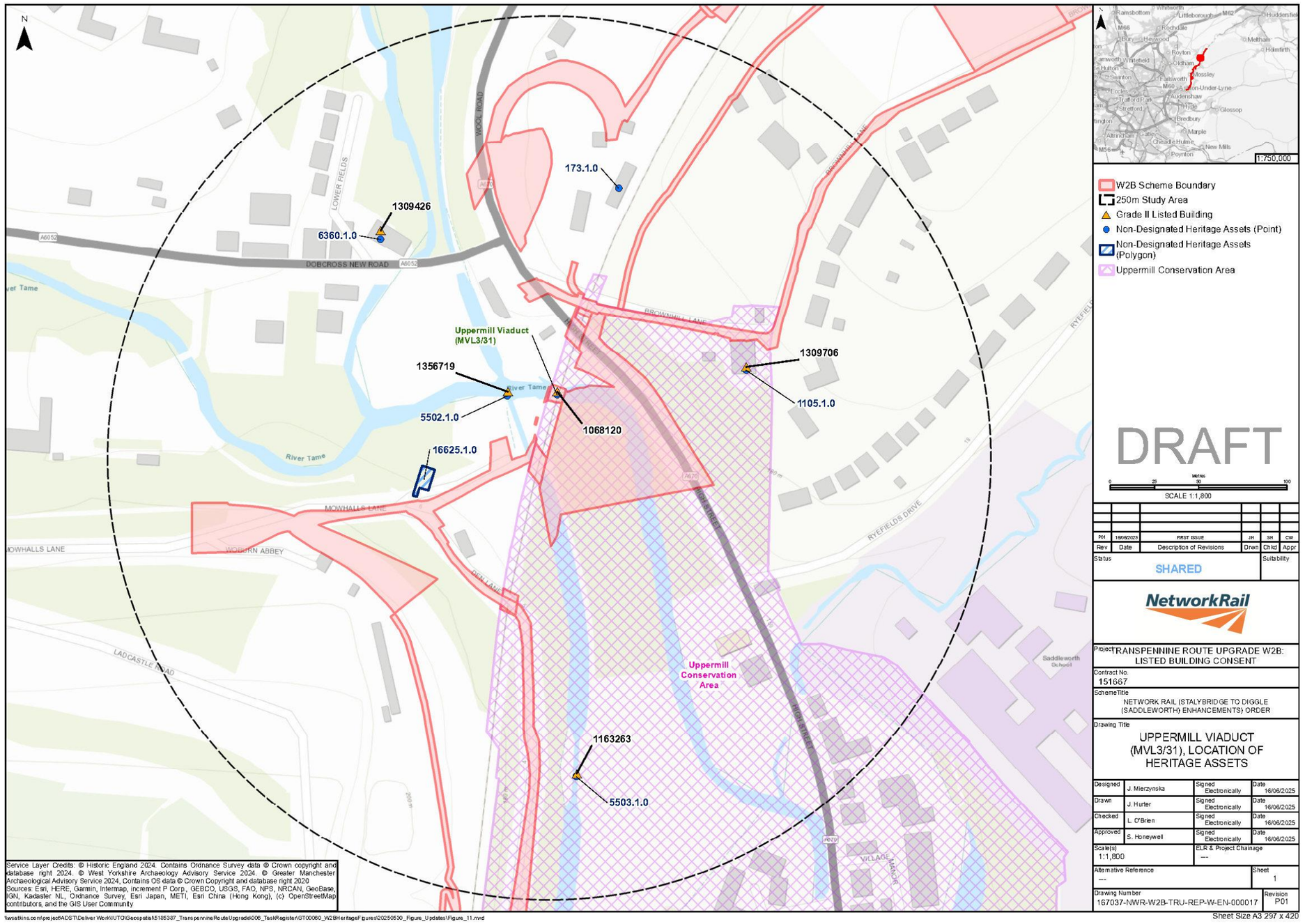
APPENDIX A – LOCATION PLAN



APPENDIX B – NATIONAL HERITAGE LIST DESCRIPTION

Official list entry

Heritage Category:	Listed Building
Grade:	II
List Entry Number:	1068120
Date first listed:	02-Jul-1986
List Entry Name:	UPPERMILL VIADUCT
Statutory Address 1:	UPPERMILL VIADUCT, 31, UPPERMILL

Location

Statutory Address:	UPPERMILL VIADUCT, 31, UPPERMILL

The building or site itself may lie within the boundary of more than one authority.

District:	Oldham (Metropolitan Authority)
Parish:	Saddleworth
National Grid Reference:	SD 99579 06310

Details

SADDLEWORTH UPPERMILL SD 9906 9/342 No. 31 Uppermill Viaduct (also known as Uppermill Arches and Saddleworth - Viaduct) G.V. II Railway viaduct. 1849. By A S Jee Huddersfield and Manchester Railway Co. Rock-faced stone. Total of 23 arches. Each arch is semi-circular, has rusticated voussoirs, and is supported on a rectangular pier with projecting plinth and springing band. 3 of the arches are skew and flanked by flat pilasters; they are Nos. 9, 15 and 21 (counting from the south). This was already part of the LNWR before completion.

Listing NGR: SD9957906310

APPENDIX C - HISTORIC ENGLAND PRE-APPLICATION RESPONSE LETTER

Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

25 June 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the pre-application meetings over the last five months. These have been extremely useful in explaining the significance of the heritage assets, the design team's approach, and in exploring issues and constraints associated with electrifying the track.

This letter covers our advice regarding proposals for change to eight listed railway structures between Stalybridge and Standedge Tunnel, within the Metropolitan boroughs of Tameside and Oldham in Greater Manchester. This section of the railway is referenced as W2B.

Significance

The section of railway between Stalybridge and Standedge Tunnel was constructed in stages between 1844 and 1849. This was at the height of "railway mania"; an intense period of activity when many competing companies formed and were racing to complete sections of railway. The Stalybridge and Standedge Tunnel railway eventually became part of a wider network of sections of track that extends from Selby and York to Manchester Victoria via Leeds.

The W2B route has considerable heritage value. It traverses areas of dramatic landscape and varied geology, and has remained well preserved and largely unaltered since its opening in the 1840s. The wider railway network from the Yorkshire cities to Manchester contributed hugely to the economic and urban development of the North and was a major factor in the industrial revolution and in the development of towns.

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The tricky geology and terrain of the W2B route presented challenges to the engineers of the 1840s, and many of the most notable surviving features of the railway are the impressively engineered bridge and viaduct structures. These structures are predominantly built from locally sourced stone, meaning they harmonise with the landscape and contribute to local views, adding to the aesthetic value of the route. The significance of the structures also lies in the fact that they survive well and in large numbers. There have been few alterations to bridges, mainly because this section of the line has not been widened as other parts of the wider route have been.

There are eight listed railway structures that will be affected by the proposed electrification works between Stalybridge and Standedge Tunnel; these are:

- Heyrod Hall Overbridge - MVL3/7
- Heyrod Footbridge Overbridge - MVL3/8
- Spring Bank Lane Overbridge - MVL3/9
- Roughtown Road Overbridge - MVL3/17
- Wright's Mill Overbridge - MVL3/20
- Wright's Overbridge - MVL3/23
- Oldham Road Overbridge - MVL3/28
- Saddleworth Viaduct - MVL3/31

All eight of the listed structures were designed by notable railway engineer Alfred Stanistreet Jee, lead engineer for the railway between Huddersfield and Manchester. They were built in the mid-late 1840s and share many architectural characteristics, adding to their group value and enhancing their significance.

Bridges MVL3/7, MVL3/9, MVL3/17, MVL3/20, MVL3/23, and MVL3/28 are all very similar in design. All are made from coursed local sandstone and have segmental arches formed from tooled voussoirs, with larger keystones. Each has dressed ashlar impost bands, sloping string courses above the arch, and parapet copings, with shallow pyramidal caps to the slender piers. They have considerable group value and are easily identifiable in the landscape as bridges associated with the original construction of the railway. The bridges are all well designed and adapted to their individual locations, some being skewed or sloped. High quality workmanship and

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details such as picked and tooled ashlar voussoirs elevate their design above what is purely function, enhancing their significance further.

Heyrod Footbridge (MVL3/8) and Saddleworth Viaduct (MVL3/31) are clearly recognisable as part of the same scheme of work but differ in their form. Heyrod Footbridge features a flat span, and retains its cast-iron edge beams and brick parapets, while Saddleworth Viaduct comprises 23 sandstone arches spanning the River Tame and Huddersfield Narrow Canal.

The structures are all Grade II listed in recognition of their special architectural and historic interest at national level. Saddleworth Viaduct was listed in 1986, while all seven overbridges were listed in 2017 or 2018 after a comprehensive review of the line.

Impacts

The proposals involve demolition and reconstruction of three structures, total removal of one structure, and modifications to four structures. These works are deemed necessary to achieve the clearance required for the OLE (overhead line equipment) and to ensure safety for bridge users. The impacts of proposed works at each structure are discussed below.

Bridges requiring demolition works:

Heyrod Hall Overbridge MVL3/7 carries a short section of private road over the railway to Heyrod Hall. This bridge is in a rock cutting with very hard rock beneath the track, prohibiting track lowering.

Wright's Mill Overbridge MVL3/20 carries the public footpath and bridleway over the railway where it passes through a steep-sided rock cutting. Options to lower the track at this bridge have been investigated but discounted due to the location on the bridge in a rock cutting with very hard rock beneath. Track lowering would also have a knock-on effect to a nearby underbridge.

Oldham Road Overbridge MVL3/28 is a skew overbridge located on the north-east side of Greenfield Station and carries Oldham Road over the track below. There will be

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the addition of a new footbridge alongside the reconstructed road bridge. Options to lower the track at this bridge have been investigated but would be difficult to achieve due to the proximity to the station.

Proposals at these three bridges involves the complete dismantling of each bridge and reconstruction to create a raised, flat deck with sufficient clearance for OLE. Stone would be reclaimed and used to clad the inside faces of parapet walls; however matching stone is likely to be needed to clad the external sides of the parapets. New copers would also be needed to ensure parapets were the correct height.

The demolition and reconstruction of these bridges will cause substantial harm to their significance through the total loss of historic form and loss of much of their original fabric. The proposals will also diminish the group value of the historic bridges on the railway.

Wright's Overbridge MVL3/23 is a footbridge that carries a public footpath from north-west to south-east across the railway. The railway here is in a steep cutting and due to gradients, the bridge slopes down towards the south-east. Proposals involve the total removal of this bridge and diversion of the public right of way across the railway at another point.

The removal of Wright's Overbridge will cause substantial harm to its significance through the total loss of its historic form and all original fabric. Its removal will necessitate the re-routing of a historic public footpath, which is part of a network of paths in the area connecting mills and farms with workers' housing, and contributes to the landscape character of the area and to the setting of the bridge. The proposals will also further diminish the group value of the historic bridges on the railway.

Bridges requiring modifications:

Heyrod Footbridge Overbridge MVL3/8 carries a footpath running east-west over the railway, with steps on the eastern side down to a path running south-east towards Spring Bank Lane which are also listed.

Spring Bank Lane Overbridge MVL3/9 (also known as Heyrod Bridge) carries Spring Bank Lane over the railway. Due to the lie of the land the bridge slopes down towards the east. The splayed projecting wing walls are also covered by the listing.

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Roughtown Road Overbridge MVL3/17 carries Roughtown Road north-south across the railway, to the east of Mossley Station. Due to gradients the deck slopes down towards the south. The projecting wing walls are also covered by the listing.

Minimal interventions are proposed at these three bridges, the most significant changes being the introduction of new triangular copers to ensure the correct and safe parapet heights.

The introduction of triangular copers to raise the parapet heights to 1.5m will result in a low level of less than substantial harm to the significance of the bridges through the changes to their appearance and the loss of original copers. This harm could be further lowed by using stone copers instead of concrete, and by undertaking any other restoration works required such as replacing the recently rendered section of parapet copings in the south-west corner of Roughtown Road Bridge.

Saddleworth Viaduct MVL3/31 (also known as Uppermill Arches and Uppermill Viaduct) carries the railway over a series of roads and lanes, and the River Tame and Huddersfield Narrow Canal. Due to the lack of space available on the viaduct deck, proposals here involve attaching brackets to the exterior of the viaduct for the OLE supports.

The proposed works at Saddleworth Viaduct will result in a low level of less than substantial harm to the significance of the structure through the change to its appearance and in the physical impact on the elevations of the viaduct from the brackets. This harm could be further lowed by ensuring the spacing of the masts responds to the structural and architectural rhythm of the viaduct to lessen their visual impact.

Policy

National policy relating to the conservation and enhancement of the historic environment is articulated in section 16 of the National Planning Policy Framework (NPPF, 2023). These policies state that heritage assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so they can be enjoyed for their contribution to the quality of life of existing and future generations (NPPF para 195). Also, when considering the impact of a proposed development, great weight should be given to an asset's conservation (NPPF para 205).

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Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification (NPPF 206).

Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or total loss is necessary to achieve substantial public benefits that outweigh that harm or loss. In practice this means that less harmful alternative solutions should be explored through the pre-application and application processes.

In addition to section 16 of the NPPF, we refer you to Section 12 'Achieving well-designed and beautiful places' when considering the design for replacement bridge structures. Para 132 states that being sympathetic to local character and history is important, along with a consistent and high-quality standard of design (para 133).

Position

The proposed works to upgrade the W2B section of the Transpennine route network will be the first major programme of work since its construction in the 1840s. The wider public benefits of the upgrade work to this key transport network will be vast and will have positive knock-on effects across the region. The challenging geology and hydrology across the route still present issues to engineers today, and we welcome the work that has gone into investigating alternative options to demolition and reconstruction for the bridges affected.

The proposals will result in substantial harm to the significance of bridges MVL3/7, MVL3/20, MVL3/23, and MVL3/28, with the highest level of harm to bridge MVL3/23 which will be dismantled and not reconstructed. The proposals will cause harm through the loss of the form of the arched bridges and though the loss of historic fabric. There will be the additional harm to the group value of the bridges.

We agree that the bridges are predominantly experienced from the bridge deck, and that re-use of original fabric should be focussed on the inside faces of the parapet walls to ensure the look of the bridge when crossing it is not unacceptably altered, however this re-use of materials does not lower the harm to less than substantial levels. It will be for decision takers to weigh the balance of this substantial harm against the public benefits of the scheme.

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Works to bridges MVL3/8, MVL3/9 and MVL3/17 is largely limited to raising the parapets to ensure they are the safe and correct height. We acknowledge that Network Rail has a legal obligation to take reasonable steps to prevent people from coming into contact with the OLE by ensuring parapets cannot be climbed or walked on. We appreciate the work undertaken to investigate various options for different types of pantographs to limit the height at which the parapets need to be raised to. The use of triangular copers will introduce a change in the appearance of the bridges and cause a low level of less than substantial harm to their significance, but the impact can be lessened by use of stone rather than concrete copers which will be less visually obtrusive. Parapet design should be tailored to the individual circumstances of each bridge to ensure the least harmful solution is used.

There will also be a low level of less than substantial harm at Saddleworth Viaduct from the introduction of brackets to the structure to support the OLE. This can be further lowered by thoughtful spacing of the brackets.

We welcome the detailed options appraisals undertaken during the design of the proposed works to listed structures on the W2B route. We recommend that details are finalised using bespoke designs that respond to the particular character of each structure and its setting.

Next Steps

Thank you for involving us at the pre-application stage of this project. The above advice is the response that we would give if the same proposals were put forward unamended for statutory approval.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

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Historic England

Ms Kate Berry
AtkinsRéalis
3100 Century Way
Leeds
LS15 8ZB

Direct Dial: +447990339949

Our ref: PA01200823

29 November 2024

Dear Kate

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the meetings on 6 and 21 November 2024 to review the proposals for bridges MVL3/9, 10, 23, 25, 26, 28, 29 and 31. As before, it was helpful to see the drawings in advance and then talk through the proposals with the team.

The impacts of the proposed changes and our comments are detailed below:

Proposals at *Manchester Road underbridge MVL3/10*, *Shaw Hall Bank Road underbridge MVL3/26* and *Wickens underbridge MVL3/29* will involve minor works, consisting of renewal of railings and strengthening of parapets with reinforced concrete. Visually, there will be only a minor impact, as the replacement railings are similar to the existing and the concrete strengthening will be hidden from view by the parapets. There will be a very low level of less than substantial harm to the physical fabric of the bridges due to the new railings being grouted into cored holes in the masonry parapet blocks. We do not have concerns over the works at these three bridges and recognise the efforts to maintain the visual appearance on the bridges.

The proposals for *Spring Bank Lane overbridge MVL3/9* and *Uppermill Viaduct MVL3/31* have been discussed at previous meetings, and it was helpful to see further details of the works at these structures. There will be a low level of less than substantial harm to *Spring Bank Lane overbridge* due to the introduction of raised copers, however the use of colour-matched concrete here will help to mitigate some of the harm caused by the visual impact of the new copers. Works to *Uppermill Viaduct* will likewise lead to a low level of less than substantial harm due to the introduction of brackets to support the OLE portals which will have an impact both physically and visually. We appreciate that care has been taken in the spacing of these portals so the rhythm of the bridge arches is not unduly interrupted, and so that the pattress plates are not affected.

More considerable impacts will result from proposals at *Wright's overbridge MVL3/23*, *Oaklands Road underbridge MVL3/25* and *Oldham Road overbridge (Greenfield*

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Station) MVL3/28, all of which will result in substantial harm to the significance of the designated assets.

As mentioned in previous letters, the removal of *Wright's Overbridge* will cause substantial harm to its significance through the total loss of its historic form and all original fabric, and through the re-routing of a historic public footpath. Thorough justification will need to be presented in the supporting documentation to provide the reasoning for the total loss of this bridge.

The proposed reconstruction of *Oldham Road Overbridge* has also been discussed previously. This is a skew overbridge located on the north-east side of Greenfield Station which carries Oldham Road over the track below. The bridge currently has a masonry arch which will be dismantled, along with much of the approaching wing walls, resulting in very little historic fabric being retained. The works will also necessitate the removal of the ornate historic iron railway footbridge. There will be substantial harm to the significance of the listed asset due to the severity of changes to its physical appearance and the loss of historic fabric. We recognise that some fabric will be retained for reuse as cladding material, however this will need to be carefully managed to maintain the look of the structure. The stone coursing in the existing bridge runs through the parapets into the wing walls. We would like to see care taken to replicate this effect within the reconstructed bridge to avoid a disjointed appearance to the new structure, which could arise from using mismatched stone-cladded panels. The existing bridge features flat masonry pilasters that project slightly from the bridge to either side of the arch. These have not been articulated in the proposed design and we would like to see further investigation into whether they could be incorporated into the design. This location would be suitable for display of permanent interpretation materials which could help to mitigate some of the harm by informing the public about the history of the route and the upgrade works.

Oaklands Road underbridge MVL3/25 is a skew girder bridge carrying the two-track railway line over a bend in the road below. The angled abutments have distinctive semi-octagonal piers, and the parapets are ornate balustrades of decorative cast-iron panels of Gothic arcading. The craftsmanship of the stonemasonry and attention to architectural detail lifts the design of this bridge above the purely functional and it has considerable architectural interest. There will be substantial harm to the significance of this listed bridge resulting from the proposals to reconstruct and widen the bridge deck and to rebuild the octagonal piers. In order to minimise the harm, the design of the rebuilt piers and abutments will need to be careful managed to ensure there is meaningful articulation of the distinctive shape of the piers. This includes the contrasting shape and dimensions of the piers where they extend through and above the parapet. We are comfortable with the proposals to replicate the decorative cast-iron panels to minimise the visual impact of the loss of the original fabric here.

Next Steps

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We look forward to our continued involvement in the pre-application discussions for this scheme.

Yours sincerely

Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

Information Provided

Draft LBC drawings, October 2024

MVL3/25 Presentation, November 2024

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Historic England

Sarah Coward
AtkinsRéalis

Direct Dial: +447990339949

Our ref: PA01200823
18 July 2025

Dear Sarah

Pre-application Advice

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE

Thank you for arranging the recent meetings to review the draft Heritage Statements that will be submitted for Listed Building Consent applications for changes to bridges on the proposed Transpennine Route Upgrade line.

The Heritage Statements are well considered and it is clear that alternative options to reconstruction have been investigated in each case, which are helpfully set out in tables in the reports. The proposals will result in substantial harm to listed bridges along the route, however clear justification for this has been set out in the Heritage Statements.

We very much welcome the inclusion of heritage interpretation at Greenfield Station. This is a significant early rail route and there is notable educational potential in the material that has been generated from the research into the railway structures as part of this project.

Regarding Oaklands Road underbridge MVL3/25, we are comfortable with the design of the proposals for the reconstruction of the parapet and stone turrets. These have been carefully considered to minimise the visual impact.

Next Steps

We appreciate having been involved at pre-application stage in this important project, and value being able to feed into design plans. If you require further pre-application advice please get in touch.

Yours sincerely

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Louise Davies
Inspector of Historic Buildings and Areas
E-mail: louise.davies@historicengland.org.uk

TRANSPENNINE ROUTE UPGRADE - STALYBRIDGE TO STANDEDGE
Pre-application Advice

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TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT VOLUME 3 APPENDIX 5B ROUTE-WIDE HISTORIC ENVIRONMENT DESK-BASED ASSESSMENT

Rule 10(6)(d)

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CONTENTS

1. INTRODUCTION 3
1.1 The Transpennine Route Upgrade 3
1.2 Report Objectives 4
2. LEGISLATION AND POLICY CONTEXT 5
2.1 Legislation 5
2.2 Local planning policy 10
2.3 Other Guidance 18
2.4 Consultation with stakeholders 20
3. ASSESSMENT METHODOLOGY 21
3.1 Study Area 21
3.2 Sources of Information 22
3.3 Assessment of Significance 24
3.4 Setting of Heritage Assets 25
3.5 Archaeological potential 25
3.6 Previous Ground Disturbance 26
3.7 Walkover Survey 27
3.8 Assumptions and Limitations 28
4. BASELINE 29
4.1 Overview 29
4.2 Previous Investigations in the Study Area 29
4.3 Site Conditions 30
4.4 Historic Environment Baseline 31
4.5 Significance of Heritage Assets 53
5. DEVELOPMENT PROPOSALS & IMPACT ASSESSMENT 63
5.2 Impact Assessment 63

5.3 Mitigation Measures 69

6. CONCLUSIONS 72

7. REFERENCES 73

Annex A – Gazetteer of Heritage Assets 78
Annex B – Desk-Based Assessment of Offline Scheme Areas 112
Annex C – Site visits undertaken for assessment of the Order Scheme..... 208

Tables

Table 3-1 Assessment of heritage significance.....24

Table 4-1 Designated assets associated with Huddersfield Narrow Canal.....46

Table 4-2 Non-designated assets associated with Huddersfield Narrow Canal 47

Table 4-3 Online Designated Heritage Assets 53

Table 4-4 Significance of offline designated heritage assets 58

Table 5-1 Summary of archaeology and built heritage potential of offline area of potential impact and likely mitigation works 65

Table 5-2 Proposed additional mitigation for designated and non-designated built heritage assets.....70

Inserts

Insert 3-1 Photograph from walkover survey of Stockport Road towards Midge Hall Underbridge MVL3/19 and area of land-take for Wright's Mill Overbridge MVL3/20 28

Insert 4-1 Ordnance Survey 1:10,560 County Series Map of 1848 showing Millbrook Ward (left) 1:10,560 County Series Map 1918, Millbrook is shown to the east (right).....38

Insert 4-2 Ordnance Survey 1:10,560 County Series Map of 1854 41

Insert 4-3 Ordnance Survey 1:10,560 County Series Map 1904, Grasscroft shown the east of the railway corridor 42

Insert 4-4 1:10,560 County Series Map of 1890 showing the area of Diggle (left) 1:10,560 County Series Map of 1933 showing the area of Diggle (right) 45

1. INTRODUCTION

1.1 The Transpennine Route Upgrade

1.1.1 The Transpennine Route Upgrade (TRU) is a rail enhancement programme established to increase capacity and improve reliability/journey times between Manchester Victoria and York, via Huddersfield and Leeds.

1.1.2 The TRU will aim to deliver:

- An improved journey time for Leeds – Manchester Victoria of 41-42 minutes;
- An improved journey time for York to Manchester Victoria of 63-66 minutes;
- The capability to operate four ‘express’ and two ‘semi-express’ services an hour on the route;
- The capability to operate up to two ‘local services’ an hour on the route;
- The performance of the Transpennine Route to be 92.5% or higher each period;
- Freight paths/rights to be retained as existing; and
- A contribution to Network Rail’s Decarbonisation Strategy and climate policy.

1.1.3 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancement Order extends from Stalybridge Tunnel, in the west, through to the western portal of Standedge Tunnel (the Order Scheme). This section of the Transpennine Route follows the Tame Valley from Stalybridge to Diggle and is referred to hereafter as Route Section W2B.

1.1.4 The TRU programme involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure); removal, re-modelling, and replacement of bridges and structures to accommodate OLE, track and signalling upgrades, and structural strengthening works. Where level crossings are affected by the improved services proposed, TRU also involves level crossing closures and, where necessary, their replacement by safer alternative.

1.1.5 The Transport and Works Act 1992 introduced section 12(3A) into the Planning (Listed Buildings and Conservation Areas) Act 1990, the effect of which is to ’call-in‘ for determination by the Secretary of State applications to the local planning authority for listed building consent where such consent is required in consequence of proposals included in an application for a Transport and Works Act Order (TWAO). The procedures in the Transport and Works Applications (Listed Buildings, Conservation Areas

and Ancient Monuments Procedure) Regulations 1992 then apply to the call in of such listed building consent applications.

1.2 Report Objectives

1.2.1 This Heritage Assessment has been prepared to establish baseline conditions for the historic environment across the Scheme boundary, to inform assessment of impact for those works included within the TWAO, development of mitigation proposals, and consultation with Heritage regulators. This assessment has been prepared to consider the extent of the Route Section W2B from Stalybridge to the Eastern Portal of Standedge Tunnel.

1.2.2 The requirement for this assessment and its scope is guided by policy contained within the National Planning Policy Framework (NPPF) (MHCLG 2024) and Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]). It addresses NPPF paragraph 207, Section 16 which require an assessment proportionate to the asset's importance and sufficient to understand the potential impacts of development and to appraise the nature and extent of any impact upon setting and significance.

1.2.3 This assessment aims to:

- Summarise legislation, policy and guidance relevant to historic environment assets and the appraisal of their significance;
- Place the Order Scheme within its historical and archaeological context through the collation of baseline information;
- Identify and contextualise known designated and non-designated heritage assets in proximity to the relevant works elements of the Order Scheme;
- Assess the potential for, and likely significance of, previously unrecorded archaeological or remains or deposits that may be located within the study area;
- Assess the significance of potentially affected heritage assets within the Order Scheme and study area, including the group value of assets and the contribution made by their setting;
- Provide a high-level assessment of potential impacts to heritage assets as a result of the Order Scheme; and
- Identify potential mitigation measures to reduce or offset impacts to heritage assets as a result of the Order Scheme.

1.2.4 This Historic Environment Assessment principally considers archaeological remains and historic landscapes which pre-date the railway and associated features.

1.2.5 Detailed assessments of individual listed buildings, including railway bridges, is provided in the sequence of Heritage Statements compiled in support applications for listed building consent in respect of the proposed works included in the application for a TWAO (refer to Volume 3, Appendix 5A of this Report [**NR14**]).

1.2.6 Potential impacts on heritage assets resulting from PDR works are not subject to assessment in this report. Any such impacts would be managed in accordance with the requirements included in NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]. This would include the preparation of a heritage assessment as part of the management plans in consultation with the relevant local and statutory authorities, and the undertaking of the works to avoid disturbance of archaeological remains and historic buildings.

1.2.7 Potential impacts on heritage assets resulting from PDR works are not subject to assessment in this report. Any such impacts would be managed in accordance with the requirements included in NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]. This would include the preparation of a heritage assessment as part of the management plans in consultation with the relevant local and statutory authorities, and the undertaking of the works to avoid disturbance of archaeological remains and historic buildings.

2. LEGISLATION AND POLICY CONTEXT

2.1 Legislation

Ancient Monuments and Archaeological Areas Act 1979 (as amended)

2.1.1 The Ancient Monuments and Archaeological Areas Act (1979) ('the Act') is the central piece of legislation for the protection of the archaeological resource. The Act makes provision for the investigation, preservation and recording of matters of archaeological or historical interest and regulates operations or activities which may affect them. The first section of the Act requires the Secretary of State for National Heritage to maintain a schedule of nationally important sites.

2.1.2 For the purpose of the Act, a monument is defined as:

> "a) any building, structure or work, whether above or below the surface of the land, and any cave or excavation; b) any site comprising the remains of any such building, structure or work or of any cave or excavation; and c) any site comprising, or comprising the remains of, any vehicle, vessel, aircraft or other moveable structure or part thereof which neither constitutes or forms part of any work which is a monument as defined within paragraph a) above; d) and any machinery attached to a monument shall be regarded as part of the monument if it could not be detached without being dismantled' (Section 61 (7))."

2.1.3 The Act further defines an ancient monument as:

> "any Scheduled Monument; and any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it' (Section 61 (12))."

2.1.4 The Ancient Monuments and Archaeological Areas Act 1979 imposes a requirement for Scheduled Monument Consent for any demolition, destruction, or damage to the monument; alterations or repairs that affect the monument's character; and/or excavation or other groundworks that disturb the Scheduled Monument.

Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended)

2.1.5 The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) ("Act") governs the designation and works to listed buildings in England.

2.1.6 The Act states in s.1 (5):

2.1.7 'In this Act "listed building" means a building which is for the time being included in a list compiled or approved by the Secretary of State under this section; and for the purposes of this Act—

a) *any object or structure fixed to the building;*

b) *any object or structure within the curtilage of the building which, although not fixed to the building, forms part of the land and has done so since before 1st July 1948, shall be treated as part of the building.'*

2.1.8 Under the Act, no one is permitted to undertake or cause to be undertaken any works that would affect the character of a listed building unless the works are authorised. Section 16 of the Act identifies that whether such works can be carried out is determined by the local planning authority or the Secretary of State:

> *'(1) Subject to the previous provisions of this Part, the local planning authority or, as the case may be, the Secretary of State may grant or refuse an application for listed building consent and, if they grant consent, may grant it subject to conditions.*
>
> *(2) In considering whether to grant listed building consent for any works the local planning authority or the Secretary of State shall have special regard to the desirability of preserving and enhancing the building or its setting or any features of special architectural or historic interest which it possesses.*

> *(3) Any listed building consent shall (except in so far as it otherwise provides) ensure for the benefit of the building and of all persons for the time being interested in it.'*

2.1.9 In relation to the granting of listed building consent , Section 17 of the Act stipulates listed building consent that conditions attached may include those with respect to:

> ' *the preservation of particular features of the building, either as part of it or after severance from it;*
>
> *the making good, after the works are completed, of any damage caused to the building by the works; [and]*
>
> *the reconstruction of the building or any part of it following the execution of any works, with the use of original materials so far as practicable and with such alterations of the interior of the building as may be specified in the conditions'.*

2.1.10 It is also defined in s.17 (2) that a condition 'may also be imposed requiring specified details of the works (whether or not set out in the application) to be approved subsequently by the local planning authority or, in the case of consent granted by the Secretary of State, specifying whether such details are to be approved by the local planning authority or by him'.

National Planning Policy Framework

2.1.11 The NPPF (MHCLG 2024) sets out the Government's planning policies for England and how these should be applied to contribute to the achievement of sustainable development.

2.1.12 Section 2 of the NPPF outlines the principles of achieving sustainable development including, in Paragraph 8, an environmental objective *'to protect and enhance our natural, built and historic environment'*. Paragraph 9 sets out that these objectives should be delivered through the preparation and implementation of plans and the application of the policies within the NPPF. Section 16 of the NPPF deals with conserving and enhancing the historic environment. Where changes are proposed, the NPPF sets out a clear framework to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance.

2.1.13 The NPPF sets out the importance of being able to assess the significance of heritage assets that may be affected by a development. Significance is defined in Annex 2 (MHCLG 2024) as being the *'value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic'*. Significance is not only derived from an asset's physical presence, but also from its setting. The setting of a heritage asset is defined in Annex 2 as, *'the surroundings*

in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve'.

2.1.14 Paragraph 207 of the NPPF states that in determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. Similarly, paragraph 208 includes a requirement on local planning authorities, having assessed the particular significance of any heritage asset that may be affected by a proposal, to take this into account when considering the impact of a proposal on a heritage asset.

2.1.15 Paragraph 210 states that 'in determining planning applications, local planning authorities should take account of the following points:

- *The desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;*
- *The positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and*
- *The desirability of new development making a positive contribution to local character and distinctiveness*.

2.1.16 Paragraphs 212 to 216 and paragraph 220 of the NPPF introduce the concept that heritage assets can be harmed or lost through alteration, destruction or development within their setting. This harm ranges from less than substantial through to substantial. With regard to designated assets, paragraph 212 states that great weight should be placed on their conservation, irrespective of whether any potential harm is considered to be substantial or less than substantial. The paragraph goes further to say that the more important the asset, the greater the weight should be on conservation. In paragraph 213, a distinction is made in respect of those assets of the highest significance (e.g., scheduled monuments, grade I and grade II* listed buildings) where substantial harm to or loss should be wholly exceptional.

2.1.17 Paragraph 214 states that in instances where development would cause substantial harm to or total loss of significance of a designated asset, consent should be refused unless it can be demonstrated that it is necessary to achieve substantial public benefits that outweigh that harm or loss. Paragraph 215 states in instances where development would cause less than substantial harm to the significance of a designated asset, the harm should be weighed against the public benefits of the proposal to provide a balanced judgement.

2.1.18 With regard to non-designated assets, paragraph 216 states that the effect of the application on the significance of the asset should be taken into account in determining the application. A balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.

Planning Practice Guidance

2.1.19 The NPPF is supported by Planning Practice Guidance (PPG) on the Historic Environment (MHCLG 2019) which provides further advice and guidance that expands the policy outlined in the NPPF. It expands on terms such as 'significance' and its importance in decision making.

2.1.20 The PPG clarifies that being able to properly assess the nature, extent and the importance of the significance of the heritage asset and the contribution of its setting, is very important to understanding the potential impact and acceptability of development proposals (paragraph 008 Reference ID: 18a-008-20190723).The PPG states that in relation to setting, a thorough assessment of the impact on setting needs to take in to account, and be proportionate to, the significance of the heritage asset under consideration and the degree to which proposed changes enhance or detract from that significance and the ability to appreciate it (paragraph 009 Reference ID: 18a-009-20190723).

2.1.21 The PPG discusses how to assess if there is substantial harm. It states that what matters in assessing if a proposal causes substantial harm is the impact on the significance of the asset. It is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed (paragraph 017). Generally, harm to heritage assets can be avoided or minimised if proposals are based on a clear understanding of the heritage asset and its setting (paragraph 008 Reference ID: 18a-008-20190723). The NPPF indicates that the degree of harm should be considered alongside any public benefits that can be delivered by development.

2.2 Local planning policy

Greater Manchester Combined Authority's Places for Everyone Joint development Plan 2022 to 2039

2.2.1 Places for Everyone is a long-term plan covering nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth (GMCA 2024). The Places for Everyone Plan took effect and became part of the statutory development plan for the nine authorities on March 21, 2024. The plan supports the delivery of key infrastructure, while protecting important environmental assets.

2.2.2 Places for Everyone outlines the proactive management of the historic environment and heritage assets for their conservation, enhancement and sustainability within Greater Manchester.

2.2.3 Policy JP-P2: Heritage notes:

> '*We will proactively manage and work with partners to positively conserve, sustain and enhance our historic environment and heritage assets and their settings. Opportunities will be pursued to aid the promotion, enjoyment, understanding and interpretation of heritage assets, as a means of maximising wider public benefits and reinforcing Greater Manchester's distinct character, identity and sense of place. Local Plans will set out the key elements which contribute to the district's identity, character and distinctiveness and which should be the priority for conserving and enhancing in the future and demonstrate a clear understanding of the historic environment and the heritage values of sites, buildings or areas and their relationship with their surroundings. This knowledge should be used to inform the positive management and integration of our heritage by*:
>
> 1. *Setting out a clear vision that recognises and embeds the role of heritage in place-making;*
> 2. *Ensuring that the heritage significance of a site or area is considered in accordance with national planning policy in the planning and design process and opportunities for interpretation and local engagement are optimised;*
> 3. *Integrating the conservation and enhancement of heritage assets and their settings, with creative contextual architectural responses that contribute to their significance and sense of place;*

4. *Delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing; and*

5. *Exploring opportunities to reduce greenhouse gas emissions that restoration of historic buildings offer.*

Particular consideration will be given to ensure that the significance of key elements of the historic environment which contribute to Greater Manchester's distinctive identity and sense of place are protected from harm. These include historic town centres, places of worship, historic transport routes including the canal network, industrial buildings and structures including textile mills, farmsteads and other sites, buildings, and areas of identified archaeological, architectural, artistic and/or historic value.

Development proposals affecting designated and non-designated heritage assets and/or their settings will be considered having regard to national planning policy.

Where heritage assets have been identified as being at risk, Local Plans should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. Development proposals which will help safeguard the significance of and secure a sustainable future for Greater Manchester's heritage at risk will be supported in principle, provided they are not contrary to national policy or other policies in the development plan.

Proposals should be informed, as necessary, by the findings and recommendations of the appropriate heritage assessment(s) in the development plan evidence base and/or any updated heritage assessment submitted as part of the planning application process.'

2.2.4 Policy JP-P3: Cultural Facilities notes:

'*We will proactively develop and support cultural businesses and attractions in our cities and towns through a range of measures, where appropriate, including*:

1. *Protecting existing heritage, cultural and community venues, facilities and uses; […]*

5. *Considering the use of vacant properties and land for pop-ups or meanwhile uses for cultural and creative activities during the day and at night-time to stimulate vibrancy and viability and promote diversity in town centres;*

6. *Maximising opportunities for redundant heritage assets and the role they can play in economic and social well-being. […]'*

Tameside Metropolitan Borough Council Unitary Development Plan

2.2.5 The Tameside Unitary Development Plan (UDP) (2004) contains the Council's land use planning policies. It is the main document which is used to determine planning applications for development in the borough. The UDP is the lead document of the Tameside Local Plan.

2.2.6 UDP policy sections in Conservation and Enhancement of the Built Environment relevant to the proposal include:

'*C1 Townscape and Urban Form*

In considering proposals for built development, the Council will expect the distinct settlement pattern, open space features, topography, townscape and landscape character of specific areas of the Borough to be understood, and the nature of the surrounding fabric to be respected. The relationship between buildings and their setting should be given particular attention in the design of any proposal for development. Urban design frameworks will be produced for particular areas and corridors in the Borough, as supplementary planning guidance, setting out fundamental principles which should be followed and from which detailed design may be interpreted. The Council will establish a strategy to secure the retention and enhancement of landmark buildings which form a distinctive element of the local skyline or townscape, and which represent a unique part of the heritage of the area. Re-use and conversion of such buildings which become redundant will be permitted, subject to other relevant policies.

C2 Conservation Areas

The character and appearance of the Borough's Conservation Areas, including any further changes to areas which may be declared during the life of the plan, will be preserved or enhanced through the control of development, the promotion of improvement measures, or both.

C3 Demolition of Unlisted Buildings in Conservation Areas

Demolition of unlisted buildings within Conservation Areas which make a positive contribution to the character or appearance of the area will not be permitted: Exceptions will only be made to this policy on assessment of each of the criteria listed in policy C8 for the control of demolition of listed buildings. Where unlisted buildings within Conservation Areas make no positive contribution to the character or appearance of the area, demolition will only be

permitted if this would be followed, as soon as practical, by a development scheme which would make a greater contribution to the character or appearance of the area.

C4 Control of Development in or adjoining Conservation Areas

When considering proposals for development in or adjoining Conservation Areas, including advertisements and the alteration, extension or conversion of existing buildings within Conservation Areas, the Council will have regard to the desirability of preserving or enhancing the character or appearance of the area, and to the need to ensure that the proposals make a positive contribution to the context in which they are set.

C5 Alternative Uses, Alterations and Additions for Listed Buildings

Whilst continuation of the use for which the building was designed is most desirable, the Council will permit alternatives uses for Listed Buildings where evidence demonstrates that the existing or original use is unlikely to support the maintenance and preservation of the building. The Council will require that proposed new uses, or other alterations and additions to Listed Buildings, should not adversely affect the essential character of the building, should be in keeping with its architectural style and features, and should harmonise with its surroundings. The effect of the proposals on any protected species which may be using the Listed Building should also be taken into account. Such development must be of a high standard of design. The external appearance, design and materials will be expected to match as near as possible those of the existing building and, where appropriate, new internal features should also harmonise with the existing. Extensions and additions should be secondary in scale, design and location to the principal building and standard solutions or modern features which fail to relate to the character of the building will not be permitted.

C6 Setting of Listed Buildings

New development, including any proposed as a result of a new use for a Listed Building, which fails to preserve, or detracts from, the setting of a Listed Building or structure will not be permitted.

C8 Demolition of Listed Buildings

The Council will not recommend the demolition of Listed Buildings, apart from in exceptional circumstances after the following considerations have been assessed: (a) the condition of the building and the cost of repairing and maintaining it in relation to its importance and to the value derived from its continued use, and (b) the adequacy of efforts that have been made to retain the building

in its present use or to find compatible alternative uses, and (c) the merits of alternative proposals for the site. In such circumstances the Council will also need to be satisfied that an acceptable alternative form of development can go ahead on the site as soon as practical following demolition, that any use of the building by protected species has been taken into account, and that provision can be made to record the detail of the building prior to demolition.

C10 Development Affecting Archaeological Sites

Where development is proposed which could have an adverse effect on Scheduled Ancient Monuments or other nationally important remains, there will be a presumption in favour of physical preservation in situ. Development will not be permitted if it would cause material damage to the existing remains, nor detract from the aesthetic, historical or educational value of the site and its setting. Where development is proposed in other areas of known or suspected archaeological importance, the Council will ensure that: (a) provision is made for the prior investigation and evaluation of the site, and (b) facilities are made available for suitable inspection during site preparation, and (c) sites and monuments are not needlessly damaged or destroyed, and unavoidable damage is mitigated, and (d) preservation of the archaeological evidence in situ is the preferred solution, or if this is not justified, adequate provision is made for excavation and recording before and during development. Wherever practical, measures should be taken to facilitate the conservation, accessibility and interpretation of archaeological remains, in the light of the educational, recreational and tourism potential which they may have.'

Additional UDP policies relevant to the development include Policy 1.2 Maintaining an Integrated Transportation Strategy, noting that 'Heavy rail improvements have been more modest but it is possible that the refranchising process currently underway for Trans-Pennine Express will lead to significant development of train services and station facilities in the Borough, depending on the investment programme agreed between the Strategic Rail Authority and the chosen operator'. Policy 1.5 Following the Principles of Sustainable Development notes principles including energy efficiency, limiting pollution, conserving the best of the built heritage, creating safe, clean environments, improving access to local services and more environmentally friendly travel alternatives.'

Oldham Metropolitan Borough Council Joint Core Strategy and Development Management Policies

2.2.7 Local planning policy for Oldham Metropolitan Borough Council (OMBC) is provided by the Joint Core Strategy and Development Management

Policies of the Oldham Local Development Framework, adopted in November 2011, and a small number of retained policies from the Unitary Development Plan (2006).

2.2.8 The Oldham Joint Core Strategy and Development Management Plan affirms that *'The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity'*. Policy 24 of the Joint Core Strategy and Development Management Plan sets out the policies relating to the historic environment.

'*Policy 24 Historic Environment*

Oldham has a rich historic environment with many significant and valuable features, structures and characteristics. The council will protect, conserve and enhance these heritage assets and their settings which adds to the borough's sense of place and identity.

Development proposals must have regard to:

- *National and local guidance and policies on the historic environment.*
- *Oldham Rochdale Housing Market Renewal Pathfinder Heritage Assessments.*
- *Greater Manchester and Oldham Urban Historic Landscape Characterisation Study.*
- *Conservation Area Appraisals and Management Plans, where appropriate.*

When allocating sites and determining applications for planning and advertisement consents, the council will seek to protect, conserve and enhance the architectural features, structures, settings, historic character and significance of the borough's heritage assets and designations including:

(a) *Listed buildings.*

(b) *Conservation areas.*

(c) *Registered parks and gardens (their historic character and setting).*

(d) *Scheduled ancient monuments (their archaeological value and interest).*

(e) *Significant archaeological remains.*

(f) *Locally significant buildings, structures, areas or landscapes of architectural or historic interest*

(including non-designated locally significant assets identified in the local lists compiled by the council).

The council will support heritage-led regeneration, including the reuse of historic buildings such as mills, to achieve economic, community and regeneration objectives, where appropriate.

Listed Buildings

Development to, or within the curtilage or vicinity of, a listed building or structure must serve to preserve or enhance its special interest and its setting. There will be a strong presumption against proposals involving the demolition of listed buildings or structures. Proposals which would lead to the loss or cause harm to grade I and II listed buildings should be wholly exceptional.*

Development proposals for a building incorporating a historic shop front should make provision for its retention, restoration and repair.

Conservation Areas

Development within or affecting the setting of a conservation area, including views in or out, must serve to preserve or enhance the character or appearance of the area. Proposals for all new development, including alterations and extensions to buildings and their re-use, must have a sensitive and appropriate response to context and good attention to detail.

Proposals must not adversely affect important architectural or historic features or distinctive local features or structures unless it can be demonstrated that the development brings substantial benefits to the community.

Proposals for the demolition of a building in a conservation area must demonstrate that it is unrealistic for the building to continue in its existing use and a suitable alternative use cannot be found, or the building is in poor structural condition and the cost of repairing and maintaining it would be disproportionate to its importance and value and the demolition would preserve or enhance the character or appearance of the conservation area. In exceptional circumstances, the fact that a demolition would bring substantial benefits to the local community may outweigh the balance in favour of the preservation of the building.

Registered Parks and Gardens

Development which would lead to the loss of, or cause harm to, the historic character or setting of any part of registered park and garden will not be permitted.

Scheduled Ancient Monuments

Development which would lead to the loss of, or cause harm to, scheduled ancient monuments should be wholly exceptional.

Local Designations

Development which would affect the following designations will only be permitted in cases where it can be demonstrated that the benefits of the development brings substantial benefits to the community which outweigh the preservation of the heritage asset:

- *Significant archaeological remains*
- *Locally significant buildings, structures, areas or landscapes of architectural or historic interest*

The council will provide further advice and guidance on this policy. […]

In accordance with the objectives of national guidance, the council will protect, conserve and enhance the architectural features, structures, settings and historic character of the borough's heritage assets and designations including:

i. *Listed buildings – historic buildings identified by the Department of Culture, Media and Sport as being of special architectural or historic interest. There are over 500 listed buildings across the borough;*

ii. *ii. Conservation areas – statutory areas defined by national planning legislation as having special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance. There are currently 36 conservation areas in the borough designated at Alexandra Park, Alexandra Terrace Moorside, Oldham Town Centre (in East and West Oldham); Crompton Fold, Park Cottages Shaw, Saint James Shaw, Saint Pauls Royton (in Royton, Shaw and Crompton); Bottom of Woodhouses, Failsworth Pole, Garden Suburb, Woodhouses (in Failsworth and Hollinwood); The Old Town Hall Chadderton, Victoria Street Chadderton (in Chadderton); and Bleak Hey Nook, Boarshurst, Delph, Denshaw, Diglea, Dobcross, Grange, Grasscroft, Harrop Green, Hey, Hey Top Greenfield, Holly*

Grove, Landhill Lane, Lees, Lydgate, New Delph, New Tame, Royal George Mills, Scouthead, Saint Chad's Church Saddleworth, Stone Breaks, Tame Water, Uppermill (in Saddleworth and Lees);

iii. *Registered parks and gardens – sites on the historic parks and gardens register in Oldham include Alexandra Park, Chadderton Cemetery and Greenacres Cemetery. Inclusion on the register does not provide any additional statutory protection but represents a material planning consideration in relation to any development within or adjoining the park that may affect its setting. The policy applies to grade I, grade II* and grade II registered parks and gardens;*

iv. *Scheduled ancient monuments – archaeological remains of national importance that have special protection under the Ancient Monuments and Archaeological Areas Act 1979. The consent of the Secretary of State is required for any works that affect a scheduled ancient monument. Scheduled Ancient Monuments in Oldham include Castleshaw Roman Fort, Bowl Barrow near Knarr Barn, Delph and Dee Mill engine and engine house, Shaw;*

v. *Significant archaeological remains – remains that form part of a record of the past that begins with traces of early humans; and*

vi. *Locally significant, non-designated buildings, structures, areas or landscapes of architectural or historic interest – the council will compile a local list of buildings, structures and landscapes that, although non-designated, are of local significance and provide a positive contribution to the borough's historic environment.'*

2.3 Other Guidance

Historic England

2.3.1 Historic England has published a series of Good Practice Advice (GPA) notes and Advice Notes (AN) of which those of most relevance to this appraisal are GPA2 - Managing Significance in Decision-taking (HE 2015), GPA3 - The Setting of Heritage Assets (HE 2017), and AN12, Statements of Heritage Significance (HE 2019).

2.3.2 GPA2, Managing Significance in Decision-taking emphasises the importance of having a knowledge and understanding of the significance of heritage assets likely to be affected by the development and that the 'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant the contribution of its setting to its

significance' (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).

2.3.3 GPA3, The Setting of Heritage Assets provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views, such as those that were designed or those that were intended, that contribute to understanding the significance of assets.

2.3.4 In assessing whether the setting of an asset contributes to its significance, and in assessing the effect of development, Historic England GPA3 provides a checklist of attributes that may affect setting and significance under five broad categories comprising:

- The location and siting of the development;
- The form and appearance of the development;
- Additional effects (change to skyline etc.);
- Permanence; and
- Consequential effects.

2.3.5 Other relevant guidance is set out in:

- Historic England Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (HE 2008);
- Historic England Historic Environment Good Practice Advice in Planning Note 1: conservation area designation, appraisal and management (HE 2016a);
- Historic England Advice Note 7: Local Heritage Listing (HE 2019);
- Historic England Preserving Archaeological Remains Decision-Taking for Sites Under Development (HE 2016b);
- Historic England Understanding Historic Buildings, A Guide to Good Recording Practice (HE 2016c); and,

- Historic England Statements of Heritage Significance (HE 2019).

Chartered Institute for Archaeologists

2.3.6 The baseline study has been undertaken in accordance with guidance published by the Chartered Institute for Archaeologists (CIfA), with specific regard to the Standard and Guidance for Historic Environment Desk-based Assessment (CIfA 2020) and the Code of Conduct (CIfA 2022)

2.4 Consultation with stakeholders

2.4.1 Historic England, Tameside Metropolitan Borough Council (TMBC) and Oldham Metropolitan Borough Council (OMBC) have been involved in ongoing stakeholder consultation with Network Rail throughout the development of the Route Section W2B of the Order Scheme. Regular meetings have been held to discuss design development and potential impacts of the proposals in relation to listed structures along the route. These discussions are detailed in the Heritage Statements [refer to Volume 3, Appendix 5A of this Report [**NR14**]).

2.4.2 Consultation was undertaken with Greater Manchester Archaeological Advisory (GMAAS) Service on 7 October 2024. The following was discussed during the meeting:

- Network Rail presented the Scheme and of Route Section W2B, and the required consents which are being prepared (TWAO, and listed building consents).

- Baseline conditions were presented which included an overview of the online designated heritage assets, offline non-designated heritage, and archaeological potential. Potential impacts were presented along with embedded and additional mitigation measures which are recommended in the DBA. There is a desire to include local community groups in which GMAAS supports the idea.

- GMAAS found the presentation to be helpful and confirmed that they would like to be involved in the project going forward. GMAAS agreed to undertake a review of the Desk Based Assessment.

- GMAAS recommended that the Historic Environment Record (HER) be repurchased given it has expired and additional assets have been included, including Heyrod Old Hall which requires further investigation, and the Oldham Council Local List.

- Other matters discussed as part of the meeting included an overview of previous engagement undertaken with OMBC and TMBC, a discussion around the archaeological process of community engagement, preference for brownfield sites over greenfield sites, an overview of the public benefits and overview of reconstruction of Wright's Overbridge

(MVL3/23).

2.4.3 A meeting was held on the 3rd of April with GMAAS to provide an update on the Order Scheme and assessment of heritage impacts, including discussion of potential impacts on archaeological remains as a result of compound establishment, haul roads, fencing and laydown areas. The early stage of design development for these areas was noted and the intention to mitigate impacts on archaeological remains through design measures where possible, as detailed design of these areas develops. This could potentially include measure such as minimising land-take and ground works, utilising areas subject to previous ground disturbance and sensitive foundation design.

2.4.4 High potential for archaeological remains was noted by Network Rail at Printworks Main Compound, Printworks Office Compound, Scout Tunnel Site Compounds, and Plevins Compound. GMAAS noted that the Railway Goods Warehouse at Plevins is not currently recorded on the HER and presents an opportunity for further documentary research and historic building survey. GMAAS also noted archaeological interest in the compounds around Scout Mill, including the potential for survival of headraces and tailraces associated with Scout Mill, a fulling mill of 18th century date. Further documentary research would be required if these sites were taken forwards.

2.4.5 Moderate archaeological potential was noted by Network Rail at Scout Tunnel Eastern Car Park, Manchester Road Scout West, Mossley Station Compound, Brownhill Lane Compound and Grandpa Greens Site Compound 1 and 2.

2.4.6 GMAAS responded that no significant archaeological concerns had been identified within these areas and highlighted the need to target resources to investigate the most significant archaeological remains.

2.4.7 The Order Scheme was noted by GMAAS to present a substantial opportunity for public engagement with heritage. The potential for engagement around railway history and historic railway infrastructure was highlighted.

3. ASSESSMENT METHODOLOGY

3.1 Study Area

3.1.1 Based on professional judgement and proportionality, a 250 m focused study area extending around the Scheme boundary[1] has been established as being appropriate for identifying relevant designated and non-designated

[1] Including areas subject to Permitted Development as shown on Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**]

historic environment assets that potentially could be affected by the Order Scheme. This is due to:

- The assessment of the overall significance and character of the Order Scheme in the Route-wide Statement of Significance (Alan Baxter Associates, 2019). This was produced to characterise the heritage significance of the Transpennine route as a whole;
- The archaeological context of the Order Scheme, as understood from HER data;
- The design of temporary construction works including the proposed compound areas, laydown areas and spoil areas for use in the construction of the Route Section W2B[2]; and
- The wider landscape is also considered, to provide an archaeological and historical context for the Order Scheme.

3.1.2 Within the study area, designated and non-designated heritage assets are categorised as either online of offline assets. Online assets refers to those which are located directly on and associated with the railway line, and offline assets are those which are within the study area but not on the track alignment.

3.1.3 The study area also takes into consideration the existing use of the working railway corridor and the influence it already has on its surroundings. This includes consideration of how the railway contributes to the setting of the heritage assets and where assets are intrinsically linked to the railway that forms part of their significance.

3.1.4 All historic assets identified within the study area are listed in gazetteers (Annex A). The locations of designated assets, non-designated assets, historic landscape character assessment and archaeological investigations are shown on the figures included Volume 2 of the TWAO environmental report. Only the more relevant heritage assets are discussed within the baseline, where they contribute to key themes in understanding the character and value of the railway and area.

3.2 Sources of Information

3.2.1 Data sources consulted, collected and assessed for this desk based assessment include the following:

- National Heritage List for England (NHLE))[3] information on designated sites: World Heritage Sites, scheduled monuments, listed buildings,

[2] The proposed compound locations are considered in Section 5 and in Annex B.

[3] National Heritage List for England (NHLE) https://historicengland.org.uk/listing/the-list

registered parks and gardens and historic battlefields, accessed 09 November 2024;

- Information on non-designated assets, including locally listed buildings and structures of local heritage interest gathered by a search of:
    - GMAAS Historic Environment Record (GMHER)[4], accessed 11 November 2024;
    - GMAAS Greater Manchester Historic Landscape Characterisation survey data, accessed 11 November 2024;
- Oldham Metropolitan Borough Council[5] and Tameside Metropolitan Borough Council Conservation Areas[6], accessed 09 November 24;
- Historic England Heritage at Risk Register[7], accessed 20 January 2025;
- British Geological Survey (BGS)[8] online, accessed 15 February 2024;
- Historic Ordnance Survey (OS) mapping held by the National Library of Scotland[9], accessed 04 March 2024;
- Photographs viewed online via the National Collection of Aerial Photography[10] and Google Earth[11], accessed 04 March 2024;
- Archaeology Data Service[12], for information on previous cultural heritage assessments and fieldwork surveys, accessed 19 February 2024; and
- Tameside Local Studies and Archives Centre[13], for additional cartographic and historical sources, visited 05 November 2024.

3.2.2 Preparation of the report has also been informed by the walk over surveys undertaken for the Order Scheme in 2024 and 2025, leading to the

[4] Greater Manchester Historic Environment Record and Historic Landscape Characterisation dataset https://gmaas.salford.ac.uk/historic-environment-record/

[5] Oldham Council Conservation Areas https://www.oldham.gov.uk/info/200291/heritage/1908/conservation_areas

[6] Tameside Council Conservation Areas https://www.tameside.gov.uk/planning/conservation-listed-buildings

[7] Historic England Heritage at Risk Register https://historicengland.org.uk/advice/heritage-at-risk/search-register/

[8] British Geological Survey https://www.bgs.ac.uk/geological-data/

[9] National Library of Scotland map images https://maps.nls.uk/

[10] National Collection of Aerial Photography https://ncap.org.uk/

[11] Google Earth https://earth.google.com/

[12] Archaeology Data Service https://archaeologydataservice.ac.uk

[13] Tameside Local Studies and Archives Centre https://www.tameside.gov.uk/localstudies/

identification of a small number of additional heritage assets which are prefaced with *AR* in the following report.

3.2.3 This report also draws upon information previously prepared for the Route Section W2B on behalf of Network Rail. This includes a number of reports prepared by Alan Baxter and Associates Ltd, namely the '*Transpennine Route Statement of History and Significance: West of Leeds'* (Alan Baxter Associates 2024) and the '*Transpennine Route Upgrade Route-Wide Statement of Significance*' (Alan Baxter Associates 2019). Other documents consulted include the 'Transpennine Route Upgrade W2B Heritage Assessment Report' (Network Rail 2021) and Heritage Statements prepared as part of the current Scheme. These are presented in Volume 3, Appendix 5A of this Report [**NR14**].

3.3 Assessment of Significance

3.3.1 An assessment of the significance of assets and their setting has been undertaken in consideration of guidance and good practice issued by Historic England. Historic England GPA3 provides the basis of a methodology for the assessment of setting.

3.3.2 The NPPF defines significance as *'the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting'.* The NPPF also identifies that significance can be derived from the asset itself, its physical presence, and from its setting.

3.3.3 The significance of heritage assets has been determined based on professional judgement guided by designations, national and local policies, guidance documents and research frameworks.

3.3.4 The terminology used in this statement relates to the terminology used by NPPF, and AN12 (Historic England 2019), referring to significance in terms of heritage interest and not heritage values.

3.3.5 The assessment of significance of heritage assets has been informed by the Design Manual for Roads and Bridges (DMRB) LA104 environment value methodology (DMRB 2020). Professional judgement has been applied in developing Table 3-1 below, against the criteria defined in LA104. The heritage examples of these categories and the unknown significance category have been established by professional knowledge and experience. Assessment of the significance of heritage assets presented in this report has been undertaken using professional judgement guided by the criteria set out in Table 3-1 below:

Table 3-1 Assessment of heritage significance

Significance	Description	Heritage example
Very High	Very high importance and rarity, international scale, with very limited potential for substitution.	World Heritage Sites, or heritage assets recognised as being of international importance.
High	High importance and rarity, national scale and limited potential for substitution.	Grade I and II* listed buildings, grade I and II* registered parks and gardens, scheduled monuments, protected wreck sites, registered historic battlefields, conservation areas with notable concentrations of heritage assets, Grade II listed buildings of exceptional interest, and undesignated assets of national importance and/or rarity. Historic landscapes of national importance and/or rarity.
Medium	Medium or high importance and rarity, national or regional scale, limited potential for substitution	Grade II listed buildings, grade II registered parks and gardens, conservation areas and undesignated assets of national or regional importance. Historic landscapes of national or regional importance.
Low	Low or medium importance and rarity, local scale.	Locally listed buildings and undesignated heritage assets of local importance. Historic landscapes of local importance. Can also include degraded designated assets that no longer warrant designation.
Negligible	Very low importance and rarity, local scale.	Undesignated heritage assets of very low or limited importance. Can also include highly degraded designated assets that no longer warrant designation.
Unknown	The importance of the asset has not been ascertained. This could include, or be related to: Potential archaeological sites for which there is little information Assets for which the importance of the site cannot be determined based on current knowledge Isolated findspots, place names or cropmarks identified on aerial photographs with no known information at present. Heritage assets of unknown significance may include sites of potential national significance.	

3.4 Setting of Heritage Assets

3.4.1 The setting of heritage assets has been considered, in accordance with Historic England's The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Historic England 2017). This Historic Environment Assessment principally considers archaeological remains which pre-date the railway and associated features. Setting can contribute to the significance of archaeological assets, including buried remains.

3.5 Archaeological potential

3.5.1 Archaeological potential assesses the potential that unrecorded archaeological remains may exist within the Order Scheme boundary in addition to the known archaeological resource identified in the baseline. The potential for unrecorded archaeological remains to exist within the Order Scheme boundary has been determined by professional judgement guided by an assessment of the existing cultural heritage resource and the impact of previous modern development or ground disturbance within the Order Scheme footprint. Assessment of the archaeological resources draws on three factors:

- An assessment of the potential for the survival of archaeological deposits within the Order Scheme boundary based on an evaluation of previous ground disturbance;
- An assessment for the potential for archaeological deposits to exist within the Order Scheme boundary based on the results of the baseline study; and
- An assessment of the significance of known and potential archaeological assets within the Order Scheme boundary, as well as within the defined study area.

3.5.2 The level of disturbance to buried archaeological remains caused by historic development has been assessed based on available data listed at section 3.2.

3.5.3 The potential for an area to contain archaeological remains is rated ‘high’, ‘medium’, ‘low’, ‘negligible’, or ‘unknown’. This rating is based on an understanding of the archaeological resource as a whole and takes into account the Order Scheme’s geological and topographical setting. The rating also considers the number and proximity of known and predicted archaeological/historical sites or find spots within the Order Scheme footprint and the surrounding study area.

3.6 Previous Ground Disturbance

3.6.1 Previous ground disturbance varies across the assessment area, reflecting a range of past activities and has been considered as part of this assessment.

3.6.2 In some areas, railway cuttings, landscaping and deep excavations have cut into the natural geology, resulting in the complete removal of any subsurface archaeological deposits. Elsewhere, extensive construction works, such as deep foundations, quarrying, or the installation of large utilities, have caused significant disruption, leaving only the deepest archaeological features, like wells or quarry pits, potentially intact.

3.6.3 Moderate levels of disturbance is likely in zones affected by structural foundations, construction layers, and utility trenches. In these areas, while some impact has occurred, there remains a possibility that archaeological remains survive either between or beneath the existing development footprint.

3.6.4 In contrast, certain parts of the site have experienced only shallow interventions, such as ground surfacing or the creation of car parks. These activities may have caused limited truncation, but any archaeological deposits are likely to remain preserved beneath the disturbed surface.

3.6.5 Finally, there are areas with no known historic development impacts. These zones offer the highest potential for the survival of intact archaeological horizons, spanning periods from prehistory through to the post-medieval era.

3.7 Walkover Survey

3.7.1 A number of site visits have been undertaken as part of the assessment for Route Section W2B. The full list of site visit including the assets visited and description of survey undertaken is provided in Appendix D.

3.7.2 An archaeological walkover survey was undertaken on 27/08/24 and on 03/10/24, the latter following changes to the Order Scheme boundary. The site visit targeted, parcels of land where there was considered to be potential for unknown buried remains to be impacted. Areas visited on the site walkover included Printworks Compounds and Office Compound, land-take next to Ward Lane Overbridge (MVL3/36), land-take at Oldham Road Overbridge (MVL3/28) for a temporary compound, land-take at Greenfield Lane for Wright's Overbridge (MVL3/23), Hobbe Hole Underbridge (MVL3/22) and the land between the bridges, Heyrod Hall Overbridge (MVL3/7), and land-take for Wright's Mill Overbridge (MVL3/20).

Insert 3-1 Photograph from walkover survey of Stockport Road towards Midge Hall Underbridge MVL3/19 and area of land-take for Wright's Mill Overbridge MVL3/20

3.7.3 Following the identification of development compound locations, a site visit was undertaken on March 21 and 24 2025 to assess the compound locations at Printworks, Scout Tunnel, Manchester Road, Heron Lane, Brown Hill, Grandpa Green's and Butterhouse. Subsequently, the finalisation of the compound list prompted another site visit on 13 June 2025 to undertake external assessment of a former railway goods warehouse on Plevins Compound.

3.7.4 Site visits were also undertaken for built heritage along the Order Scheme on 21-22 May 2024, 1 July 2024 and 28 August 2024. Designated online assets, and those assets which warrant consideration due to potential for impact on setting given their proximity to Scheme were visited to assess the potential for impact from the Order Scheme.

3.8 Assumptions and Limitations

3.8.1 The historic environment assessment takes into account a number of assumptions and limitations. These have arisen from the extent of the Order Scheme design, including construction design, knowledge and understanding of the historic environment and responses from stakeholders.

3.8.2 Detailed assessments of Scheme impacts on the fabric and setting of listed railway structures are detailed in a series of Heritage Statements presented in Volume 3, Appendix 5A of this Report [**NR14**]. This report does not seek

to replicate the content of these reports, but focuses on the wider historic environment, and particularly buried archaeological remains.

Assumptions

3.8.3 The understanding of extent, survival and significance of non-designated heritage assets (both identified on the HER and from historic maps) has been based on available information and professional judgment.

3.8.4 Broad historic landscape types have been taken from the Greater Manchester Historic Landscape Characterisation and have considered their current use and how this reflects historic character. The significance of each broad historic landscape type within each route section has been based on professional judgment.

Limitations

3.8.5 The HER data and information contained therein relating to each non-designated heritage asset is reliant on GMHER for its accuracy. The assessment has relied upon data and records provided by third parties, and therefore it has been assumed that this information is accurate and up to date at the time of reporting.

3.8.6 The assessment has been undertaken using the available design for the Order Scheme and the maximum likely extents of land required for its construction, operation and maintenance.

3.8.7 Whilst the locations for compounds have been determined at this time, the proposed layout and methodology for their establishment has not been developed at this stage. As such, the assessment of impact has used the precautionary principle and assumed maximum impact to heritage assets including ground disturbance and demolition of existing structures.

3.8.8 No archaeological evaluations have yet been undertaken to inform this historic environment assessment. Assessment of archaeological potential has been based on desk-based assessment at this time.

4. BASELINE

4.1 Overview

4.1.1 This Section describes the baseline historic environment conditions within the study area and its environs. These form the baseline upon which Scheme impacts are assessed within this document and going forwards.

4.2 Previous Investigations in the Study Area

4.2.1 There has been a moderate amount of historical and archaeological investigation across the study area of the Order Scheme. These have

primarily been site walkover survey and built heritage studies although there have also been desk-based assessments and archaeological excavations.

4.2.2 A focus of prior investigation has been around Pule Hill and Warcock Hill, c.3km northeast of the southern portal of the Standedge Tunnel at Diggle, where large concentrations of lithic scatters have been recorded, identified through systematic field walking, chance finds and excavations. These concentrations have been investigated by P.R. Preston who considered the range of lithic scatters indicated a 'persistent place', an area repeatedly visited by Mesolithic hunter-gatherer groups and often for a short duration for a range of different tasks (Preston 2013).

4.2.3 Castleshaw Roman fort (NHLE 1017837) scheduled monument is located outside the study area, however is considered here due to its significance in the wider landscape. It is located c. 1.6km northwest of the southern portal of the Standedge Tunnel. It has been subject to repeated archaeological investigation to determine the date and nature of the internal buildings of the fort and fortlet, as well as the sequence of construction and abandonment. Excavations were published in 1908 and 1911 and later more fully interpreted by I. A. Richmond in 1925 (Richmond 1926). Further investigations from 1957 to 1964 defined the position and function of many interior buildings. The fort and fortlet were extensively re-excavated from 1984 to 1988, with a programme of restoration completed in 1989. Further exploration of areas outside the forts was carried out during 1995 and 1996. The investigations have removed localised areas of archaeological remains within the Scheduled Monument but much of the settlement has been left undisturbed.

4.2.4 There have been surveys and investigations of several post-medieval mills within the study area. Knoll Mill (EGM4470), which was subject to an archaeological watching brief and strip, map and sample recording, and Castle Street Mills (EGM4823, EGM5165), had trial trenching undertaken prior to redevelopment.

4.3 Site Conditions

Geology

4.3.1 The region between Stalybridge and Greenfield is part of the Pennine Basin which is characterised by sedimentary rocks formed in the Carboniferous period, 298–358 million years ago. The bedrock geology between Stalybridge and Mossley comprises bands of sedimentary formations including Pennine Lower Coal Measures Formation, Rough Rock Sandstone, Rossendale Formation (Mudstone and Sandstone), Fletcher Bank Grit (Sandstone), Marsden Formation - Mudstone and siltstone. North of Mossley the Order Scheme passes through areas of Upper Kinderscout Grit (Sandstone), Hebden Formation - Mudstone and siltstone and Lower Kinderscout Grit - Sandstone. At Diggle and entering the Standedge

Tunnel, the Order Scheme passes through Shale Grit – Sandstone (BGS 2024).

4.3.2 The superficial deposits encompass a variety of glacial and post-glacial formations formed in the Quaternary period. It comprises glaciofluvial sheet deposits, characterised by well-sorted sands and gravel, as well as alluvium, clay and sand/gravel along the course of the River Tame and the Diggle Brook (BGS 2024).

Soils

4.3.3 The soils between Stalybridge and Greenfield exhibit a diverse range, from slowly permeable seasonally wet soils to freely draining soils. They are observed to be acidic in nature with texture being loamy and clayey. This also results in the region having low fertility making it suitable for selective few crops along with lower yield in some areas (stony and shallow areas). Some very acid loamy upland soils with a wet peaty surface are present, particularly on the moors from Dobcross northwards to the A63 north of Diggle, and around Heyrod. There are also large areas of unclassified soils, often in previously industrial or urban areas (Cranfield University 2024).

Topography

4.3.4 The railway broadly follows the contours of an east-facing hillside between Stalybridge and Heyrod. Stalybridge Station lies at c. 116 m AOD, and the track rises towards Heyrod, which is at c. 130 m AOD. From Heyrod to Mossley, the route is cut into the hillside and in tunnel. Mossley Station lies at c. 150 m AOD, and the railway is in cutting; several bridges span the cutting, linking Mossley's streets above and then passes through the south-east of Grasscroft. Greenfield Station and Uppermill lie at c. 180 m AOD.

4.3.5 Land rises to the west and east of the route, towards hills forming part of Saddleworth Moor. North-west of Heyrod, land rises to c. 247m AOD at Luzley End Farm. West of Mossley, land rises steeply to c.308 m AOD. Wharmton (348 m AOD), rises to the west of Greenfield Station. The brow of Harrop Edge overlooks Diggle, rising to c. 348 m AOD.

4.3.6 To the east of the route is the Peak District and Saddleworth Moor. Key summits include Alphin Pike east of Mossley (469 m AOD) and Broadstone Hill, east of Diggle (454 m AOD). Some areas of the Order Scheme offer sweeping views across the Tame Valley towards the high mosses to the east. Local landmarks include the obelisk (Saddleworth War Memorial, Grade II, NHLE 1163991) at the top of Dick Hill, east of Uppermill and Greenfield.

4.3.7 For the southern extent of Scheme, from Stalybridge to Dobcross, the River Tame and the Huddersfield Narrow Canal lie to the east of the Order Scheme. Uppermill Viaduct (MVL3/31) crosses both watercourses just to the east of Dobcross where the River Tame heads west towards Delph and

onwards to its source at Denshaw. The Huddersfield Narrow Canal then remains to the west of the route up to Diggle where the railway continues alongside the canal and though the Standedge Tunnels.

4.3.8 There are numerous springs in the hills that feed minor watercourses; some of these are tributaries of the Tame, and others have been diverted to feed mills in the valley. The north of the route crosses the Diggle Brook, a tributary of the Tame.

4.3.9 The A670 broadly follows the Tame Valley, running parallel to the railway between Stalybridge and Mossley, and north of Greenfield Station. the Order Scheme is crossed by numerous minor roads, often carried over railway cuttings via historic bridges. There are many footpaths including the Tame Valley Way, the Tameside Trail, the Pennine Bridleway and the Standedge Trail, which link to the long-distance Pennine Way.

4.4 Historic Environment Baseline

Palaeolithic – c. 14,000 to 10,000 BC

4.4.1 The earliest human occupation of Britain dates to c. 900,000 years ago. Finds from East Anglia such as animal bone and flint tools suggest that humans would have been present alongside animals such as mammoths. There are very few known deposits that might contain evidence of early human occupation in the Lower or Middle Palaeolithic periods. There is evidence for human activity in the region in the Upper Palaeolithic period, in the form of lithic scatters recovered from fieldwalking (surface artefact collection) in upland peat environments and from excavations in caves and rock shelters (NWRRF 2020).

4.4.2 The Late Upper Palaeolithic (c. 11,000 to 8000 BC) represents the final stages of the Devensian glaciation. The archaeological evidence is sparse but certainly demonstrates the presence of human groups in the region during this time. As the ice retreated and the climate became warmer in the Late Devensian interstadial period, the vegetation on the drier land developed and was ultimately replaced by more open grassland. Environmental changes resulted in a general rise in sea-level as the ice cap melted, an increase in rainfall.

4.4.3 On the eastern periphery of the Order Scheme, particularly around Pule Hill and Warcock Hill, c.3km northeast of the southern portal of the Standedge Tunnel at Diggle, several flint scatters have been recorded via fieldwalking. The HER data has attributed some elements of these clusters to the Lower Palaeolithic period, however, the dating of these is unconfirmed.

4.4.4 There are no Palaeolithic finds within the 250 m study area around the Order Scheme.

Mesolithic – c. 10,000 to 4,000 BC

4.4.5 The post-glacial reoccupation of the Pennines occurred after c. 8,000 BC as remnant patches of snow and ice melted.

4.4.6 The main evidence for Mesolithic activity across the region comprises scatters of lithic material characterised by the distinctive microlithic flint tools and tool-making debris, picks and axe-heads of mobile hunter-gatherers. The distribution of Mesolithic findspots includes coastal areas, river corridors and areas that are now upland moorland. The Mesolithic finds of the central Pennines uplands can be considered to be of national importance (GMAU 2012).

4.4.7 Extensive upland scatters have been recorded between Saddleworth and Marsden east and north of the Order Scheme, with slopes between 366 and 457 m AOD being favoured localities overlooking spring head' (Barnes 1982, Spikins 1999). Excavations of upland sites have identified hearths and stake-holes near areas of chipped stone tool-making debris, perhaps indicating campsites (Hodgson & Brennand 2007). Swineshaw Moor, located c. 2.5 km east of Stalybridge, has yielded numerous Late Mesolithic finds and features, including evidence of re-cutting and re-use of hearth pits (NWRRF 2020).

4.4.8 To the north-east of the study area, 41 findspots or scatters of struck stone tools and tool-making debris have been recorded as dating from the Mesolithic period. The area around Pule Hill has been defined by P.R. Preston in his thesis as a 'persistent place', a cluster of sites which were repeatedly visited by Mesolithic hunter-gatherer groups (Preston 2013) and of national archaeological importance given the density of significant Mesolithic artefacts. the Order Scheme intersects the north-western extent of this 'persistent place'. The Central Pennines have been subject to extensive flint collecting since the 19th century, with this area subject to collection in the 1920s and 1930s by Francis Buckley (Buckley 1921, Buckley 1924) and by Pat Stonehouse from 1967–1997 (Stonehouse 2001). The large collections of flint that have resulted from these activities may over-emphasise the importance of this location relative to other areas. It is likely that railway construction will have removed any deposits in the vicinity of the Order Scheme.

4.4.9 Five Mesolithic assets are recorded north-west of the Order Scheme: four lithic findspots and a crescent-shaped microlith. A Mesolithic flint workshop (1089.1.0) is also recorded approximately 745 m north-west of the study area.

Neolithic – 4,000 to 2,200 BC

4.4.10 The Neolithic period marked a transition from hunter-gatherer lifestyle to more settled cultivation and livestock farming, with some seasonal migration. In the Greater Manchester area, the archaeological evidence indicates the establishment of farming communities, the construction of burial mounds and megalithic structures.

4.4.11 Several assets dating to the Neolithic period have been recorded in the vicinity of the Order Scheme. A small grey stone hammer (5903.1.0) was discovered by a member of the public near Uppermill Station, in gravel along the River Tame c. 190 m east of the Order Scheme. Similarly, another grey stone hammer (479.1.0) which was found during the excavation of a well was recorded within the boundary of the Order Scheme, and a pebble hammer (or possible weight or spindle whorl) (487.1.0) was discovered below the surface of Stalybridge Station, *c*.40 m west of the study area.

Bronze Age – 2,600 to 700 BC

4.4.12 The Bronze Age represents a period marked by significant changes in technology, trade and societal organization. Metallurgy developed with the use of copper and copper alloys for making weapons, tools and personal ornaments. During this period woodland clearance accelerated, allowing more extensive cultivation on lower ground, along valleys and along the woodland edges. Cattle pasturing on the uplands was more extensive. In the Bronze Age, the seasonal migration patterns of the Neolithic changed; hut circles and field systems developed. By the later Bronze Age, enclosed settlements and fortified settlements were being constructed.

4.4.13 A Scheduled Bronze Age cairn, round cairn west of Hollingworthhall Moor (NHLE 1011682), is located to the east of Stalybridge, c. 2.3 km from the Order Scheme. Despite some minor mutilation of the monument's top and southern side by the erection of an Ordnance Survey column and a drystone wall, the round cairn west of Hollingworthhall Moor survives reasonably well, with the mound of stones up to 0.8 m high with maximum dimensions of c. 19 m by 18 m. It is located on the elevated ground of Wild Bank Hill.

4.4.14 A possible barrow (1096.1.0) is recorded on Brown Hill, approximately 30m east of the Order Scheme boundary. It was dug by quarrymen in 1844 and its contents were mostly destroyed. Two urns (found at a depth of 4ft 6" [1.37 m] from the top the barrow) and a broken perforated celt were uncovered at the site. There is no trace of a barrow in the vicinity of Brown Hill now.

4.4.15 The previously mentioned lithics clusters to the east of the Order Scheme around Pule Hill also contain concentrations of Bronze Age lithics. Although the focus of activity in this location appears to have been during the Mesolithic period, the area was evidently also in use during the Bronze Age.

Iron Age – c. 800 BC to AD 43

4.4.16 The Iron Age witnessed further transformation in material culture, settlement arrangements and societal frameworks. The period marked a gradual shift from the usage of bronze tools and weapons to their iron

counterparts, resulting in technological changes in agriculture, construction and craft production.

4.4.17 Increase in land enclosure, for fields, livestock and settlement, indicates the growing importance of agriculture and securing sustenance. Historical evidence suggests that hillforts were strategically situated in the landscape serving as defensive positions and vantage points that could survey territories and also as constructions tied to local identity and resilience.

4.4.18 There is very limited evidence of Iron Age activity recorded within the vicinity of the Order Scheme. A smithing hearth (8241.1.0) is noted approximately 1.8 km to the east of the Order Scheme, immediately north of Walkerwood Reservoir. It was 0.75 m wide and 0.15 m deep, lined with slag and filled with a mixture of charcoal and slag. It was believed to be of Iron Age or Roman origin. Two carved stones in the shape of a head were recorded at 146 Carr Lane (9017.1.0), 90m west of the Order Scheme. They are now missing and there is no 146 on Carr Lane.

Roman – AD 43 to 410

4.4.19 The conquest by Emperor Claudius bought significant changes to the landscape, culture and governance of the region. Fortifications and roads were established. There is a fort at Castleshaw (*Rigodunum*), c. 1.6 km north-west of the Order Scheme's northern extent at the Standedge Tunnel. A sequence of Roman forts were located in strategic positions on high ground overlooking the Castleshaw Valley and the Roman road from Chester to York, defending and patrolling the road in this area as it approached the western Pennines.

4.4.20 North of Standedge, the Standedge Tunnel lies south of the route of the Roman road that connected Manchester to Castleshaw, part of the wider Roman road from Chester (Deva) to York (Eboracum) (Margary Road 712). At Standedge Ridge, despite considerable erosion, the road can be seen to have been more than 6.7 m wide. It has been investigated elsewhere along its route, with remains of a cambered, rough gritstone surface being recorded.

4.4.21 Castleshaw Roman forts (NHLE 1017837) are located approximately 1.6 km to the west of the Order Scheme. This Scheduled Monument includes a sequence of Roman forts, together with the remains of a settlement outside the ramparts of the forts and a section of the aforementioned Roman road leading to the forts from the south-west. The earliest fort on the site dates to AD 79 and the settlement appears to have been abandoned in AD 125. The site has been extensively excavated over the last 100 years. A civilian settlement developed outside the fort.

4.4.22 There is no other evidence of Roman activity recorded within the study area.

Early Medieval – 410 to 1066

4.4.23 The early medieval period in the region was characterised by significant socio-political changes following the withdrawal of Roman governance, which the region may have fragmented into a number of small kingdoms. During the 7th century these smaller kingdoms were subsumed within the Kingdom of Northumbria. With waning political power and influence from the later 8th century onwards, the region appears to have remained politically unstable until the Norman Conquest. Scandinavian and Hiberno-Norse incursions and evidence of associated settlements have been noted. There is no recorded evidence of early medieval activity within the study area for the Order Scheme, however places such as Rochdale and Oldham bear names with Old Norse origin, attesting to the Norse influence in the area.

Medieval – 1066 to 1540

4.4.24 There is limited evidence of medieval presence in the vicinity of the Order Scheme.

4.4.25 A Scheduled Monument, Buckton Castle (NHLE 1015131), is located approximately 1.6 km east of the Order Scheme near Mossley. The site has previously been interpreted as a Romano-British earthwork fort and a late Iron Age promontory fort but it is now believed, based on a more detailed survey in 1991, to date to the medieval period. The monument includes a ringwork castle and the remains of a bailey on the northern side; located on elevated land on Buckton Moor, it commands a view over the River Tame, the Carr Brook and the surrounding landscape.

4.4.26 The HER records two medieval assets within the study area of the Order Scheme. Located adjacent to the Heyrod Hall temporary compound, Heyrod Hall (751.1.0) was owned around 1422 by John del Heyrod. Rent was paid to Sir John de Assheton, later passing to the Duckenfield family. The hall was rebuilt or moved by RW in 1638.Two carved stones in the shape of a head (9003.1.0), one female and one male, were recorded c.145m east from the Order Scheme, near Churchill Playing Fields, although they may be confused with another set of carved heads (9003.1.1) which date from the Victorian period and found near the same location.

4.4.27 Some seven settlements have been recorded within the study area. Approximately 100 m north-west of the Order Scheme is Shaw Hall Settlement (6255.1.0), a medieval historic core recorded on historic

mapping. These buildings are no longer extant but place names, including 'Shaw' meaning 'wood', attest to the early medieval and medieval presence in this area. Further evidence of medieval settlement has been recorded in Stalybridge (3583.1.0), where historic mapping identified development along the River Tame. The first record of the place name, Stauelegh, is attested in a 13th century document and means *'clearing where the staves are'* (Mills 2011).

Post-medieval – 1540 to 1901

4.4.28 There is significant evidence of post-medieval activity within the study area with a recorded 228 non-designated offline and online assets.

4.4.29 There are 135 listed buildings within the study area dated to the medieval period, of which 14 assets are located within the Order Scheme boundary. There are eight conservation areas within the study area, two of which fall within the Order Scheme boundary (Uppermill Conservation Area, and Stalybridge Town Centre Conservation Area).There are no scheduled monuments or registered parks and gardens within the study area.

4.4.30 The post medieval period was shaped by improvements in technology, including water-power, and in infrastructure, the development of railways and canals, which enabled the rapid development of industrial activity leading to urbanisation of the labour force and the construction of extensive housing that can be seen across the study area.

Historic Settlements along Route Section W2B

4.4.31 The Transpennine route follows the alignment of the former Huddersfield & Manchester Railway which passes through a series of small towns, the majority of which gained prominence during the Industrial Revolution and the industrialisation of textile production from the late 17th to 19th centuries. The arrival of the railway and some stations in the mid-19th century helped to further grow and expand the industry through improving the mobility of people and goods including coal, slate and timber, which contributed towards the expansion of these towns (Barrow *et al.*, 2023).

4.4.32 Within the Saddleworth region, cloth output increased from 8640 coarse cloths in 1740 to 36,639 in 1791 and the textiles produced here were renowned for their quality (Barrow *et al.* 2023, p.1). During the Great Exhibition of 1851 in London, the Saddleworth area was acknowledged for its '*remarkable … manufacture of Saxony Flannels especially those of very fine make which have been very much admired in London and other markets'* (Barrow *et al.*, 2023, p.2). The following section presents a brief background history of each settlement, to provide contextual narrative for the wider route.

Stalybridge

4.4.33 Stalybridge is located on the western extent of the Order Scheme within the River Tame valley. The Staveleigh family occupied Staley Hall during the reign of Edward III (UK Genealogy Archives n.d.). The origins of the contemporary town lie primarily in its post medieval contribution to the textile industry expanding throughout the region. The manufacture of cloth in Stalybridge started in the 16th century and would have been undertaken domestically before the opening of the first cotton mill in 1776 and the first steam engine in 1795 (UK Genealogy Archives n.d.). By 1814 there were a reported 12 mills which expanded to 33 by 1844 (UK Genealogy Archives n.d.).

4.4.34 The arrival of the railway in Stalybridge improved its connectivity and fostered further economic and developmental growth. The area accommodated the intersection of three railway lines; Manchester, Sheffield and Lincolnshire; Manchester and Leeds; and the Huddersfield & Manchester Railway (UK Genealogy Archives n.d.). Along with the Huddersfield Canal and improved road network. These important communication routes together with its proximity to Manchester, enabled Stalybridge to continue to grow and expand throughout the 20th and 21st century into the town that is recognised today.

Millbrook

4.4.35 Millbrook is located to the north of Stalybridge on the south-western extent of the Pennine landscape. On the six-inch OS Map of 1848, the western extent of the settlement was labelled as ‘Millbrook Ward’ and would have encompassed the hamlet of Heyrod. At this time, the area was not characterised by industrial activity but the presence of detached buildings, cottages and halls, albeit the Hartshead Print Works was established further to the south. In the six-inch OS Map 1848 (Insert 4-1), the settlement is shown to have developed to the east of the Huddersfield Canal and the railway corridor with some mills, religious institutions and residential development and the former ‘Millbrook Ward’ is no longer annotated. At this time, there is a station named after the village, known as the ‘Staley & Millbrook Station’ which accommodated the Stalybridge & Diggle Loop Line of the LNWR.

Insert 4-1 Ordnance Survey 1:10,560 County Series Map of 1848 showing Millbrook Ward (left) 1:10,560 County Series Map 1918, Millbrook is shown to the east (right)

4.4.36 In the early 20th century, the area underwent considerable growth, particularly to the south blurring the boundary between Millbrook and Stalybridge. Both the railway and station associated with the Stalybridge & Diggle Loop Line are no longer extant, and the industrial structures have been removed.

Mossley

4.4.37 Mossley derives its placename from its wooded environment ('moss') and relationship with the River Tame ('lea') (Mills 1976, p.113). A known prehistoric route, which was reused and paved during the Roman period passes through the village (Mossley Heritage 2019) and likely connected the forts at Melandra and Castleshaw (Curry 2015). Mossley was first recorded in 1309 whilst under the ownership of William de Mossley (Mossley Heritage 2019). Despite its early medieval origins, Mossley as it is known today, is the result of the post-medieval industrialisation of the woollen and cloth industry and transportation improvements.

4.4.38 Woollen production was initially undertaken domestically in weaver's cottages owned by wealthier farmers (Holt 1974, p.49). The industrialisation of textiles enabled numerous mills to be established, predominantly along the valley bottom (Curry 2015). Andrew Mill was the first to be built in 1765, and by 1830 there were some 20 mills in Mossley (Holt 1974, p.50). John and George Mayall were prolific industrialists from Mossley who acquired and established numerous mills and became important employers in the town (Holt 1974, p.52-53).

4.4.39 The growing textile industry in conjunction with the improvement in road, canal and railway transportation resulted in a phase of expansion between 1750 and 1850 (Holt 1974, p.49). Mossley developed using locally quarried stone which is a key aspect of the character of the area, similar to other villages in the Pennines (Curry 2015). The establishment of the railway

through the village and the opening of a station here were contributing factors towards the growth of the town. The 25-inch OS Map from 1894 (not reproduced here) illustrates a dense concentration of mills and terrace rows near the river and canal, whilst the main town centre developed further to the north. Throughout the 20th century, development continued to expand and supersede the former open landscape creating a more suburban and developed town.

4.4.40 A small industrial neighbourhood to the north of Mossley known as Roughtown also developed out of the industrial prosperity of the textile industry. Mills including Carr Hill and Wood End Mill were established along the river and canal embankment to the east of the neighbourhood centre along with early 18th century houses and cottages (Barrow *et al.* 2023, p.106). Though the railway helped to improve the woollen market in this area, it also resulted in the removal of nine cottages and a dozen cottage gardens (Holt 1974, p.61).

4.4.41 The regional decline in the textile industry from the late 19th century onwards resulted in the closure of various mills throughout the 20th century. Some have remained upstanding and contribute to the historic character and industrial heritage of Mossley, however a number have been demolished.

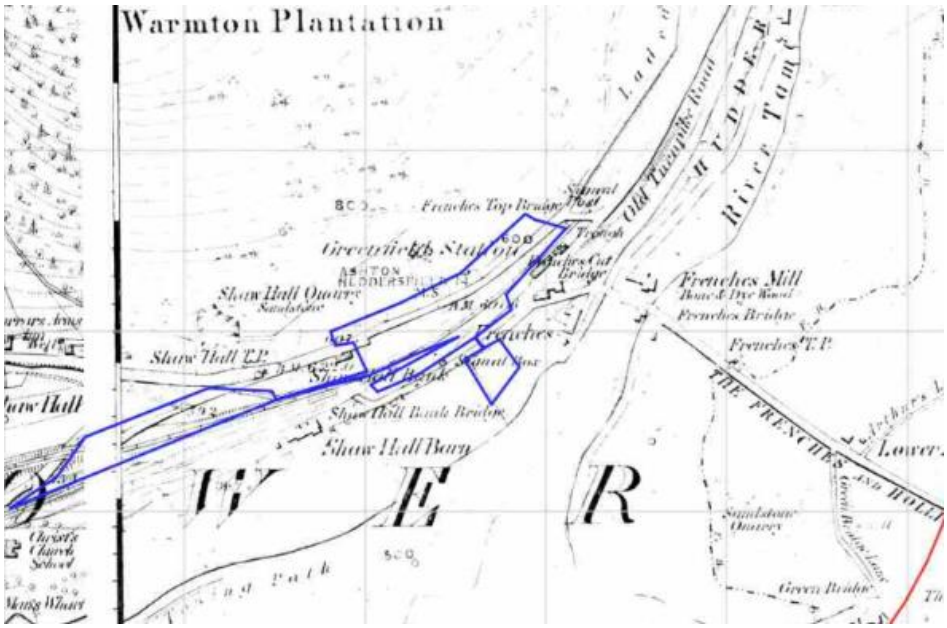
Greenfield

4.4.42 Greenfield is a small village located to the west of Oldham within the banks of the River Tame valley and the Pennine landscape. A Roman road from Castleshaw Fort passed through the area, however Greenfield only developed in the post-medieval period. The Standedge to Oldham Turnpike (now Chew Valley Road) was established in 1799, but the demand for better connectivity by local millowners instigated the establishment of the Shepley Lane Head Turnpike in 1824 (Barrow *et al.* 2023, p.113).

4.4.43 Despite the relatively late arrival of the turnpike roads, the growing demand for loom weavers and industrialisation resulted in the 18th and 19th century development of the village. Terraced houses were built between 1820-60 near mills to house the influx of workers (Belmore 2021). Wellington Mills were landmark structures in Greenfield which was owned by James Shaw (Barrow *et al.* 2023, p.110). By 1885, there were a recorded 85,000 spindles and by 1920 this had increased to 92,000 (Barrow *et al.* 2023, p.110). The mill was devastated by a fire in 1955 and was no longer in use as a mill although the structure remains upstanding (Barrow *et al.* 2023, p.118).

4.4.44 Improvement in transportation included the establishment of the turnpike roads, canal and railway. The opening of Greenfield Station and associated goods warehouse bolstered economic development through increased access to the area (Barrow *et al.* 2023, p.110). These transport networks are depicted in the six-inch OS map 1854 Insert 4-2at which time the area

is predominantly rural with some scattered development flanking the main turnpiked roadways including French Mill and buildings named ‘Shaw’.



Insert 4-2 Ordnance Survey 1:10,560 County Series Map of 1854

4.4.45 Development continued along the turnpike through the late 19th century to the mid-20th century. The turnpike, renamed Chew Valley Road, is the main axis through the town along which development branches to the north and south.

4.4.46 The decline of the textile industry in the 20th century resulted in the subsequent suburban growth of Greenfield. The closure of the textile industry resulted in the repurposing of Greenfield Woollen Mill into a paper mill before its closure in 2001 and demolition of Knoll Mill for a new Tesco Store (Belmore 2021).

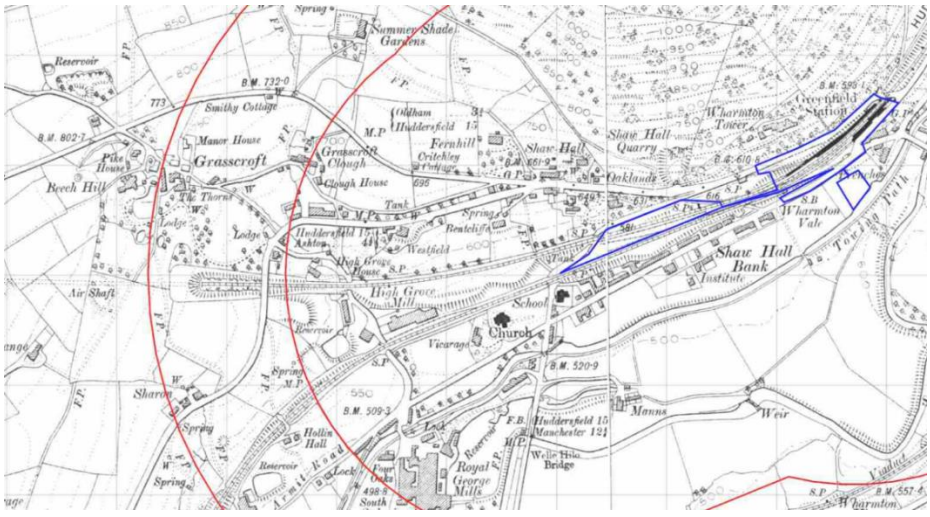
Grasscroft

4.4.47 Grasscroft village lies to the north of Route Section W2B on an area of relatively lower-lying ground. In 1599 the Grasscroft Estate was purchased by the Buckley family, and the estate was subdivided in 1606 (Barrow *et al.* 2023, p.83). Grasscroft largely developed as a result of the woollen industry in the post medieval period. By 1799 Oak View Mill was established under William Whitehead. Gibbs Mills, later called Royal George Mill, was established near Shaw Hall in 1786 by James Harrop and Sons and employed 62 in fulling and scribbling mills. It was built using stone from land occupied by Mrs Whitehead of Shaw Hall. Royal George Mill was bought by the Whitehead family in 1835 (Barrow *et al.* 2023, p.86). In 1837 the Whiteheads let out Oak View Mill, concentrating their efforts on Royal George Mill.

4.4.48 Late in 1840, Angus Reach who was a special correspondent reporting for the Morning Chronicle and made a number of observations on Grasscroft including, what he described as the beautifully situated country factory of Royal George Mills in the deep cleft of a wooded glen and scattered around it are the cottages of the workpeople. Other observations included one interesting branch of the organisation being devoted to flag making [for the navy], those working on this being exclusively women and was an anomaly given their location with the hills of Yorkshire. They would dye, spin and weave the bunting which was then cut into the proper pattern and sewn together in the mill or in the cottages around (Littlewood 2019, pp.17-18).

4.4.49 In 1849 the Whiteheads purchased land from the L.& N.W. Railway Company upon which Christ Church Friezland (NHLE 1356701) was built in 1850. This is of local interest for its association with local architect George Shaw (Barrow *et al.* 2023, p.88). The Whiteheads then gifted the church to the community.

4.4.50 In the 25-inch OS Map of 1893 (not illustrated here), Grasscroft is mostly a rural area with some development flanking Oldham Road and some scattered development further west. Initially, development was sparse, largely limited to Church Road, Shaw Hall Bank Road and Oldham Road, all of which were closely located to the railway, however into the 20th and 21st century, development expanded westwards along Oldham Road in which the presence of the railway helped in this expansion (Insert 4-3).



Insert 4-3 Ordnance Survey 1:10,560 County Series Map 1904, Grasscroft shown the east of the railway corridor

4.4.51 The village has since adopted a suburban character due to the decline of the textile industry. The Royal George Mill latterly made felt for piano hammerheads, prior to its closure and conversion to houses and apartments, albeit its upstanding presence in the town helps recall the industrial heritage of the area.

Uppermill

4.4.52 Uppermill is located within the valley corridor of the River Tame, flanked by the Pennine hills to the east and west. The main development of Uppermill occurred as a result of the improvements in transportation and industrialisation of the textile industry in the post medieval period (Kirkbride 2022). In the late 18th century, only two farmsteads and one mill were recorded in historic maps of Uppermill (Barrow *et al.*, p.147). However, the opening of the turnpike road fuelled commercial activity and in conjunction with powerful local families, the Buckleys and Shaws, considerable entrepreneurial activity in Uppermill (Barrow *et al.*, p.147). This was later accentuated by the impact of the canal and later the railway enabled transport between Lancashire and Yorkshire and as far as Liverpool and Hull (Barrow *et al.* 2023, p.147).

4.4.53 Uppermill was also influenced by the textile industry which was initially undertaken domestically, before the industrialisation of this process and the establishment of mills wherein lighter materials such as shawls and flannels were produced (Barrow *et al.* 2023, p.147). It is likely that the placename is derived from textile activities and suggests that there were mills in both the upper and lower parts of the town (Kirkbride 2022). The railway and station helped to further support and expand the industrial activity in Uppermill. Due to the challenging topography in this area, a 23 span viaduct was built to accommodate the railway (Uppermill Viaduct (MVL3/31)). The viaduct became a prominent landscape feature whose grandeur and robust character testified to the industrial character of Uppermill. Such infrastructure and already prominent industrial and commercial activity resulted in the expansion of Uppermill with amenities for the resident workers and families.

4.4.54 Similarly to other villages, the decline of the textile industry resulted in the redundancy of industrial buildings in the area. Although Uppermill is amongst the larger villages along the railway route, there is no longer a prevailing textile industry or station in the area (Theakston 2017). The character of the village recalls its industrial heritage with weaver's cottages and textile mills present amongst the worker's cottages. The viaduct and canal remain landmark features enabling evidencing the importance of transport and communications to the development and history of Uppermill.

Dobcross

4.4.55 Dobcross is located in a hilly and woodland area north-west of Uppermill, along the River Tame. Dobcross was established at an ancient cross-roads and is recorded to have been the first village in the Saddleworth area (Barrow *et al.* 2023, p.63). The current configuration of the town dates to the post-medieval industrial growth of the region.

4.4.56 Early improvements to connectivity include the 1756 bridge over the River Tame that was built for packhorses, and buildings established along Woods

Lane (Barrow *et al.* 2023, p. 65) Dobcross was at the centre of commercial activity in the Saddleworth area in the early 19th century along with Delph (Kelly Directories 1822). Activity established here included businesses, inns, magistrate's court, banks, chapel, post office, stamp office, warehouse and tradesmen workshops established here (Barrow *et al.* 2023, p.63). However development in Uppermill shifted the commercial centre away from Dobcross (Barrow *et al.* 2023, p.63).

4.4.57 In the six-inch OS map from 1854 (not reproduced here), Dobcross is depicted as a scattered settlement along the turnpike road, nucleated around the main intersection whilst mills and quarries are also shown in the environs of the town along with open/rural fields. The area manufactured 'fancy' woollen cloths such as shawls and flannels, such as those made by John Hirst and Sons 1881 (Kelly Directories 1881). A notable mill in the area was Walk Mill, recorded as one of the oldest mills in the area and run by the Lawton Family (Belmore 2020).

4.4.58 Throughout the 20th century, Dobcross underwent a period of growth and expansion originating at its core and extending eastwards which has blurred the boundary between Dobcross and Uppermill. Similarly to elsewhere in the area, the decline of the textile industry resulted in the removal of numerous mills. Its core has undergone minimal change since its time as the hub of the Saddleworth area in the 18th century, and retains much of its historic character as a post medieval industrial village, best seen in the cobbled village square.

Diggle

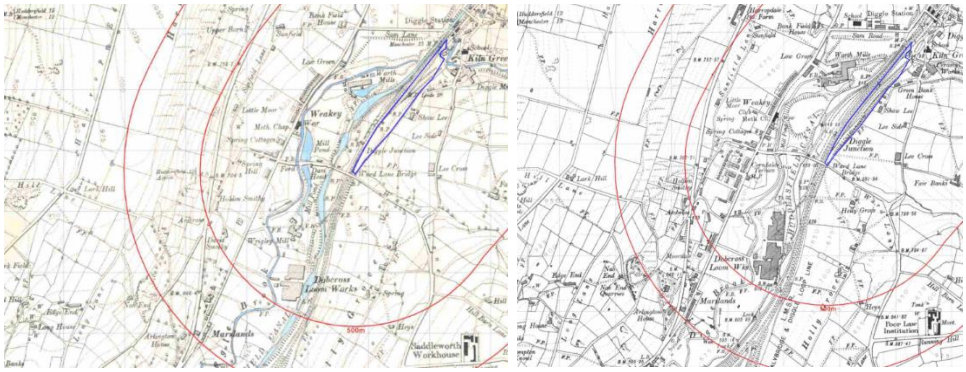
4.4.59 Diggle is located north of Uppermill and Dobcross and was an area of scattered hillside farmsteads below the open moorland owned by the Kirklees Nunnery (Barrow *et al.* 2023, p.49). Diglea appears in the 1822 Kelly's Directory and is recognised as a manufacturing hamlet with a corn mill (Kelly Directories 1822). Improvements in transportation were made to Diggle from the late 18th century which included road turnpiking and the establishment of the Huddersfield Narrow Canal and Standedge Tunnel. The establishment of Standedge Tunnel was a great engineering achievement at this time due to its length and challenge of connecting two villages on different topographical levels and passing under the Standedge escarpment to the north of Diggle. That being said, these transportation improvements did not have a large developmental impact on the village. Until the 18th century, Diggle was a large area of open communal pasture for livestock, some farms and communal meadow (Barrow *et al.* 2023, p.49).

4.4.60 Diggle largely developed from the industrialisation of the woollen industry during the post medieval period. A weaving district along Hanging Gate was established as a small hamlet along the Standedge to Oldham turnpike road to Diggle in the 18th century (Barrow *et al.* 2023, p.57). Warth Mill and

Diggle Mill were both powered by a waterwheel, the latter was the second largest waterwheel in the UK, capable of providing an output of 130 horsepower (Belmore 2020).

4.4.61 The railway contributed towards facilitating the movement of goods and people, whilst the former Diggle Station, located to the south of Standedge Tunnel would have contributed towards the expansion of the village. The character of the settlement which developed during this period took the form of terraced workers' houses made of locally quarried stone to accommodate the influx of workers (Barrow *et al.* 2023, p.49).

4.4.62 In the 25-inch OS Map of 1890 (Insert 4-4) Diggle is a largely scattered settlement with no focal point and open fields on either side of the railway alignment. Development increased, as demonstrated in the 25-inch OS Map of 1933 (Insert 4-4) as can be seen in the new terrace rows and expansion of the mills in the area, including Wrath Mill. In the second half of the century residential development in Diggle between Standedge Road and Huddersfield Road was established.



Insert 4-4 1:10,560 County Series Map of 1890 showing the area of Diggle (left) 1:10,560 County Series Map of 1933 showing the area of Diggle (right)

4.4.63 Diggle is now a linear settlement which is mostly suburban in character. The decline of the woollen industry resulted in the redundancy of various mills in the area including Warth Mill which was rebuilt following a fire in 1915 (Barrow *et al.* 2023, p.55 and 60). It has been converted to office use since becoming redundant as a mill (Theakston 2017).

Huddersfield Narrow Canal

4.4.64 The Huddersfield Narrow Canal, stretching 20 miles from Ashton-under-Lyne to Huddersfield, was constructed to connect the Ashton Canal in the west with the Huddersfield Broad Canal in the east. Envisioned as part of a mid-18th-century plan for direct Transpennine waterways, Acts authorising its construction were passed in 1794. Despite a relatively short length, the canal posed significant engineering challenges, particularly the Standedge Tunnel, which at 3.1 miles is Britain's longest, highest, and deepest canal tunnel. Its construction, fraught with difficulties, claimed around 50 lives and

delayed the canal's opening to 1811. Originally intended for 70ft narrowboats, the canal faced logistical complications as goods had to be transhipped to wider vessels on the Huddersfield Broad Canal. This inefficiency, coupled with competition from the Huddersfield & Manchester Railway, led to the canal's decline. It was purchased by the railway in 1844 and used to assist in constructing the railway tunnel at Standedge. By the early 20th century minimal traffic was seen on the canal and it was officially abandoned in 1944 but retained as a water channel.

4.4.65 Efforts to restore the canal began in the 1970s, culminating in its reopening in 2001 after a £30 million restoration project. The work, driven by the Huddersfield Canal Society and funded by groups including the Millennium Commission, transformed the "impossible restoration" into a celebrated success. Today, it features 74 locks and significant historical structures like Britain's oldest navigable cast iron aqueduct at Stalybridge, designed by Benjamin Outram in 1801.

4.4.66 A total of 22 designated assets associated with the Huddersfield Narrow Canal have been recorded by the HER within the study area. These have been tabulated in Table 4-1:

Table 4-1 Designated assets associated with Huddersfield Narrow Canal

NHLE	Name	Designation
1240125	Huddersfield Narrow Canal, Milestone at SD 979 030	Grade II listed building
1253529	Huddersfield Narrow Canal Milestone at SD 987 043	Grade II listed building
1261184	Huddersfield Narrow Canal, Milestone set in Boundary Wall at SJ 968 988	Grade II listed building
1261754	Huddersfield Narrow Canal Milestone at SD 9990 0677	Grade II listed building
1240125	Huddersfield Narrow Canal, Milestone at SD 979 030	Grade II listed building
1067432	Huddersfield Narrow Canal No. 84 Aqueduct	Grade II listed building
1067433	Huddersfield Narrow Canal No. 66 Bridge	Grade II listed building
1068037	Huddersfield Narrow Canal Winterford Bridge and Lock Number W14	Grade II listed building
1162961	Huddersfield Narrow Canal Scout Tunnel, South Entrance	Grade II listed building
1163263	Huddersfield Narrow Canal Lock No 22W (Dunge Booth Lock)	Grade II listed building

NHLE	Name	Designation
1253530	Huddersfield Narrow Canal Lock adjacent to Ward Road Bridge	Grade II listed building
1253531	Huddersfield Narrow Canal Halls Bridge and Lock 20W at SD 994 049	Grade II listed building
1253532	Huddersfield Narrow Canal Moorgate Bridge	Grade II listed building
1261182	Huddersfield Narrow Canal, Lock 16W Tail Bridge at SD 982 035	Grade II listed building
1261183	Huddersfield Narrow Canal, Black Rock Bridge at SD 976 004	Grade II listed building
1261755	Huddersfield Narrow Canal Subway Under Canal After Lock 30 W	Grade II listed building
1309242	Huddersfield Narrow Canal No. 69 Bridge	Grade II listed building
1309457	Huddersfield Narrow Canal Scout Tunnel North Entrance	Grade II listed building
1309462	Huddersfield Narrow Canal Division Bridge	Grade II listed building
1356465	Huddersfield Narrow Canal Stakes Aqueduct and Tow Path Bridge (Aqueduct Bridge) Over River Tame	Grade II listed building
1356719	Huddersfield Narrow Canal, Lock No.23 (Lime Kiln Lock and Adjoining Tailbridge No.75 And Aqueduct No. 74)	Grade II listed building
1390053	The Royal George Canal Bridge	Grade II listed building

4.4.67 There are an additional 16 non-designated assets recorded in the HER and associated with the Huddersfield Narrow Canal within the study area. These are tabulated in Table 4-2:

Table 4-2 Non-designated assets associated with Huddersfield Narrow Canal

HER Preferred Reference	Name
17812.1.0	Huddersfield Narrow Canal Lock No.4W
17813.1.0	Huddersfield Narrow Canal Lock No.5W
17814.1.0	Huddersfield Narrow Canal: Melbourne Street Bridge

HER Preferred Reference	Name
17815.1.0	Huddersfield Narrow Canal Lock No.6W
17817.1.0	Huddersfield Narrow Canal: Knowl Canal Bridge
17818.1.0	Huddersfield Narrow Canal: boundary stone
17819.1.0	Huddersfield Narrow Canal Lock No.8W
17820.1.0	Swing bridge (remains of)
17821.1.0	Huddersfield Narrow Canal Lock No.9W
17822.1.0	Huddersfield Narrow Canal Lock No.11W
17823.1.0	Huddersfield Narrow Canal Lock No.12W
17919.1.0	Huddersfield Narrow Canal Lock No.15W (Roaches Lock)
17924.1.0	Huddersfield Narrow Canal Lock No.17W
237.1.0	Standedge Canal Tunnel
205.1.0	Kiln Green Aqueduct (Huddersfield Canal)
17910.1.0	County boundary stone (former)

Huddersfield and Manchester Railway

4.4.68 The railway connecting Stalybridge to Huddersfield was constructed by the Huddersfield & Manchester Railway Company between 1846 and 1849. The mid-1840s was a period of commercial confidence and massive expansion in the railway network across England, known as 'Railway Mania'. Between 1845 and 1852 the railway network expanded from 2,345 miles to 7,272 miles and included the Stalybridge to Leeds line. Traversing a challenging landscape through the Pennines, the line was planned to follow the route of the Huddersfield Narrow Canal for much of its length, with the canal acquired by the Railway Company the year after its authorisation. These difficult landscape conditions resulted in the need to build several major viaducts and tunnels. These included Standedge

Tunnel through the Pennines, which was constructed alongside the 1811 canal tunnel.

4.4.69 The impact of improved communications, first with the arrival of the canal in 1811, and then the railway in 1849, provided valuable links with Huddersfield, Manchester and Leeds, enabling the import of raw materials and export of manufactured goods. This fuelled the gradual industrialisation and settlement expansion along the Tame Valley. This can be seen on historic OS maps dating from the 19th and early 20th century where industrial development including mills, dyeworks, printworks and quarries, is shown to have been present along the route of the railway and extending into the more upland areas around Saddleworth and Harropdale, with settlements such as Mossley and Dobcross gradually expanding.

4.4.70 The principal engineer for the Huddersfield & Manchester Railway was Alfred Stanistreet (A. S.) Jee (1816–1858), who was assisted by the more renowned engineer Joseph Locke (1805–1860). Jee's work on the Huddersfield & Manchester Railway represents, arguably, his greatest achievement. This can be seen particularly in the construction of the Standedge Tunnel, which at three miles long was one of the longest and most difficult in England, but also through the various large-scale viaducts along the route. In the 1850s, he worked internationally on the Spanish line from Alar-del-Rey to Reynosa where his skill in design, his accuracy and his completeness of the details earned him high praise. He died in a fatal accident upon the opening of the second portion of that line.

4.4.71 In 1847, prior to the opening of the line, the Huddersfield & Manchester Railway Company was taken over by the London and North Western Railway (LNWR). As part of the LNWR network, the Huddersfield & Manchester Railway formed part of a direct route from Manchester to the West Riding, enabling the LNWR to access the textile and coal industries of West Yorkshire. By 1851, the LNWR was the most prominent railway company of the period, with over 800 miles of track and was the largest joint-stock concern of its time, capitalised at £29 million. The line was acquired by the London Midland and Scottish Railway in 1923, before being nationalised in 1948.

4.4.72 Whilst other parts of the Transpennine route were subject to significant alterations, the Huddersfield & Manchester Railway between Standedge Tunnel and Stalybridge was subject to relatively limited alteration.

4.4.73 The Oldham branch of the LNWR was opened in 1856, six years after the Huddersfield & Manchester Railway. This line branched westwards from the Huddersfield & Manchester Railway in the Friezland area, running into Lydgate Tunnel towards Lees.

4.4.74 The Micklehurst Loop was constructed from 1881-85 to provide additional capacity, and diverged from the existing railway to the east of the Tame Vally, avoiding physical interaction with the majority of its alignment. A

Goods Station was established on the Micklehurst Loop to the south of Mossley including a large goods warehouse and coal yard, whilst the east of the Order Scheme, additional sidings were established in Diggle to service the loop. The railway was also widened to the east of Diggle to accommodate additional tracks serving new bores for the Standedge Tunnel which were added in 1868-71 and 1894, necessitating widening of bridges to the east of the route.

4.4.75 Piecemeal change has occurred, most notably with the closure of a small number of stations along the route, such as Diggle and Saddleworth Stations. The route today forms part of the wider Transpennine route between York, Selby and Manchester, which comprises sections of rail line developed by different railway companies.

4.4.76 The history and significance of the Transpennine rail route is discussed at more length in the Route-Wide Statement of Significance (Alan Baxter Associates 2024). This was produced to characterise the overall heritage significance of the Transpennine route as a whole.

4.4.77 Historic railway structures survive along the Order Scheme including overbridges and underbridges ranging in date from the mid-19th to late 20th century, and the building of Mossley Station[14] which was constructed contemporarily with the Huddersfield & Manchester Railway.

Textile industry

4.4.78 The HER records 68 mills within the study area. Many of these have been identified from historic records and maps and are no longer extant. However, some structures remain such as the grade II Brownhill Bridge Mill (NHLE 1309426) and 24 non-designated mills (13850.1.0, 18088.1.0, 18990.1.0, 3301.1.0, 3306.1.0, 3307.2.0, 3312.1.0, 3337.1.0, 3338.1.0, 3368.1.0, 3376.1.0, 3382.1.0, 3476.1.0, 5592.1.0, 6045.1.0, 6094.1.0, 6097.1.0, 6098.1.0, 6104.1.0, 6105.1.0, 6109.1.0, 6110.1.0, 6342.1.0, 6360.1.0). Britannia Mill (still extant; 3307.1.0), River Mill (3308.1.0), Queen Street Mill (3305.1.0), and Longlands Mill (still extant; 3306.1.0) were located within 200 m of the Order Scheme in Mossley. This concentrated arrangement could be the result of the advantageous proximity to the River Tame. A similar cluster is visible in Stalybridge, within 500 m of the Order Scheme.

Other Post-medieval activity

4.4.79 There are a total of 77 other, non-listed historic structures in the study area (outlined in full in the Gazetteer in Annex A). These have been identified on the GMAAS HER as potential candidates for local listing. The oldest buildings date back to the 18th century, including 1 Diglea (19004.1.0), 3

[14] Mossley Station is located outside the Order Scheme boundary and is considered as an offline asset for the purpose of this assessment.

Diglea (19003.1.0), and Bloomer Cottage (19005.1.0). The 19th century saw a significant increase in construction, with buildings like Grove House (18986.1.0), Albert House (17828.1.0), Midge Hall (487.1.0), Spring Cottages (2180.1.0) and Annaville Terrace (17917.1.0), as well as mills.

4.4.80 Several public houses were also established during this time, such as The Rising Sun (17908.1.0), The Britannia Inn (17875.1.0), The Shears Inn (17903.1.0), the Commercial Inn (17870.1.0), The Gate Inn (19001.1.0), The Church Inn (17906.1.0) and The Roaches Lock (17920.1.0)

4.4.81 The turn of the 20th century brought about the construction of civic buildings like Stalybridge Fire Station (2184.1.0) and Mossley Police Station (2175.1.0), as well as the creation of seven schools such as Friezland School (19058.1.0), Diggle Primary School (19002.1.0), Kiln Green School (19000.1.0), Milton St John's School (17911.1.0), St Joseph's School (17891.1.0), and Livingstone Primary & Nursery School (17866.1.0).The Palace Cinema (2179.1.0) also opened its doors in the early 20th century. Finally, more modern structures like Mitre House (17825.1.0) were built in the 20th century for the Bury Street Working Men's Club, reflecting changing social and economic needs.

4.4.82 There are 121 post-medieval listed buildings recorded within the vicinity of the Order Scheme, as well as Close Gate Bridge (1005797), a scheduled monument located approximately 980m north-west of the Order Scheme. These listed buildings are primarily focused around the settlements of Stalybridge, Mossley, Uppermill and Dobcross. These assets are predominantly post-medieval houses built for workers, however the large number of listed structures associated with canal and railway infrastructure and demonstrates how increased mobility transformed the landscape.

Historic Landscape Character

4.4.83 The information in this section is from the Greater Manchester Historic Landscape Characterisation survey data (Redhead 2012, Lun *et al. 2017)*, as well as the local Oldham and Tameside landscape character studies (GMAU 2012a, 2012b). It considers broad historic landscape types and features located within the 250 m study area.

4.4.84 The Order Scheme itself is a historic landscape, comprising a number of railway lines including a section of the Manchester, Sheffield & Lincolnshire line between Audenshaw and Stalybridge (HGM39393), the Huddersfield & Manchester Line between Stalybridge & Mossley (HGM39387) and between Scout Tunnel & Woodend, Mossley HGM39392), between Mossley and Grasscroft (HGM39390), from Grasscroft to Shaw Hall (HGM17331), at Shaw Hall (HGM17330; HGM17329), Uppermill (HGM17327), Uppermill Viaduct at Dobcross (HGM17326), Dobcross former Saddleworth Station (HGM17325) and Diggle to Standedge tunnel, including Diggle Station and sidings (HGM16980). The HLC notes the Delph Branch Line ("Delph Donkey") at Brown Hill, Uppermill which closed

1955 and survives as an earthwork (HGM17153). Other key transport features include the River Tame and the Huddersfield Narrow Canal, opened in 1811.

4.4.85 To the east of the Order Scheme are numerous industrial heritage assets, including historic mills once powered by the River Tame. These include Tameside Mill at Stalybridge (HGM44609; MGM4268), immediately south-east of the Order Scheme, a surviving mill complex built by 1775 as a cotton mill and later, a paper mill. To the north, also adjacent to the Order Scheme, is the site of large factory originating as part of Riverside Mills, built by 1911 and expended to the north after 1956 (HGM44603; MGM6940). There are further industrial buildings at Souracre on the site of a demolished 19th century mill, River Meadow Mill (HGM44577; MGM4158; MGM4159; MGM4160). South of Mossley is the 19th century Weir Mill (HGM42445) now the Chicago Powder Coating Works and the Mossley Electro Platers (Works), situated in buildings that originated as a row of terraces possibly associated with Weir Mill (HGM42442). The 20th century New Scout Mill, Mossley replaces the original Scout Mill, a fulling mill c. 1777 and a cotton mill from 1793 to 1935 (HGM42438; MGM7397). East of the route at Grasscroft is the site of the 19th century Lower Grove Print Works; the reservoir is extant and the ground undisturbed (HGM17758). North of the Order Scheme at Grasscroft is the site of a reservoir, west of High Grove Road (HGM18142); this is probably associated with the Charlotte Mill (cotton), built in 1791. North of Uppermill Viaduct (MVL3/31), industrial sites are separated from the railway by the Huddersfield Narrow Canal.

4.4.86 There are large bands of regenerated woodland and scrub adjacent to the railway, as well as urban and suburban residential development, industrial areas, and allotments. The railway passes through some areas of complexity, including:

- The Heyrod Estate, noted in 15th century records; Heyrod Old Hall may have been located immediately east of the Order Scheme boundary (MGM1113). Heyrod Hall was rebuilt in the 19th century after the construction of the railway through the estate (HGM44542; MGM1114). To the west of the railway, housing was built on part of the grounds of the Hall in the 1950s (HGM44008). To the east, Hartshead Power Station operated east of Heyrod from 1926 until it was demolished in the 1980s; some buildings survive (HGM44414; HGM44566).
- Mossley, the Order Scheme passes a car park opposite 43 Manchester Road, which has a retaining wall formed of the wall of a railway goods shed (HGM42424). Victorian terraces centred around Stanhope Street developed around central yards or greens (HGM42308). South of Mossley Station, the mid-19th century cottages at 12 to 56 Manchester Road back onto the railway cutting (HGM42284; Mossley Cottages). The Commercial public house on Manchester Road (HGM42636) may

date to the mid-18th century (HGM42636); shops at 60 to 62 Manchester Road & 3 Old Brow were originally three-storey back to backs added to the adjacent public house by 1894 (HGM42638).

- South of Wright's Overbridge (MVL3/23) (MGM19523) at Grasscroft is the former site of a 19th century detached house, Hollin Hall and Hollin Barn, Low Grove Lane, with the building footprint preserved in the land boundaries (HGM17757).

4.4.87 Land adjacent to the Order Scheme includes agricultural land between settlements, particularly in the north of the Order Scheme; much of this is pastureland located on relatively steep slopes. North of Mossley are areas of assarts, early post-medieval enclosures reclaimed from moorland and large regular fields used for rough pasture. At Diggle, there is an area of possible former drained wetland at Marshlands, East of Huddersfield Road.

4.4.88 The Order Scheme passes through stands of regenerated woodland, sometimes growing on former 19th century terraces or industrial sites, and on land isolated by the construction of the railway and the canal. This includes woodland south of Heyrod Villa on land isolated by the development of the railway to the west and industrial sites to the east (HGM44570), on the site of demolished 19th century dwellings, Heyrod (HGM44420). There is semi-natural woodland on the western slopes of the River Tame West of Scout Mill, Mossley (HGM42434). There is woodland on the slope between the railway and Manchester Road, Mossley on the site of demolished terraces (HGM42939).

4.4.89 Areas of former 19th and earlier 20th century quarrying include quarries north of Stalybridge, at Heyrod, Mossley and the Ladcastle Quarries, Dan Quarries and Moorgate Quarry, West of Oldham Road, Uppermill and Brownhill Bridges, Dobcross.

4.4.90 There are 20th century sewage works adjacent to the route at Blackrock (HGM44400; HGM44401) and at Weir Mill, Mossley (HGM42449).

4.5 Significance of Heritage Assets

Online Heritage Assets: Designated Heritage assets

4.5.1 Designated heritage assets that are located on Route Section W2B are identified in this assessment as ‘online’ structures.

4.5.2 There are 14 online designated assets. These are outlined in Table 4-3 below, and mapped in Figures 5.1.1 – 5.1.9. These were erected for the Huddersfield & Manchester Railway and the LNWR in the mid-19th and late 19th century. These structures comprise over and under bridges, a viaduct (Uppermill Viaduct (MVL3/31)), and tunnel portals. All 14 designated online assets are grade II listed and are assessed to be of medium significance.

Table 4-3 Online Designated Heritage Assets

NHLE Ref	NR Ref	Asset Name	Designation
1449242	MVL3/7	Heyrod Hall Overbridge	Grade II listed building
1452382	MVL3/8	Springbank Lane Footbridge	Grade II listed building
1449241	MVL3/9	Springbank Lane Overbridge	Grade II listed building
1452392	MVL3/10	Manchester Road Underbridge	Grade II listed building
1452399	MVL3/11	Railway tunnel portal, MVL3/11 Scout Tunnel (south end)	Grade II listed building
1452405	MVL3/17	Roughtown Road Overbridge	Grade II listed building
1452406	MVL3/20	Wright's Mill Overbridge	Grade II listed building
1452409	MVL3/23	Wright's Overbridge	Grade II listed building
1451848	MVL3/25	Royal George Overbridge	Grade II listed building
1451852	MVL3/26	Shaw Hall Bank Road Footway	Grade II listed building
1451853	MVL3/28	Oldham Road Overbridge	Grade II listed building
1451854	MVL3/29	Wickens Underbridge	Grade II listed building
1068120	MVL3/31	Uppermill Viaduct	Grade II listed building
1452141	MVL3/41	Diggle Portal, Standedge Tunnel west portal	Grade II listed building

4.5.3 Of the listed online structures identified above, 12 are subject to works to facilitate the Order Scheme in order to accommodate electrification and increased line speed. The assessment for these structures has been undertaken in their respective Heritage Statements prepared in advance of listed building consents. Those assets which are covered in their separate listed building consent applications comprise:

- Heyrod Hall Overbridge (MVL3/7) (NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (NHLE 1449241);
- Springbank Lane Overbridge (MVL3/9) (NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (NHLE 1452405);
- Wright's Mill Overbridge (MVL3/20) (NHLE 1452406);
- Wright's Overbridge (MVL3/23) (NHLE 1452409);
- Royal George Overbridge (MVL3/25) (NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (NHLE 1451852);
- Oldham Road Overbridge (MVL3/28) (NHLE 1451853);

- Wickens Overbridge (MVL3/29) (NHLE 1451854); and
- Uppermill Viaduct (MVL3/31) (NHLE 1068120).

4.5.4 These online designated heritage assets are also recognised for their inherent group value with each other given their association with A. S. Jee and the Huddersfield & Manchester Railway built between 1845 and 1849. These structures are of significance for their individual architectural and historic value, as well as their value as a group.

4.5.5 Jee's coherent approach to design remains evident in the use of a common design language across the masonry structures, using segmental or semi-circular arches, rusticated stepped voussoirs, stringcourses and quarry-faced stonework, executed using high quality craftsmanship, elevating these structures above the purely functional. These structures form a group with other listed masonry bridges and viaducts erected by Jee for the Huddersfield & Manchester Railway outside the Route Section W2B[15]. These comprise:

- Heyrod Hall Overbridge (MVL3/7) (grade II listed, NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (grade II listed, NHLE 1452382);
- Springbank Lane Overbridge (MVL3/9) (grade II listed, NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (grade II listed, NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (grade II listed, NHLE 1452405);
- Wright's Overbridge (MVL3/20) (grade II listed, NHLE 1452409);
- Wright's Mill Overbridge (MVL3/23) (grade II listed, NHLE 1452406);
- Royal George Underbridge (MVL3/25) (grade II listed, NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (grade II listed, NHLE 1451852);
- Oldham Road Overbridge (MVL3/28) (grade II listed, NHLE 1451853);
- Wickens Underbridge (MVL3/29) (grade II listed, NHLE 1451854);
- Slaithwaite Viaduct (MVL3/61) (grade II listed, NHLE 1224049);
- Golcar Viaduct (MVL3/70) (grade II listed, NHLE 1276344);
- Milne Viaduct (MVL3/76) (Longwood Viaduct) (grade II listed, NHLE 1220121);

[15] Wheatley's Overbridge (MVL3/103) (grade II listed NHLE 1450537) was designed by A.S. Jee for the Huddersfield & Manchester Railway. The Overbridge was granted consent for extensive change as part of the Huddersfield to Westtown (Dewsbury) Order section of the Transpennine Route Upgrade, and will be demolished and replaced with a new structure (ref 2021/91337). This is likely to result in de-listing. As such its contribution to group value has therefore been excluded from this assessment.

- Church Street (MVL3/82) (grade II listed, NHLE 1452083);
- Huddersfield Viaduct (MVL3/92) (grade II listed, NHLE 1223531);
- Hillhouse Lane Underbridge (MVL3/94) (Willow Lane East) (grade II listed, NHLE 1432641); and
- B6118 Colne Bridge Road Overbridge (MVL3/107) (grade II, NHLE 1450265)[16].

4.5.6 An outlier within the structures erected for the Huddersfield & Manchester Railway, Royal George Underbridge (MVL3/25) (NHLE 1451848) has a cast iron span, springing from stone abutments, the balustrades of which are ornamented with gothic detailing. This bridge forms a group with a small number of surviving cast iron structures erected for the Leeds, Dewsbury & Manchester Railway under Thomas Grainger between 1845 and 1847. These include the large-scale structures of Calder and Hebble Canal Bridge (MDL1/6) (grade II listed, NHLE 1183783) and River Calder Bridge (MDL1/8) (grade II listed, NHLE 1313646), as well as more modest structures such as Toad Holes (MDL1/12, NHLE 1049912), Ming Hill (MDL1/14, NHLE 1451887) and George Street (MDL1/16, NHLE 1451888).

4.5.7 The designated online bridges are not innovative for their period, but are good examples of their type and time. As a group they have been subject to limited alteration and today provide an understanding of the wider trends and engineering achievement which characterise both the Huddersfield & Manchester Railway and the Heroic Age (1841-50) of railway building. This group value is enhanced by the structures continuing to form part of the operational railway; as a collective group of assets, they are experienced by those travelling along the railway line, or near it) as coherent features of a single historic route.

4.5.8 The outstanding engineering feature of the Huddersfield & Manchester Railway is Standedge Tunnel. The first bore was constructed in 1847 – 1848, and worked from the adjacent tunnel for the Huddersfield Narrow Canal, with eight ventilation shafts required along the tunnel's passage through the Pennines for a distance of over three miles. The addition of two further bores in the 1860s and 1890s created a complex of interconnected tunnels which together with the canal tunnel illustrate the evolution and expansion of the transport network across the Pennines (Alan Baxter Associates 2024, p.39). The east and west tunnel portals (MVL3/40 & MVL3/41) are designated as grade II in recognition of their historic and architectural value, and group value with the canal tunnel.

Online Heritage Assets: Non-designated heritage assets

[16] B6118 Colne Bridge Road Overbridge (MVL3/107)) (grade II, NHLE 1450265) will be partially demolished and rebuilt with a supplementary structure replacing its spans over the railway. Listed building consent has been granted for this considerable intervention (ref: 2021/91330), and as a result may limit the contribution that this bridge makes towards the group value with the Jee bridges.

4.5.9 Online non-designated assets identified in the historic environment baseline are characterised as heritage assets that have no formal designation, but are recorded in the HER or have been identified through research and assessment undertaken for the TRU project (Alan Baxter Associates 2024) and are located on the alignment of the Transpennine route. These are shown on Figures 5.1.1 – 5.1.9.

4.5.10 A total of 24 non-designated online heritage assets have been identified, all of which comprise historic structures associated with the railway. These include underbridges, overbridges, pipe-bridges, tunnel portals, culverts and a signal box. The construction typologies of bridges in this group include arch, beam, and girder bridges. The majority of these were constructed for the Huddersfield & Manchester between 1845 and 1849, under the engineer A.S. Jee. When built, these structures were of similarly high-quality design, detailing and construction as their designated counterparts. These structures have, however, been subject to substantial alteration during the later 19th or 20th centuries, reducing their significance to low or negligible depending on the survival of historic fabric. Of interest within this group is Manchester Road Footbridge (MVL3/10A), which was erected for the LNWR in the later 19th century, and survives as an example of an LNWR footbridge with enriched detailing.

4.5.11 It is considered likely that the original construction of the Huddersfield & Manchester Railway will have removed any archaeological remains within railway cuttings. Horizons which may contain archaeological remains will be buried, in places, beneath embankments which may have compressed deposits, but may also form a protective and sacrificial buffer layer. Within the Order Scheme boundary, it is likely that elements of evidence for 19th century railway construction and a palimpsest of subsequent repairs and modifications survive. It is therefore considered that the likelihood of impacts upon archaeological remains within the Order Scheme boundary are low.

4.5.12 These non-designated online heritage assets are considered to be of low or negligible significance, based on their limited heritage significance, the extent to which they have been altered and extent of survival of historic fabric.

Offline Heritage Assets: Designated heritage assets

4.5.13 Offline designated heritage assets identified in the historic environment baseline constitute designated heritage assets identified within the 250 m study area, excluding those located on the Transpennine route.

4.5.14 There are 129 offline designated heritage assets identified within the 250 m study area of the Order Scheme. These are summarised in Table 4-4 below and shown on Figures 5.2.1-5.2.9:

Table 4-4 Significance of offline designated heritage assets

Designation	Significance	Count
Scheduled monuments	High	0
Grade I listed building	High	0
Grade II* listed building	High	1
Grade II listed building	Medium	120
Grade II registered parks & gardens	Medium	0
Conservation areas	Medium	8

4.5.15 There are no World Heritage Sites, scheduled monuments, registered parks and gardens or registered battlefields identified within the study area.

4.5.16 All offline designated heritage assets identified within the study area date from the post-medieval period, largely from the 18th and 19th centuries. This reflects the historic development of settlements along the route during this period. The character of the designated heritage assets also reflects the development of the region during this period, with buildings of industrial character surviving throughout the area, as well as infrastructure relating to the canal and railway.

4.5.17 There are 21 grade II designated assets relating to the Huddersfield Narrow Canal. These are assessed to be of medium significance given their inherent historic and architectural values. These include:

- Bridges: Huddersfield Narrow Canal No. 66 Bridge (NHLE 1067433) and No. 69 Bridge (NHLE 1309242), Winterford Bridge (NHLE 1068037), Moorgate Bridge (NHLE 1253532), Black Rock Bridge (NHLE 1261183), Division Bridge (NHLE 1309462), the Stakes Aqueduct and Tow Path Bridge (NHLE 1356465), and The Royal George Canal Bridge (NHLE 1390053).
- Tunnel entrances: Scout Tunnel, south entrance (NHLE 1162961), and north entrance (NHLE 1309457).
- Locks: Lock No. 22W (Dunge Booth Lock) (NHLE 1163263), Lock Adjacent to Ward Road Bridge (NHLE 1253530), Lock 20W at Halls Bridge (NHLE 1253531), Lock 16W Tail Bridge (NHLE 1261182), Lock

No. 23 (Lime Kiln Lock and Adjoining Tailbridge No. 75 and Aqueduct No. 74) (NHLE 1356719).

- Aqueducts: the Huddersfield Narrow Canal No. 84 Aqueduct (NHLE 1067432)
- Subways: Subway Under Canal after Lock 30W (NHLE 1261755)
- Milestones: milestone at SD 979 030 (NHLE 1240125), at SD 987 043 (NHLE 1253529), set in a boundary wall at SJ 968 988 (NHLE 1261184), and at SD 9990 0677 (NHLE 1261754).

4.5.18 There is one offline designated heritage asset considered to be of High significance. This comprises the grade II* listed war memorial in Stalybridge (1163074). The remaining offline designated heritage assets, comprising grade II listed buildings and conservation areas are considered to be of medium significance. The scheduled monuments previously discussed, including Buckton Castle (NHLE 1015131) are outside of the 250 m study area, and have been assessed to be of high value.

4.5.19 Eight conservation areas have been identified through this assessment. All are assessed to be of medium value.

4.5.20 Designated as a conservation area in 1991, Stalybridge town centre (DGM2201) is an industrial Pennine town with a significant historic character shaped by its transport routes and mill buildings (see 4.4.33 above). The conservation area is characterised by buildings from the late 18th and 19th centuries, constructed from local stone and aligning along streets such as Market Street, Melbourne Street, and Grosvenor Street. The town's organic development follows the valley's contours, creating varied vistas and connecting closely with the Pennine landscape. Panoramic views of Hollingworth Moor contribute to its character, grounding it in its location within the Pennine landscape. The conservation area is included on Historic England’s Heritage At Risk Register 2024 due to its poor condition. To address this, Historic England and TMBC initiated projects between 2020 and 2024 as part of the Heritage Action Zone (HSHAZ), which focused on restoring the Civic Hall, historic shop fronts, and developing a Heritage Walk along Market Street.

4.5.21 Millbrook Conservation Area was designated in 1991. The conservation area is established along the north-east to south-west axis of Huddersfield Road and encompasses the planned Victorian industrial village of Millbrook, set within natural topography of the Swineshaw Valley. The area developed around key mills in the area; Staley (Howard), Staley (Kernshaw) and Oakwood mills, which were prominent features in the establishment of the industrial character. Millstone grit is the predominant building material used throughout Millbrook, contributing towards a unified townscape and forming a key element of the area’s overall character and appearance. The millstone setts are considered to be an important feature in the area. Stone terrace houses dating from c. pre-1850 with internal

courtyards to the west of Huddersfield Road, are also key features. Larger buildings such as St James's Church and School, Oakwood Mill and mill owner/managers houses flank Huddersfield Road and help frame the route through the conservation area. Situated within the Swineshaw Valley on the lower slopes of the eastern side of the Tames Valley, the conservation area benefits from distinctive viewshed. The views into and out of the conservation area capture the industrial character of Millbrook against the Pennine landscape in the surrounding area and contributes towards its overall appearance.

4.5.22 Designated as a conservation area in 1982, Royal George Mills (DGM3182) covers 15.41 hectares and lies between the River Tame and the Huddersfield Narrow Canal, west of Greenfield. Originally known as Gibbs Mills, it was built in 1786 and renamed in 1800 to honour King George III. The Whitehead Brothers acquired the mills in 1835, leading to their growth and influence in the local area. Initially focused on wool production, the mills later specialised in felt making. The complex, recently converted to residential use, has significant historical importance for its role in the local economy and industry.

4.5.23 Designated as a conservation area in 1977, Uppermill (DGM3166) covers 30.41 hectares and is situated in a picturesque rural location surrounded by dramatic moorland hills. The village is characterised by post medieval buildings, with public and commercial buildings along High Street and residential areas behind. A characteristic feature of the settlement is the use of natural stone, transitioning from traditional elongated window openings and stone flag roofs to square window openings and Welsh blue slate roofs during the 19th century. The area is home to an intact collection of domestic stone buildings, showcasing historical Pennine design. Significant landmarks include the Huddersfield Narrow Canal, completed in 1811, and the nearby Uppermill Viaduct (MVL3/31) from 1849. The canal, once a busy transport route, now forms a valuable leisure route through the conservation area evidencing the role of communications in the history of the settlement. The conservation area boundary aligns with the 19th-century village limits, excluding later suburban expansion.

4.5.24 Dobcross (DGM3168), designated as a conservation area in 1972 and located west of the A670, covers 5.74 hectares. The settlement is situated between Uppermill and Diggle. The settlement follows the Pennine moorland pattern, with buildings clustered along narrow roads forming irregular squares. Notable features include the Ramsden Memorial and the Church of the Holy Trinity, built in the 1780s. The buildings, constructed of blackened local gritstone, have mullion windows and slate roofs, with few timber elements. The area includes mature trees, open spaces, and interesting vistas, emphasising its organic growth and strong community ties.

4.5.25 Holly Grove Conservation Area was designated in 1988 and encompasses a small rural small hamlet with structures dating from the 18th to 20th centuries. The majority of these structures are grade II listed and include farmhouses, houses, cottages and a wool wall. The presence of a wool wall indicates the domestic production of woollen cloth in the area. Construction in the conservation area is characterised by the use of hammer-dressed watershot stone with graduated stone slate roofs for residential structures, and rubble sandstone masonry for the wool wall. The setting of the conservation area is rural, views into and out of the conservation area framed by trees and stone boundary walls with distant views of the Pennines, particularly from the approach along Butterhouse Lane.

4.5.26 The historic character of Delph, Saddleworth (DGM3169) stems from its mix of building types, reflecting its development during the Industrial Revolution. The central area focused around King Street, is the oldest part and features a dense grid of streets with shops, houses, workshops, and community facilities. The outer areas are characterised by linear, residential terraces along major roads like Stoneswood, Grains, Denshaw, and Delph Lane, dating from the 19th and 20th centuries. These residential corridors are separated by open spaces that preserve the village's small-scale, rural character. The Valley Mills complex, linking Delph with New Delph, contrasts with the smaller-scale development. The setting of the conservation area is defined by surrounding hills, with significant views from King Street towards Heights Chapel and across the valley. Modern growth formed by post-war housing is present outside but adjacent to the conservation area.

4.5.27 Harrop Green (DGM3171), designated a conservation area in 1972 and covering 0.78 hectares, is located north-west of Diggle, near the Pennine Moors and the Peak District. Most buildings within the conservation area date to the 18th century or earlier, with evidence of the handloom textile industry visible in the presence of weaver’s windows across the upper storeys, horizontal multiple windows which illuminated textile workshops. The construction of the Huddersfield Narrow Canal and the Huddersfield & Manchester Railway separated Harrop Green from Diglea. The settlement is characterised by the position of buildings integrated into the hillside, resulting in varying storey heights. The organic layout provides unexpected vistas, with hard floorscapes and stone walls separating public and private spaces. The use of local gritstone and grey slate, along with mullion windows, reflects the settlement’s adaptation to the Pennine climate. Open spaces with mature trees play a key role in the area’s character.

4.5.28 Diglea (DGM3172), also designated in 1972, spans 1.33 hectares and lies north-west of Diggle Village, near the Peak District and Pennine Moors. Buildings date predominantly from the 18th century, though some may be older. Originally a farming hamlet, Diglea and Harrop Green were separated by the construction of Huddersfield Narrow Canal and the Huddersfield & Manchester Railway. The settlement follows the Pennine

moorland pattern, with structures set into the hillside, creating varied roof lines. This introspective layout features corners and sudden level changes that frame long-distance views. The use of local gritstone, grey slate roofs, and mullion windows highlights the adaptation to harsh conditions. Open spaces at route junctions contain mature trees, contributing to the village's scene. The area is characterised by the presence of a hard floorscape with stone walls defining private gardens.

Offline Heritage Assets: Non-designated Heritage assets

4.5.29 Offline non-designated heritage assets identified in the historic environment baseline comprise those non-designated heritage assets recorded on the Greater Manchester HER and identified during the walkover surveys within the 250 m study area.

4.5.30 There are 201 offline non-designated heritage assets located within the 250 m study area. The location of these in relation to the Order Scheme, are shown on Figures 5.3.1-5.3.9.

4.5.31 The offline non-designated heritage assets identified within the historic environment baseline include historic buildings or structures and the sites thereof, buried archaeological remains, and evidence relating to place names or historic mapping suggesting archaeological potential. The non-designated heritage assets are primarily of post-medieval date, comprising particularly industrial buildings and 19th century houses. There are no non-designated assets identified within the study area dating to the Romano-British or early medieval periods.

4.5.32 The significance of historic landscape character areas and components vary, depending on the degree to which they are intact, their scale, legibility, linkage to extant heritage assets and their capacity to address regional research agendas. Landscape values such as amenity and tranquillity are not considered within this heritage-specific assessment. The historic landscape is considered to have negligible significance for modern and intrusive developments, and low or medium significance for elements of medieval and post-medieval agricultural, industrial and transport landscapes that are intact, legible and contribute to historic character and .

4.5.33 The majority of the non-designated assets identified in the study area are considered to be of low or negligible significance, based on their heritage significance, local interest and extent of survival.

4.5.34 The HER records a number of archaeological find spots considered to have been removed or destroyed. These sites are not considered heritage assets in themselves, as there cannot be impacts on archaeological finds which have been removed. However, they provide evidence of the potential for as-yet unknown archaeological deposits within the study area.

4.5.35 Archaeological remains may survive in areas of compounds, haul roads and laydown areas. Their survival depends on the depth of remains and the extent of any previous ground truncation caused by previous development.

5. DEVELOPMENT PROPOSALS & IMPACT ASSESSMENT

5.1.1 The following designated assets within the Order Scheme boundary are subject to their own assessment in a series of Heritage Statements (Network Rail 2025) prepared for listed building consent. As such, impacts upon these structures and their group value are not assessed within this report:

- Heyrod Hall Overbridge (MVL3/7) (NHLE 1449242);
- Springbank Lane Footbridge (MVL3/8) (NHLE 1449241);
- Springbank Lane Overbridge (MVL3/9) (NHLE 1449241);
- Manchester Road Underbridge (MVL3/10) (NHLE 1452392);
- Roughtown Road Overbridge (MVL3/17) (NHLE 1452405);
- Wright's Mill Overbridge (MVL3/20) (NHLE 1452406);
- Wright's Overbridge (MVL3/23) (NHLE 1452409);
- Royal George Overbridge (MVL3/25) (NHLE 1451848);
- Shaw Hall Bank Road Footway (MVL3/26) (NHLE 1451852);
- Oldham Road Overbridge (MVL3/28) (NHLE 1451853);
- Wickens Overbridge (MVL3/29) (NHLE 1451854); and
- Uppermill Viaduct (MVL3/31) (NHLE 1068120).

5.2 Impact Assessment

5.2.1 Potential effects arising from construction and operation of the Order Scheme could comprise both physical impacts to buried archaeological remains and online non-designated historic structures, as well as changes to the setting of heritage assets.

5.2.2 Within the Order Scheme boundary, any intrusive groundworks, vegetation clearance or topsoil stripping may expose surviving non-designated archaeological remains associated with railway and canal infrastructure, or temporary site facilities and camps associated with railway construction. These may be damaged by rutting, crushing and compaction caused by the movement of plant and vehicles. Groundworks have the potential to truncate or wholly remove any remains present within the footprints of excavations.

5.2.3 At offline compounds, haul roads, working areas and laydown areas, intrusive groundworks or topsoil stripping may expose any surviving

underlying archaeological remains, which may be damaged by rutting, crushing and compaction caused by the movement of plant and vehicles. Groundworks have the potential to truncate or wholly remove any remains present within the footprints of excavations.

Non-designated built heritage assets

5.2.4 The TWAO works would result in physical impacts on six non-designated online heritage assets. These comprise:

- Demolition of Stamford Road Pipebridge ((MVL3/12A); negligible value);
- Reconstruction of three bridges (Manchester Road Footbridge (MVL3/10A), Roughtown Road Footbridge (MVL3/18), Ward Lane Overbridge (MVL3/36); all of negligible value), resulting in total loss of significance;
- Partial reconstruction of one bridge (Station Road Overbridge (MVL3/39); negligible value); and
- Addition of a concrete saddle to Standedge Canal Tunnel (MVL3/39A; low value).

5.2.5 Reconstruction would result in total loss of significance for Manchester Road Footbridge (MVL3/10A), Roughtown Road Footbridge (MVL3/18), Ward Land Overbridge (MVL3/36), all of which have been assessed to be of negligible value.

5.2.6 The partial reconstruction of Station Road Overbridge (MVL3/39) and minor alterations of Standedge Canal Tunnel (MVL3/39A) would result in some harm to significance, however their historic form and function would continue to be understood.

Non-designated archaeological remains

5.2.7 It is anticipated that the construction of the railway in the mid-19th century, and subsequent maintenance activities, is likely to have removed earlier archaeological deposits within the railway corridor.

5.2.8 A number of offline areas are required for the TWAO, such as compounds, laydown areas, vehicle, plant and materials access routes, road and PRoW upgrades, works areas and areas of drainage and utility works.

5.2.9 Archaeological remains may survive in some of these areas. Their survival and condition depends on factors including the depth of remains and the extent of any previous ground truncation caused by previous development.

5.2.10 The archaeological walkovers undertaken in in 2024 and 2025 identified that much of the land-take for the Order Scheme has already been subject to modern ground disturbance and previous construction impacts, with

several areas on terraced or levelled ground, particularly immediately adjacent to the railway.

5.2.11 The design of these offline elements is still in development, and therefore potential impacts upon archaeological deposits, if present, cannot currently be determined in all cases. However, some areas of offline works have been scoped out of assessment. These include areas of existing hardstanding where no intrusive groundworks will take place, and areas where the construction or upgrade of elements such footpaths, fencing or shallow drainage works would result in superficial groundworks that will not affect deeper horizons with potential to contain archaeological remains.

5.2.12 Historic surfaces such as stone setts, as well as stone walls and gateposts may be affected by compound construction, equipment storage, vehicle collision and crushing beneath heavy vehicles.

5.2.13 The Code of Construction Practice (CoCP Part B) [**NR16**] supports the TWAO application and will be secured via planning condition. It outlines how Network Rail will manage construction impacts. The CoCP provides for a programme of archaeological work to secure mitigation commitments. This will identify the methodology for any investigation required. It will also set out control measures to enable the protection of areas of archaeological potential during construction works, and provisions for the investigation of any unexpected archaeological discoveries.

5.2.14 As the design of these elements progresses, further consultation will be undertaken with GMAAS to advise on design measures and construction controls to limit impacts, and to determine the scope and nature of any programme of archaeological work.

5.2.15 A summary assessment of offline areas of potential impact included within the TWAO is set out in Table 5-1, with more detailed assessment set out in Annex B.

Table 5-1 Summary of archaeology and built heritage potential of offline area of potential impact and likely mitigation works

Offline area of potential impact	Archaeological potential	Anticipated mitigation works
Printworks Work Main Compound, Millbrook	Relatively steep slope, medieval or post-medieval farming. Low potential for significant archaeological remains.	Depending on impacts, a staged programme of archaeological investigation may be required.
Printworks Office Compound, Millbrook	Ruins and buried remains of the medieval Souracre Farm, Woodfield. High potential for archaeological remains of low or medium significance.	Depending on impacts, historic building recording and a staged programme of archaeological investigation may be required.

Offline area of potential impact	Archaeological potential	Anticipated mitigation works
Heyrod Hall Compound	Archaeological remains relating to the development of Heyrod Hall in the medieval and post medieval period. Moderate potential for archaeological remains of low or medium significance.	Depending on impacts, a staged programme of archaeological investigation may be required.
Wakefield Road Compound, Millbrook	Former railway sidings. Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Scout Tunnel Site Compounds: Scout West Ramp and Laydown areas	Scout West Laydown: low potential for significant archaeological remains. Scout West Ramp: Low potential for archaeological remains of low or medium significance, associated with C18th and C19th Scout Mill, such as mill leats.	Scout West Laydown area: No archaeological mitigation works anticipated. Scout West Ramp Site: Depending on impacts, a staged programme of archaeological investigation may be required.
Manchester Road: Scout West Spoil Hold Site	Moderate potential for archaeological remains of demolished terraced housing of low significance. Low potential for archaeological remains of low or medium significance, associated with C18th and C19th Scout Mill, such as mill leats.	Depending on impacts, a staged programme of archaeological investigation may be required.
Scout East Ramp Works	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Plevins Site Compound Works	Site was formerly used as Micklehurst Goods Station on the ‘Micklehurst Loop’, c. 1881-1966. The Goods Warehouse remains extant.	Depending on impacts, historic building recording and a staged programme of archaeological investigation may be required.
Egmont Street Compound	Buried remains of the C19th Albert Mill may survive beneath areas of modern hardstanding. Moderate potential for archaeological remains of low or medium significance.	Depending on impacts, a staged programme of archaeological investigation may be required.
Relocated Mossley Station West Site Compound	Formerly former railway sidings, signal posts, and allotment gardens. Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Mossley Station Relocation Works (Mossley Station Compound)	Formerly a railway siding with a coal depot. Non-listed ashlar gateposts and wall. Low potential for significant archaeological remains.	Historic building recording of surfaces, gateposts of boundary wall. Depending on impacts, a staged programme of archaeological investigation may be required.

Offline area of potential impact	Archaeological potential	Anticipated mitigation works
New Earth Street Compound	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Roughtown Road Overbridge (MVL3/17) Works	Low potential for significant archaeological remains.	Roughtown Road Railway Overbridge (MVL3/17) will be protected via construction controls set out in the CoCP. No archaeological mitigation works anticipated.
Heron Lane Site Compound	Low potential for archaeological remains of low significance.	No archaeological mitigation works anticipated.
Armit Road Site Compound	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Stockport Road Level Crossing Diversion	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Royal George Underbridge (MVL3/25) and Compound Works	Former location of C19th Sunday School. Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Oaklands Road Site Compound Works	Former railway sidings. Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Greenfield Compound Works	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Wickens Underbridge (MVL3/29) Laydown Area & Prow Upgrade	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Former Saddleworth Station Site Compound	Previously used as a quarry. Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Brownhill Lane Access	Nearsite of Brown Hill Bronze Age barrow (1096.1.0) and 19th century quarrying. Low to moderate potential for prehistoric archaeology of low to medium significance, associated with Bronze Age or later burials	Depending on impacts, a staged programme of archaeological investigation may be required.
Old Railway Tunnel Compound,	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.

Offline area of potential impact	Archaeological potential	Anticipated mitigation works
Saddleworth (Butterhouse Tunnel)		
Ward Lane Satellite Compound	Low potential for significant buried archaeological remains.	No archaeological mitigation works anticipated.
Grandpa Green Compounds 1 & 2	Low potential for significant archaeological remains.	No archaeological mitigation works anticipated.
Diggle Compound	Low potential for significant buried archaeological remains. Strengthening of south end of the Standedge Canal Tunnel (MVL3/39A) would not result in any alteration to the fabric of the portal.	No archaeological mitigation works anticipated.

Impacts on the setting of heritage assets

5.2.16 Construction of the Order Scheme is likely to have temporary impacts on the settings of surrounding heritage assets due to additional traffic, noise, dust, vibration and light emissions, particularly in more rural areas with open views and limited intervening vegetation or built screening.

5.2.17 Designated assets located directly outside of the Order Scheme boundary may be susceptible by the temporary impacts. These include 7,9, 11 and 11a Midge Hill (grade II, NHLE 1162827), 7, 9, 11 and 11a, Midge Hill (1162827); Christ Church, Friezland (1356701); and Huddersfield Narrow Canal, Lock no 23 (Lime Kiln Lock and adjoining tailbridge No 75 and Aqueduct No 74 (1356719). These impacts would cease at the end of the construction phase.

5.2.18 Construction would also result in temporary noise and visual intrusion on the setting of the Huddersfield Narrow Canal and heritage assets associated with it.

5.2.19 The Order Scheme involves upgrading a historic railway located in a landscape with areas of upland moorland, woodland flanking some parts of the railway, fields, small urban settlements and historic industrial areas in the Tame valley. The historic landscape character, which includes the course of the railway itself, will not alter significantly due to the Order Scheme.

5.2.20 No long-term or permanent impacts are predicted on the settings of designated or non-designated heritage assets from operation of the Order Scheme.

5.3 Mitigation Measures

5.3.1 Mitigation has been used in two separate ways: embedded mitigation and additional mitigation measures.

5.3.2 Embedded mitigation occurs within the design stage and is intended to include elements within the design that avoid or substantially reduce negative change to the significance of a historic asset. There may also be changes that enhance or improve a historic asset.

5.3.3 Embedded mitigation has been incorporated as an integral part of the design proposals for the designated online structures and includes measures such as:

- Use of natural stone masonry for new construction;
- Retention and reuse of historic fabric where possible;
- The use of a consistent design approach to masonry bridge reconstructions;
- Referencing existing architectural features in the design of the bridge reconstructions; and
- Use of natural stone copers to achieve required parapet heights for electrical protection works.

5.3.4 With regard to archaeological remains, the construction design for compounds, laydown areas, spoil area and haul roads will be finalised during the detailed design phase, after determination of the TWAO. Design mitigation measures, such careful siting, minimising land-take, utilising areas subject to previous ground disturbance, sensitive foundation design and drainage/utilities runs and applying construction methods that limit intrusive groundworks may be applied as part of this process to minimise the potential for impact on archaeological remains within areas of where potential for the presence of significant archaeological remains has been identified (Table 5-1 and Annex B).

5.3.5 Consultation will be undertaken with the Local Planning Authority Archaeological Adviser when details of construction methodologies for these areas are available to determine requirements for archaeological mitigation works.

5.3.6 It is anticipated that the design development process for the Order Scheme would identify further mitigation measures. Network Rail commits to undertaking such additional mitigation measures as part of the implementation of the construction of the Order Scheme in compliance with legislation and NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]. For archaeological remains, it is anticipated that most work would take place within the site setup and initiation clearance phase of work. Investigations may include:

- Targeted excavation;
- Watching brief on groundworks; and
- Construction controls such as protection of any remains preserved in situ.

5.3.7 These works would be secured through Section 5 of the Code of Construction Practice (CoCP) Part B and an associated planning condition attached to the deemed planning permission applicable to the relevant works elements of the Order Scheme.

5.3.8 For designated and non-designated online structures impacted by the Order Scheme, historic building recording would be undertaken in accordance with guidance published by Historic England, Understanding Historic Buildings: A Guide to Good Recording Practice (Historic England 2016). This sets out four main levels of record:

- Level 1: Basic visual record, typically consisting of photography, a brief written account, and sketches. Generally of exteriors only.
- Level 2: Descriptive record analysing its development and use. Both the exterior and interior of the building will be seen, described and photographed.
- Level 3: Analytical record of the evolution and change a building has undergone, including a systematic account of the building's origins, development and use. Supported by all drawn and photographic records that may be required to illustrate the building's appearance and structure and to support an historical analysis.
- Level 4: Comprehensive analytical record of a building, a full historical and architectural analysis, supported by a comprehensive drawn and photographic record.

5.3.9 Historic building recording would provide a permanent documentary record of the structures in their current condition which would be submitted to the Greater Manchester Historic Environment Record. Based on the works proposed to a number of structures by the Order Scheme, the proposed levels of recording for each structure is identified in Table 5-2 below:

Table 5-2 Proposed additional mitigation for designated and non-designated built heritage assets

NHLE reference	Asset	Name	Designation	Historic Building Record
1449242	MVL3/7	Heyrod Hall Overbridge	Grade II listed building	Level 3
1452382	MVL3/8	Springbank Footbridge	Grade II listed building	Level 1

1449241	MVL3/9	Springbank Lane Overbridge	Grade II listed building	Level 1
N/A	MVL3/10A	Manchester Road Footbridge	None	Level 1
1452392	MVL3/10	Manchester Road Underbridge	Grade II listed building	Level 1
1452405	MVL3/17	Roughtown Road Overbridge	Grade II listed building	Level 1
1452406	MVL3/20	Wright's Mill Overbridge	Grade II listed building	Level 3
1452409	MVL3/23	Wright's Overbridge	Grade II listed building	Level 3
1451848	MVL3/25	Royal George Underbridge	Grade II listed building	Level 3
1451852	MVL3/26	Shaw Hall Bank Road Footway	Grade II listed building	Level 1
1451853	MVL3/28	Oldham Road Overbridge	Grade II listed building	Level 3
1451854	MVL3/29	Wickens Underbridge	Grade II listed building	Level 1
1068120	MVL3/31	Uppermill Viaduct	Grade II listed building	Level 1

5.3.10 A scheme of permanent heritage interpretation would be developed and installed adjacent to Greenfield Station. This would provide the opportunity to engage members of the public with the heritage of the Huddersfield & Manchester Railway including the historic structures designed by A. S. Jee. Further engagement with stakeholders with respect to the content of the interpretation would be undertaken during the detailed design phase.

5.3.11 A public engagement framework for archaeology and heritage will be developed and implemented as part of the project's wider commitment to delivering social value. This framework will create meaningful opportunities for communities to actively engage with the rich archaeological and historical narrative of the Transpennine Route. It will foster connections between people and the evolving landscape of the Tame Valley, helping to reveal and celebrate its past through inclusive, accessible, and educational initiatives.

5.3.12 Temporary interpretation would also be installed on the hoardings around construction sites for the Order Scheme which would be in place during the construction phase.

5.3.13 Toolbox talks would disseminate best practice for reducing potential impacts in relation to construction activity to help avoid accidental damage.

6. CONCLUSIONS

6.1.1 This Historic Environment Desk-Based Assessment has identified impacts on a number of designated and non-designated heritage assets from the Order Scheme. These include listed buildings, conservation areas, non-designated historic structures and archaeological remains.

6.1.2 Listed building consent will be required for proposed works to twelve designated online structures comprising grade II listed railway bridges dating to the 19th century. Full details of the proposed alterations and the resulting impacts to these heritage assets are set out in the heritage statements prepared to accompany the listed building consent applications (Volume 3, Appendix 5A of this Report [**NR14**]).

6.1.3 Construction of the Order Scheme would result in impacts to non-designated online structures comprising altered railway bridges dating from the 19th century. Historic building recording in accordance with Historic England guidance is recommended to be undertaken to provide a permanent record of these structures in advance of the construction.

6.1.4 Construction of the Order Scheme has the potential to truncate or remove buried archaeological remains as a result of intrusive groundworks. Impacts may also occur to historic structures, surfaces, gate piers and stone walls as a result of construction works.

6.1.5 Further consultation will be undertaken with consultees including the Local Planning Authority Archaeological Adviser when detailed design information is available to determine any requirement for archaeological mitigation in areas where there is potential for archaeological remains to be present

6.1.6 In addition, a programme of heritage interpretation at Greenfield Station, alongside a wider public engagement framework, will offer opportunities for the public to engage with the heritage of the Huddersfield & Manchester Railway, and to explore the history and archaeology of the Tame Valley.

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ANNEX A – GAZETTEER OF HERITAGE ASSETS

A.1 Online Designated Heritage Assets

NR Reference	NHLE Reference	Easting	Northing	Designation	Name	Description	Period
MVL3/7	1449242	397200	399786	Grade II Listed Building	Heyrod Hall Bridge	Road bridge over the Huddersfield & Manchester Railway line, mid-late 1840s, by A S Jee. Rock-faced sandstone with ashlar dressings.	Post-Medieval
MVL3/8	1452382	397333	400119	Grade II Listed Building	Railway overbridge MVL3/8, Heyrod Footbridge	Railway overbridge and flight of steps, 1845-1849, with later parapets, by AS Jee for the Huddersfield & Manchester Railway.	Post-Medieval
MVL3/9	1449241	397325	400199	Grade II Listed Building	Heyrod Bridge	Road bridge over the Huddersfield & Manchester Railway line, mid-late 1840s, by A S Jee.	Post-Medieval
MVL3/10	1452392	397306	400477	Grade II Listed Building	Railway underbridge MVL3/10, Manchester Road	Railway underbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester railway.	Post-Medieval
MVL3/11	1452399	397291	401240	Grade II Listed Building	Railway tunnel portal, MVL3/11 Scout Tunnel (south end)	Railway tunnel portal, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.	Post-Medieval
MVL3/17	1452405	397723	402833	Grade II Listed Building	Railway overbridge MVL3/17, Roughtown Road	Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester railway.	Post-Medieval
MVL3/20	1452406	397859	403652	Grade II Listed Building	Railway overbridge MVL3/20, Wright's Mill	Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.	Post-Medieval
MVL3/23	1452409	398107	404133	Grade II Listed Building	Railway overbridge MVL3/23, Wright's	Railway overbridge, 1845-1849, by AS Jee for the Huddersfield & Manchester Railway.	Post-Medieval
MVL3/25	1451848	398598	404393	Grade II Listed Building	Royal George Underbridge	Railway underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.	Post-Medieval
MVL3/26	1451852	398942	404525	Grade II Listed Building	Railway accommodation underbridge MVL3/26, Footway	Accommodation underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s for the railway line with A S Jee as lead engineer.	Post-Medieval
MVL3/28	1451853	399202	404728	Grade II Listed Building	Railway overbridge MVL3/28, Oldham Road	Railway overbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.	Post-Medieval
MVL3/29	1451854	399465	405409	Grade II Listed Building	Railway accommodation underbridge MVL3/29, Wickens	Accommodation underbridge for the Huddersfield & Manchester Railway. Mid-late 1840s by A S Jee.	Post-Medieval
MVL3/31	1068120	399578	406310	Grade II Listed Building	Uppermill Viaduct	Railway viaduct. 1849. By AS Jee Huddersfield and Manchester Railway Co. Rock-faced stone. Total of 23 arches.	Post-Medieval
MVL3/40	1224282	403928	411860	Grade II Listed Building	Railway tunnel portals MVL3/40, east end of Standedge Tunnel	Three railway tunnel portals at the east end of Standedge Tunnel; the centre portal built in 1845-1849 by the contractor Thomas Nicholson and engineer Alfred Stanistreet Jee for the Huddersfield & Manchester Railway line, the south portal built at the same time, in advance of a tunnel excavated in 1868-1871, and the north portal built in 1890-1894 for the London & North Western Railway.	Post-Medieval
MVL3/41	1452141	400777	408129	Grade II Listed Building	Railway tunnel portals MVL3/41, west end of Standedge Tunnel	Three railway tunnel portals at the west end of Standedge Tunnel; the centre portal built in 1845-1849 by the contractor Thomas Nicholson and engineer Alfred Stanistreet Jee for the Huddersfield & Manchester Railway line, the south portal built at the same time, in advance of a tunnel excavated in 1868-1871, and the north portal built in 1890-1894 for the London & North Western Railway.	Post-Medieval

A.2 Online Non-Designated Heritage Assets

Reference	Easting	Northing	Name	Description	Period
MVL3/5	396943	399360	Printworks Road Underbridge	Underbridge constructed for the Huddersfield & Manchester Railway (1845-1849). Barrel arched, in rock faced masonry with raked wing walls extend straight along railway embankment to either side to terminate in piers. Impost band and ashlar parapet band over, with later stone parapets above.	Huddersfield & Manchester Railway (1845-9)
MVL3/6	397132	399687	Heyrod Road Footbridge	This footbridge may have been built during the construction of the Huddersfield & Manchester Railway (1845-9) with piers of squared and coursed quarry-faced stone, but it was reconstructed in 2004 and now has a steel span	Huddersfield & Manchester Railway (1845-9) / 2004
MVL3/10A	397250	400698	Manchester Road Footbridge	This is a two-span footbridge with a central engineering brick pier supporting a single riveted wrought iron deck with lattice girder parapets and a timber deck. At the west end it meets the side of the cutting; at the east end there is a set of stairs with decorative cast-iron balusters. From historic drawings, it appears the footbridge was erected by the LNWR between 1898 and 1900 to enable a level crossing to be closed. At that time there was a siding west of the two running lines, which explains the wide span.	1898-1900 (LNWR)
MVL3/11	397271	401179	Scout Tunnel	Scout Tunnel is situated between Stalybridge Station and Mossley Station and is 202 yards (185m) long. The tunnel was constructed by the Huddersfield & Manchester Railway (1845-49) under engineer A.S. Jee. The north portal is faced in coursed and square, however is much simpler than the southern portal (grade II, 1452399). The parapet on the northern portal collapsed in December 2012 and has since been stabilised and rebuilt in concrete.	Huddersfield & Manchester Railway (1845-9)
MVL3/12	397284	400590	Abney Footbridge	This footbridge was built during the construction of the Huddersfield & Manchester Railway (1845-9) from squared and coursed quarry-faced stone, but has been reconstructed in 2008 and now has a steel span.	Huddersfield & Manchester Railway (1845-9) / 2008
MVL3/12A	397352	402003	Stamford Road Pipebridge	A pipe-bridge supported on masonry abutments, thought to date to c.1900.	c.1900
MVL3/13	397352	402003	Stamford Road Overbridge	Stamford Bridge is a stone overbridge which was constructed for the Huddersfield & Manchester Railway (1845-9), which has been altered significantly by the postwar substitution of a pre-cast concrete span.	Huddersfield & Manchester Railway (1845-9) / 20th century
MVL3/14	397363	402003	Mossley Station Footbridge	Mossley Station Footbridge is a single span footbridge consisting of two wrought iron warren trusses with cross beams and timber decking. The detailing is extremely utilitarian. This footbridge is a typical and utilitarian structure of unknown but not early date.	Unknown
MVL3/15	397469	402558	Mill Lane Underbridge	Mill Lane is a stone semi-circular arch underbridge constructed for the Huddersfield & Manchester Railway (1845-9). Both faces are similar. Designed by A.S. Jee, the bridge has a semi-circular arch of rusticated v-jointed gritstone voussoirs which continue as quoins to the soffit. These have tooled margins, and spring from an ashlar impost band. The projecting wing walls are raked, and these and the spandrels are of squared and coursed quarry-faced limestone. The arch is topped by a squared ashlar string course, above which is several courses of masonry, and squared ashlar coping. The arch soffit is comprised of narrow courses of masonry, with tooled detailing. Twentieth-century additions of a concrete parapet and safety railings feature on both sides. Mill Lane has good quality stonework and dates to the heroic phase of railway development, but its design is unexceptional and it has been altered.	Huddersfield & Manchester Railway (1845-9) / 20th century
MVL3/16	397600	402700	New Earth Footbridge	Mill Lane is a footbridge with riveted wrought iron girders spanning the railway, which rest on masonry abutments and dates to the construction of the Huddersfield & Manchester Railway (1845-9). The bridge started life as a stone segmental overbridge, similar to others on the line, but was reconstructed in 1884 by London & North Western Railway and the span was replaced in wrought iron.	Huddersfield & Manchester Railway (1845-9) / 1884
MVL3/18	397760	402890	Roughtown Road Footbridge	This is a footbridge with riveted wrought iron girders with cross-braced panels spanning the railway, which rest on masonry abutments and date to the construction of the Huddersfield & Manchester Railway (1845-9). The bridge started life as a stone segmental overbridge, similar to others on the line, but was reconstructed in 1896 by the London & North Western Railway and the span was replaced in wrought iron.	Huddersfield & Manchester Railway (1845-9) / 1896
MVL3/19	397851	403403	Midge Hall Underbridge	Midge Hall is a semi-circular arch underbridge, on the Huddersfield & Manchester Railway (1845-9). The arch is of stepped, rusticated quarry-faced voussoirs with a continuous tooled margin and springs from an ashlar impost band. The soffit has been line in concrete. The quoins to the abutments are quarry-faced with a tooled margin to each block. The spandrels are of squared and coursed quarryfaced sandstone. The straight wing walls are raked and splayed, with a squared ashlar coping. The parapet is of squared ashlar topped by C20 railings, with square terminating piers.	Huddersfield & Manchester Railway (1845-9) / 20th century

Reference	Easting	Northing	Name	Description	Period
				Although this bridge has good quality stonework and dates to the heroic phase of railway development, the arch has been unsympathetically reinforced in concrete and the design type and engineering are commonplace for the date.	
MVL3/21	397878	403738	Water Trough	A water trough supported on masonry abutments, thought to date to c.1900. The span was replaced c.2005 with a steel replacement.	London & North Western Railway c.1900 / 2005
MVL3/22	398191	404111	Hobbe Hole Underbridge	Hobble Hole Underbridge is shown on Historic Map published in 1854, and is likely to be contemporaneous with the Huddersfield & Manchester Railway. The bridge has been subject to works since to the underside of the arch.	Huddersfield & Manchester Railway (1845-9)
MVL3/24	398296	404269	Charlotte Street Underbridge	Charlotte Street is a single-span underbridge carrying the railway over a small road. It was constructed for the Huddersfield & Manchester Railway (1845-9), but significantly altered in the late twentieth century, when the span was removed and replaced with reinforced concrete deck beams.	Huddersfield & Manchester Railway (1845-9) / late 20th century
MVL3/27A	399189	404712	Greenfield Station Footbridge	Greenfield Station Footbridge is a riveted wrought iron footbridge with cross bracing, lattice girders and a timber deck. This footbridge is likely to date to c.1900, and would have been built by the London & North Western Railway . The footbridge was moved to Greenfield Station in the late 20th century when some of the balusters were reinstated in fibreglass.	London & North Western Railway c.1900 / 20th century
MVL3/30	399648	406475	Den Quarry Underbridge	Den Quarry is a segmental skewed accommodation underbridge, on the Huddersfield & Manchester Railway (1845-9). The arch is of stepped, rusticated quarry-faced voussoirs with a continuous tooled margin to the ring of the arch. It springs from an ashlar impost band. The bridge has been extended, during the widening of the line by the London & North Western Railway (c.1900). The soffit is of stone, but has been partially recovered with Armco sheeting. The quoins to the abutments are quarry-faced with a tooled margin to each block. The spandrels are of squared and coursed quarry-faced sandstone. The straight wing walls are raked and splayed, with a squared ashlar coping, and the bridge accommodates a steep change of level. Although this bridge has good quality stonework and dates to the heroic phase of railway development, the arch has been unsympathetically reinforced in concrete.	Huddersfield & Manchester Railway (1845-9) / 1900
MVL3/32	400300	407100	Subway	This is a underbridge for a footpath which appears to have been completely refaced in engineering brick, which is likely to date to the quadrupling of the line, c.1890.	Huddersfield & Manchester Railway (1845-9) / 1890
MVL3/34	400262	407272	Subway	This is a stone subway which has been widened with engineering brick. It is likely to date to the construction of the Huddersfield & Manchester Railway (1845-9), but has been significantly altered which is likely to date to the quadrupling of the line, c.1890.	Huddersfield & Manchester Railway (1845-9) /1890
MVL3/36	400339	407530	Ward Lane Overbridge	Ward Lane Overbridge is a single span footbridge comprising two cast iron girders with a brick jack arch spanning between the girder bottom flanges. The parapets are of iron panels. The deck spans between stone abutments of squared and coursed quarry-faced stone. The wing walls and approach walls are of quarry-faced stone construction and may date to the construction of the Huddersfield & Manchester Railway (1845-9).	Huddersfield & Manchester Railway (1845-9)
MVL3/37	400495	407779	Diggle Brook	This is a underbridge carrying the railway over Diggle Brook. Each side is different, with one brick arch and one quarry-faced stone, and it is likely that the bridge has been extended during the quadrupling of the line (1888-91).	Huddersfield & Manchester Railway (1845-9) / 1888-91
MVL3/39	400720	408050	Station Road Overbridge	Diggle Road is a three-span road bridge carrying Station Road over the two rails of the MVL3 line. The two tracks run beneath the Western span, and beneath the central span is an access track leading to two disused portals of Standedge Tunnel.	Huddersfield & Manchester Railway (1845-9)
MVL3/39A	400824	408222	Standedge Canal Tunnel	The structure is a single-span underbridge carrying three lines (Huddersfield & Manchester Railway, 1845-9, and a later siding) over the Huddersfield Narrow Canal. The structure consists of a brickwork arch on the downside for an approximate length of 95m, followed by concrete deck beams. The concrete section is owned by Network Rail, and the remainder is owned and maintained by the Canals & Rivers Trust.	Huddersfield & Manchester Railway (1845-9)
18983.1.0	400390	407630	Diggle Signal Box	Diggle Junction Signal Box, originally Diggle No1 signal box, opened in 1885 near the western portal of the Standedge Tunnels. It was equipped with 59 levers and was extended to 81 levers in 1891 on closure of Diggle No2 signal box near the station. Initially it controlled traffic on one down line (away from London) and one up line. Second lines were added in 1886 when the Micklehurst loop line from Stalybridge was opened. The signal box also controlled a single line that served the Dobcross Loom Works, which had their own engine 'The Foundry Rocket.' The building is a good example of a large London & North Western Railway Type 4 signal box, comprising a timber-framed box mounted on a brick base. It features a slate-covered gabled roof, introduced by the LNWR in 1876.	Later 19th century

A.3 Offline Designated Heritage Assets

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
1005797	402873	412099	Scheduled Monument	Close Gate Bridge	No entry available for this asset	Post-Medieval
1011681	398013	407461	Scheduled Monument	Bowl barrow 190m NNE of Knarr Barn	The monument includes a bowl barrow located on a local high point 190m NNE of Knarr Barn. It includes a slightly oval earthen mound up to 0.5m high with maximum dimensions of 18m by 17m. Limited excavation of the barrow by Wrigley in 1911 located pieces of charcoal and fragments of burnt stone. The monument was again subjected to limited excavation during the 1980s; on this occasion the topsoil only was removed from a single trench. No finds were recorded.	Prehistoric
1015131	398905	401634	Scheduled Monument	Buckton Castle: a ringwork and site of 17th century beacon 350m north east of Castle Farm	The monument includes a medieval ringwork castle and the remains of a bailey on the northern side. The monument is on a shoulder of Buckton Moor commanding a view of the valleys of the River Tame and the Carr Brook where they meet. The ringwork is constructed as a raised platform measuring 35m by 40m and is roughly rectangular. The site is enclosed by a bank which is in fact a collapsed wall of mortared blocks of stone with a mortared rubble core.	Medieval
1017837	399838	409547	Scheduled Monument	Castleshaw Roman forts, 250m west of Castle Shaw Farm	A sequence of Roman forts at Castle Shaw, together with the remains of a settlement outside the ramparts of the forts and a section of Roman road leading to the forts from the south west. The forts and the remains of a civilian settlement have been extensively excavated over the last 100 years.	Roman
1338882	396125	398463	Grade II Listed Building	Castle Street Mills	Marked on maps (1,2) as a cotton mill and as a cotton waste mill on map (3). Spinning mill No.1: "1820" datestone, brick build, of 4 storeys and 23x4 bays. Gable slate roof.	Post-Medieval
1162957	396259	398964	Grade II Listed Building	Church of St George	Church, 1838–40, built by Sharpe for the church commissioners. Nave and aisles under one roof with small chancel and west tower. 7-bay aisles and 1-bay chancel, 3-stage tower and a clock, aperture in stage two.	Post-Medieval
1240077	396265	398636	Grade II Listed Building	Thorn House	Electricity generating company offices and generating station. 1903–04 with C20 alterations.	Modern
1261179	396331	398527	Grade II Listed Building	Former Sunday School	Sunday school with facilities for adult classes. 1904-5. The school collaborated with the Mechanics' Institute and adult classes were addressed by various notable figures; John Bright endowed the library.	Modern
1067987	396350	398593	Grade II Listed Building	Portico of Former Stalybridge Town Hall	Portico arch, formerly the entrance portico to the former town hall of 1831, modified in the late 1980s.	Post-Medieval
1163074	396354	398554	Grade II* Listed Building	War Memorial	War memorial, c.1920, FV Blundstone, sculptor. Bronze statuary group on ashlar plinths. Walls which are segmental in plan are terminated on either side of Trinity Street in piers with statues	Modern
1356470	396357	398540	Grade II Listed Building	Victoria Bridge	Road bridge, date 1867. 2 wrought iron girders spans on central rock-faced stone pier with cast iron parapet walls.	Post-Medieval
1389352	396371	398527	Grade II Listed Building	Post Office on Trinity Street, Stalybridge	This building, which opened in 1901, illustrates the use of architectural embellishment for the larger post offices.	Post-Medieval
1356492	396382	398506	Grade II Listed Building	Stalybridge Public Library	Public library built 1897–1901, by J Medland Taylor. Total of 6 bays; 2 storeys, tile roof.	Post-Medieval
1346235	396627	398562	Grade II Listed Building	18, 20 and 22, Portland Place	Terrace of houses. Early C19 (pre-1840). Rubble, coursed to front; stone slab roof. 3 storeys.	Post-Medieval
1261184	396780	398719	Grade II Listed Building	Huddersfield Narrow Canal, Milestone set in boundary wall at SJ 968 988	Milestone. 1794–97. Rectangular stone post with curved head, round indented face with the inscription "18 miles"	Post-Medieval
1067986	396978	399556	Grade II Listed Building	Toll Bar Cottage	Toll bar cottage, c.1800. 1 x 2 rooms deep with 1 storey (2 at the rear), gable onto road and C20 additions to left. The central door has a pointed arch, fanlight and square-cut stone surround.	Post-Medieval
1356467	397139	400089	Grade II Listed Building	Moorfield House	3-storey house and a 2-storey extension to left, late C18. Central square-cut door surround obscured by C20 porch. The extension to left is in a similar style.	Post-Medieval

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
1162781	397240	402718	Grade II Listed Building	Number 18 and adjoining cottages 1 and 3, Carrhill Road	House and 2 cottages with workshop on top floor, formerly used as a school. Late 18th century. Double-depth 1-bay house to right, back-to-back cottages to left. Second storey is a single workshop with separate access at the rear, which has a flight of stone steps giving access. One brick and one stone ridge chimney stacks.	Post-Medieval
1163008	397250	400161	Grade II Listed Building	14, 16, and 18, John Street	3 houses. Nos.14 and 16 are dated 1788 on door lintels, and No.18 dated 1796. Double-depth, 3-storey with a 2-storey C20 garage extension recessed to the left of No.18. Each house has a square-cut stone door surround.	Post-Medieval
1068044	397280	402049	Grade II Listed Building	Former Mossley Town Hall	Town hall, originally private house, 1862. Large asymmetrical plan of 8 bays and 2 storeys executed in an Italianate style.	Post-Medieval
1309347	397282	400166	Grade II Listed Building	Holly Cottage	2 houses, late C18. Each house is double-depth and has 3 storeys.	Post-Medieval
1162871	397299	402050	Grade II Listed Building	War Memorial in Front of Former Town Hall	War Memorial circa 1920. Marble statue on polished granite base. Robed female figure holding a book in one hand standing on a tapering square stone plinth. Inscription: "Erected on behalf of the town by Alderman and Mrs. J. A. Bottomley". Surrounded by plain iron railings.	Modern
1162961	397340	401023	Grade II Listed Building	Scout Tunnel South Entrance	Tunnel entrance built between 1794 and 1797. Engineer Benjamin Outram; elliptical arch retaining wall which is curved and has square terminating piers.	Post-Medieval
1309457	397464	401161	Grade II Listed Building	Huddersfield Narrow Canal Scout Tunnel North Entrance	Tunnel entrance built 1794–97. Benjamin Outram engineer. Skew bridge, elliptical arch and curved parapet walls which have round-topped coping stones and are terminated in battered square piers.	Post-Medieval
1261183	397485	400480	Grade II Listed Building	Huddersfield Narrow Canal, Black Rock Bridge at SD 976 004	Accommodation bridge at the tail of lock 10W. 1795–98. Humpbacked bridge of rustic coursed stone.	Post-Medieval
1162836	397558	402943	Grade II Listed Building	1, Quickwood	Early C19. 2-storey house, formerly schoolmaster's house. Graduated slate roof with central door and square-cut surround.	Post-Medieval
1068041	397564	402939	Grade II Listed Building	Garden Wall to Numbers 3, 4, 5 and 6 Manor House	4 houses, formerly the manor house with two cottages at rear, late C17, extended to the rear in C19.	Post-Medieval
1309435	397586	402932	Grade II Listed Building	2; 7-17 Quickwood	7 cottages, various dates from early 18th-century to early 19th-century. Formerly a terrace of 2-storey single-depth cottages, but extended at the rear in the 19th century, probably when No.2 was built.	Post-Medieval
1356439	397615	402994	Grade II Listed Building	Church of St John The Baptist	Church: 1878–79 (Wild and Collins). Rock-faced stone with slate roof. Nave and chancel under one roof with south aisle. South-west tower, 3-stage with east door. Twin-gabled vestry	Post-Medieval
1356441	397622	402199	Grade II Listed Building	Huddersfield Narrow Canal Micklehurst Bridge and Lock Number W13	Lock and tail bridge. Between 1794 and 1797. Benjamin Outram engineer. Hammer-dressed stone.	Post-Medieval
1162773	397646	401908	Grade II Listed Building	Inglenook	2 houses, formerly three cottages. Built during the late 17th, early 18th, and mid-18th centuries. 2 storeys, long single-depth, incorporating a barn in bay 1 (Now part of the house).	Post-Medieval
1068042	397661	402838	Grade II Listed Building	Summerhill Cottage	2-storey house, mid-18th century. 2 bays, 1-room depth with central door, square-cut surround. 2 brick chimney stacks, chamfered floor beams.	Post-Medieval
1162827	397686	403564	Grade II Listed Building	7, 9, 11 and 11a, Midge Hill	3 houses and a flat, mid- to late 18th century. Each house is double depth with 3 storeys, totalling 8 bays in length. Doors at rear give access to the top storeys of Nos.11a and 9 and a taking-in door with square-cut surround. Venetian type attic window.	Post-Medieval
1068037	397703	402559	Grade II Listed Building	Huddersfield Narrow Canal Winterford Bridge and Lock Number W14	Lock and adjoining roving bridge, built between 1794 and 1797. Benjamin Outram engineer.	Post-Medieval
1268030	397734	402621	Grade II Listed Building	Woodend Mill	Marked on maps (1,2) as a cotton mill. A very large site. The spinning mill is early to mid-C19, of 5 storeys (plus basement) and 18x5 bays. It is built of rustic stone with brick internal structure. Gable roof.	Post-Medieval

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
1356440	397748	402909	Grade II Listed Building	32 and 34, Greenhill Cottages	Two houses, dating from the late C18. Each house is 1 bay wide, of double depth and of 3 storeys.	Post-Medieval
1068038	397766	402774	Grade II Listed Building	Woodend Toll Bar Cottage	Former early 19th-century toll bar cottage.	Post-Medieval
1240125	397969	402939	Grade II Listed Building	Huddersfield Narrow Canal, Milestone at SD 979 030	Milestone. 1794–97. Rectangular stone post with curved head, round indented face with the inscription "15 miles".	Post-Medieval
1309462	398096	403693	Grade II Listed Building	Huddersfield Narrow Canal Division Bridge	Roving bridge, built between 1794 and 1797. Benjamin Outram engineer. Skew bridge, elliptical arch and curved parapet walls, which have round-topped coping stones	Post-Medieval
1067432	398128	403774	Grade II Listed Building	Huddersfield Narrow Canal No. 84 Aqueduct	Aqueduct over the river Tame. "1797 IW" carved on stone. Benjamin Outram engineer.	Post-Medieval
1356714	398186	404438	Grade II Listed Building	Throstle Nest Mill (former)	Water-powered scribbling and spinning mill, now a house. 1791 for Henry Buckley.	Post-Medieval
1390053	398319	404111	Grade II Listed Building	The Royal George Canal Bridge	Canal bridge. 1798 with later widening, associated with the Huddersfield Narrow Canal. Possibly by Benjamin Outram, engineer.	Post-Medieval
1309579	398458	404280	Grade II Listed Building	Christ Church Vicarage	c.1850. By G Shaw. Snecked stone with decorative clay tile roof. 4 bays and 2 storeys. Gothic revival.	Post-Medieval
1356701	398508	404320	Grade II Listed Building	Christ Church, Friezland	c.1850 with additions of 1860s. By George Shaw. Snecked stone with slate roof. Nave and chancel with north-west tower, south transept, north aisle, organ chamber and vestry, all of later date. Gothic revival.	Post-Medieval
1253529	398609	404251	Grade II Listed Building	Huddersfield Narrow Canal Milestone at SD 987 043	Milestone. 1794–97. Rectangular stone post with curved head, round indented face with the inscription "14 miles".	Post-Medieval
1068153	399013	404670	Grade II Listed Building	Wharmton Tower	House. c.1861. By George Shaw for John Dicken Whitehead. Ashlar with slate roof. 8 bays with 2 and 3 storeys and conservatory to right.	Post-Medieval
1067470	399195	404617	Grade II Listed Building	Wharf Cottages	3 houses. Mid- and late C18 and mid-C19 but incorporating a house of early C18. Watershot hammer-dressed stone with graduated stone slate roof	Post-Medieval
1068147	399349	406509	Grade II Listed Building	Lower Cottage	Hammer-dressed stone house with graduated stone slate roof. 17th century but with later addition dated "IWAW 1742" on lintel. Two storeys. Two ridge chimney stacks	Post-Medieval
1068187	399351	406519	Grade II Listed Building	Hillcot	Early/ mid-18th century hammer-dressed watershot stone house with graduated stone slate roof. 2 storeys.	Post-Medieval
1163751	399371	406505	Grade II Listed Building	Hillside Cottage	Hammer-dressed watershot stone house with graduated stone slate roof and "W H 1765" datestone. Two storeys.	Post-Medieval
1067469	399375	404568	Grade II Listed Building	Toll House	Toll cottage, now house. c.1820. Watershot hammer-dressed stone with graduated slate roof and an extension in rendered brick. On branch of Oldham–Standedge Turnpike. Single storey, Gothic windows, central chimney.	Post-Medieval
1253531	399410	404928	Grade II Listed Building	Huddersfield Narrow Canal Halls Bridge and Lock 20W at SD 994 049	Accommodation bridge and lock combination, Early 19th century with later alterations. Probably designed by Benjamin Outram.	Post-Medieval
1309426	399479	406397	Grade II Listed Building	Brownhill Bridge Mill	Water-powered woollen mill, now workshop and house. 1772.	Post-Medieval
1356719	399550	406309	Grade II Listed Building	Huddersfield Narrow Canal, Lock No.23 (Lime Kiln Lock and Adjoining Tailbridge No.75 and Aqueduct No.74)	Lock, tail bridge and adjoining aqueduct over the river Tame. Between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone.	Post-Medieval

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
1253532	399577	405647	Grade II Listed Building	Huddersfield Narrow Canal Moorgate Bridge	Early C19. Probably designed by Benjamin Outram. Hammer-dressed coursed stone. Semi-elliptical arch with voussoirs.	Post-Medieval
1163263	399589	406093	Grade II Listed Building	Huddersfield Narrow Canal Lock No 22W (Dunge Booth Lock)	Lock. Between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings.	Post-Medieval
1467726	399659	405689	Grade II Listed Building	St Chad's War Memorial, Uppermill	First World War memorial, 1921, with Second World War additions.	Modern
1163181	399674	405715	Grade II Listed Building	St Chads House	House. Now library. 1798 with façade of mid-19th century and with 20th-century additions. Façade by G Shaw.	Post-Medieval
1356425	399682	406756	Grade II Listed Building	No. 27 and Left Bay Only of No. 29	House, now 2 houses. Late C18.	Post-Medieval
1164900	399683	406766	Grade II Listed Building	Numbers 29 (Right Hand Bay) 31A and 31C	House, now 3 houses. Late C18 with wing to rear of early C19.	Post-Medieval
1309706	399686	406324	Grade II Listed Building	Lower Brownhill House	Late C18. Hammer-dressed watershot stone with graduated stone slate roof. Single and double-depth 2-bay house with 3 storeys.	Post-Medieval
1164207	399690	405746	Grade II Listed Building	12, St Mary's Gate	House, now shop. Late C18.	Post-Medieval
1068089	399691	406771	Grade II Listed Building	33 and 35, Wool Road	House, now 2 houses. Early C19.	Post-Medieval
1356407	399693	405753	Grade II Listed Building	Building Between Nos. 10 and 12	House but converted to a workshop in C19. Late C18.	Post-Medieval
1068134	399695	405761	Grade II Listed Building	10, St Mary's Gate	House. Late C18.	Post-Medieval
1068133	399698	405770	Grade II Listed Building	8 and 6, Saint Mary's Gate	2 houses. Late C18.	Post-Medieval
1163642	399703	405776	Grade II Listed Building	Manor Yard	House. Late C18. Hammer-dressed watershot stone with slate roof. One room on each of 2 floors.	Post-Medieval
1356406	399706	405769	Grade II Listed Building	4, St Mary's Gate	House. Early C19.	Post-Medieval
1068132	399715	405766	Grade II Listed Building	2, Saint Mary's Gate	2 houses and a shop. Early C19 and late C18.	Post-Medieval
1356716	399717	405697	Grade II Listed Building	The Hare and Hounds public house	Public house. 18th century. Hammer-dressed stone with graduated stone slate roof.	Post-Medieval
1067427	399721	405778	Grade II Listed Building	Uppermill Conservative Club	House, now club. 18th century. Hammer-dressed watershot stone with slate roof.	Post-Medieval
1163720	399782	405786	Grade II Listed Building	Nos. 1-13, New Street	Row of 7 houses. Early C19.	Post-Medieval
1356393	399806	405789	Grade II Listed Building	15 New Street	House. 1820s.	Post-Medieval
1067440	399865	407049	Grade II Listed Building	25, Huddersfield Road	House. Mid- to late C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
1261754	399898	406759	Grade II Listed Building	Huddersfield Narrow Canal Milestone at SD 9990 0677	Milestone. 1799–1810. Rectangular stone post with curved head, round indented face with the inscription "12 miles".	Post-Medieval
1067465	399970	406561	Grade II Listed Building	Butterhouse Lindum Cottage	House, now 2 cottages, mid-18th century. Squared rubble and hammer-dressed watershot stone with graduated slate roof.	Post-Medieval
1356410	400043	407584	Grade II Listed Building	No. 5 and Adjoining Barn	House and barn. Post-1822. Hammer-dressed watershot stone with slate roof to house and graduated stone slate to barn. 2- bay house of 2 and 3 storeys with barn set at right-angles to rear	Post-Medieval
1068129	400067	406506	Grade II Listed Building	Ryefields and Ryefields Cottage	House and cottage. Late C18 with early C19 alterations. Hammer-dressed watershot stone with graduated stone slate roof. Double-depth plan with a total of 6 bays and 3 storeys and with later wing to rear.	Post-Medieval
1068167	400097	407193	Grade II Listed Building	W.H.Shaw Ltd. Dobcross Works Office Building	Dobcross loom works, office building. 1890 for Huchinson and Hollingworth.	Post-Medieval
1309242	400168	407074	Grade II Listed Building	No.69 Bridge, Huddersfield Narrow Canal	Footbridge. Completed by 1811. Benjamin Outram engineer.	Post-Medieval
1164775	400239	407568	Grade II Listed Building	1, Ward Lane	House. Mid-C18 with later alterations. Squared rubble and watershot hammer-dressed stone with graduated stone slate roof. Single-depth plan with 4 bays and 2 storeys.	Post-Medieval
1067430	400242	406761	Grade II Listed Building	Hollin Greave Farmhouse	18th-century laithe house of hammer-dressed watershot stone, double-depth, central entrance and two storeys. Separate barn of same materials.	Post-Medieval
1261755	400245	407395	Grade II Listed Building	Huddersfield Narrow Canal Subway Under Canal after Lock 30 W	Subway beneath the canal. Early C19.	Post-Medieval
1356718	400255	406728	Grade II Listed Building	Cottage adjoining north of Holly Grove Cottage	Early 19th-century hammer-dressed watershot stone house with graduated stone slate roof. Three storeys.	Post-Medieval
1067429	400256	406757	Grade II Listed Building	Bont	Late 18th century, but incorporating earlier work. 3 storeys.	Post-Medieval
1163218	400261	406753	Grade II Listed Building	Lane Side	Late 18th-century house incorporating earlier work. Hammer-dressed watershot stone with graduated stone slate roof. 3 storeys.	Post-Medieval
1356717	400268	406749	Grade II Listed Building	Hollin Grove	Mid-18th century, hammer-dressed watershot stone house with graduated stone slate roof. 2 storeys, ridge chimney stack, square cut door surround to the right is of later date.	Post-Medieval
1309262	400277	406745	Grade II Listed Building	Hollin Greave	Mid- to late 18th-century hammer-dressed watershot stone house with graduated stone slate roof. Quoins, 2 storeys, gable chimney stack.	Post-Medieval
1067433	400280	407546	Grade II Listed Building	Huddersfield Narrow Canal No. 66 Bridge	Road bridge. Completed by 1811. Benjamin Outram engineer.	Post-Medieval
1253530	400294	407575	Grade II Listed Building	Huddersfield Narrow Canal Lock Adjacent to Ward Road Bridge	Narrow pond lock, originating 1799-1810, by Benjamin Outram. Restored 1991.	Post-Medieval
1268291	400299	406800	Grade II Listed Building	Wool Wall at SE 003 068	Wool wall. Early C19. Rubble sandstone masonry wall of drystone construction.	Post-Medieval
1068169	400302	407890	Grade II Listed Building	Warth Cottages	Hammer-dressed watershot stone with graduated stone slate roof. Double-depth house with 2 bays and 3 storeys	Post-Medieval
1068183	400399	407126	Grade II Listed Building	Holly Grove Cottage (Southern-Most Building in Group of 3)	Mid- to late 18th century. Hammer-dressed watershot stone with graduated stone slate roof. 1-bay 2-storey plan with gable entrance.	Post-Medieval
1309266	400417	407122	Grade II Listed Building	Holly Grove Cottage	Mid-18th-century hammer-dressed watershot stone house with 20th-century tile roof. 2 storey.	Post-Medieval

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
1163651	400428	407150	Grade II Listed Building	Northern-most Building of Group of 3 (To North of Holly Grove Cottage)	Mid-18th century and later. Hammer-dressed watershot stone with graduated stone slate and slate roof. 3-bay single-depth house with 2 storeys.	Post-Medieval
1164788	400439	407223	Grade II Listed Building	Holly Grove Farm Cottage	House. Mid-C18. Hammer-dressed watershot stone with graduated stone slate roof. 2-unit 2-storey plan with gable entrance and C20 extension to west.	Post-Medieval
1356404	400449	407380	Grade II Listed Building	Holly Grove House	House. c.1800. For Sykes of Wrigley Mill. Hammer-dressed watershot stone with slate roof. Double-depth central-staircase plan with 3 storeys, and a 1-storey wing to right.	Post-Medieval
1163050	400579	408161	Grade II Listed Building	7, 8 and 18 Harrop Green	Part of Harrop Green Group (see also HER 1126.1.1, 1126.1.2 & 1126.1.3). 3 houses. Early and late 18th century. Hammerdressed stone, watershot in parts, with a graduated stone slate roof. 3-bay, 3-storey house.	Post-Medieval
1067420	400584	408178	Grade II Listed Building	17, Harrop Green	Part of Harrop Green group [see HER 1126.1.0, 1126.1.1 & 1126.1.2]. Early 19th century. Hammer-dressed watershot stone with 20th-century tile roof. Double-range plan with 2 storeys.	Post-Medieval
1163053	400592	408182	Grade II Listed Building	15, Harrop Green	Part of Harrop Green Group [see also 1126.1.0, 1126.1.1 & 1126.1.3]. House, said formerly to have been a public house and a farmhouse. Single-depth 2-bay house with 19th century range added at rear.	Post-Medieval
1067460	400594	408166	Grade II Listed Building	11, Harrop Green	House. Late C18. Hammer-dressed watershot stone with graduated stone slate roof. 2-bay double-depth 2-storey house.	Post-Medieval
1163637	400632	407519	Grade II Listed Building	Lee Cross House	House. Early C19. Hammer-dressed watershot stone with graduated stone slate roof. Central-staircase plan with 2 storeys and 3 bays.	Post-Medieval
1309447	400808	408024	Grade II Listed Building	Ivy Cottage	Late 18th, early 19th century with large 20th century extension. Hammer-dressed stone with graduated stone slate roof. 3 storeys with one room on each floor and large extension to right.	Post-Medieval
1162882	400838	408032	Grade II Listed Building	No. 7 and Heather Cottage	Two houses. Late 18th century. Hammer-dressed watershot stone with graduated stone slate roof. Each house is one bay wide with three storeys and 20th-century extension to rear.	Post-Medieval
1356728	400874	408039	Grade II Listed Building	13 Diglea	2 houses, now one house. Early C19 with later addition. Large dressed stone blocks with graduated stone slate roof. The addition is in watershot stone. 2-bay single-depth plan with 2 storeys and a 2-bay C19 extension to left.	Post-Medieval
1162884	400877	407898	Grade II Listed Building	Waterside	House. Late C18, altered 1973. Hammer-dressed watershot stone with graduated stone slate roof. Single-depth plan with slightly later rear wing, now incorporated in house. Dressed quoins. Three storeys, one bay.	Post-Medieval
1067450	400881	408017	Grade II Listed Building	Raid House	Early and late 18th century. Hammer-dressed stone, most of which is watershot. Graduated stone slate roof. 2-bay single-depth house with 3 storeys.	Post-Medieval
1067451	400930	408038	Grade II Listed Building	Prestbury Cottage	House and cottage. Late 18th and 19th century. Hammer-dressed watershot stone with graduated stone slate roof. Double-depth 2-bay house with 3 storeys.	Post-Medieval
1067461	401413	408578	Grade II Listed Building	Diggle Edge Farmhouse and adjoining Barn and Cottages	Laithe-house and adjoining cottages. House 1770s. Cottages c.1800. Hammer-dressed watershot stone with graduated stone slate roof. Single-depth 2-storey house with barn to right, lean-to against left gable and cottages to extreme right.	Post-Medieval
1266896	402093	410092	Grade II Listed Building	Thieves Clough Bridge	C18. Packhorse bridge. Single span semicircular arched bridge in roughly coursed dry rubble over Thieves Clough. On former Trans-Pennine packhorse route from Mount Road, Marsden to Lancashire.	Post-Medieval
1224052	402525	410207	Grade II Listed Building	Engine House, Engine Pit and Bye Pit, Red Brook	Between 1798 and 1811. Engineer: Benjamin Outram (1764-1805). Engine house containing 2 pits. Deeply coursed rubble. Roof removed. Situated at roughly centre point of Standedge canal tunnel.	Post-Medieval
1278371	403864	411895	Grade II Listed Building	Ainsley Cottage	Early to mid C18. House. Hammer dressed stone. Quoins. Pitched stone slate roof. Coped gable to east, chamfered. Moulded footstones. Chimney stack at east (original fireplace to east is still apparent) with water tabling.	Post-Medieval
1217288	403944	411674	Grade II Listed Building	Intake Head Farmhouse	Early to mid C18 Farmhouse	Post-Medieval
1266901	403959	411912	Grade II* Listed Building	Entrance Portal to Standedge Canal Tunnel	1798-1811. Canal tunnel portal. Engineer Benjamin Outram. Semicircular ashlar arch forms entrance to stone vaulted tunnel. Coursed rubble walling with string course and ashlar coping. The tunnel is 3 miles 171 yards long, 3 yards wide and 17 feet high. Water level is 8 feet.	Post-Medieval

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1243464	403962	411935	Grade II Listed Building	Huddersfield Narrow Canal Tunnel End Cottages at SE 039 119	Pair of semi-detached former Tunnel Keeper's cottages, now a visitor's centre. Early C19 with late C20 alterations. Two-storey, four bays.	Post-Medieval
1217287	403968	411684	Grade II Listed Building	Intake Head Cottages	Early to mid-19th century	Post-Medieval
1230922	404003	412080	Grade II Listed Building	Waterfall Cottages	1848 (datestone). Terrace. Hammer dressed coursed stone. Pitched stone slate roof. Gabled copings on moulded footstones.	Post-Medieval
1234422	404019	411960	Grade II Listed Building	Huddersfield Narrow Canal Bridge 62 and Access Duct	1794-8 - Rebuilt probably by railway company in mid C19. Single span with towpath going around outside of bridge.	Post-Medieval
1243465	404078	411984	Grade II Listed Building	Huddersfield Narrow Canal Waterways Depot at SE 0407 1198	Waterways depot, formerly Huddersfield Canal Company warehouse. Early C19, with later alterations.	Post-Medieval
1338882	396140	398467	Grade II Listed Building	Castle Street Mills	Former cotton spinning mill (for hosiery yarn), now in various uses. Founded by George Cheetham; first factory 1805 with builds of 1820-21, 1827 an later alterations. The site's development is well documented.	Post-Medieval
1346235	396627	398563	Grade II Listed Building	18, 20 And 22, Portland Place	Terrace of houses. Early C19 (pre-1840).	Post-Medieval
1356468	397682	401153	Grade II Listed Building	Kershaw Hey Farmhouse	House. Early/mid C18. Hammer-dressed and watershot stone with slate and graduated stone slate roofs.	Post-Medieval
1162773	397645	401910	Grade II Listed Building	Inglenook	2 houses, formerly several cottages. Late C17, early C18 and mid C18. Hammer-dressed stone with slate and asbestos slate roof.	Post-Medieval
1068043	398041	401640	Grade II Listed Building	71, 73, 75 And 77, Staley Road	4 cottages. "JLB 1802" on door lintel of No. 77, the others added soon afterwards. Hammer-dressed stone with slate roof.	Post-Medieval
1356716	399718	405696	Grade II Listed Building	The Hare And Hounds Public House	Public house. Late C18. Hammer-dressed stone with graduated stone slate roof. Double-depth plan with 3 bays and 3 storeys.	Post-Medieval
1163181	399675	405718	Grade II Listed Building	St Chads House	House G.V. II House, now library. 1798 with facade of mid C19 and with C20 additions. Facade by G. Shaw. Watershot hammer-dressed stone with ashlar facade and graduated stone slate roof.	Post-Medieval
1164207	399688	405746	Grade II Listed Building	12, Saint Mary's Gate	G.V. II House, now shop. Late C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1356407	399694	405754	Grade II Listed Building	Building Between Nos. 10 And 12	Building between Nos. 10 - and 12 G.V. II House but converted to a workshop in C19. Late C18. Hammer- dressed watershot stone with graduated stone slate roof.	Post-Medieval
1068134	399695	405761	Grade II Listed Building	10, St Mary's Gate	No. 10 - G.V. II House. Late C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1068133	399698	405769	Grade II Listed Building	8 And 6, Saint Mary's Gate	Nos. 8 and 6 - G.V. II 2 houses. Late C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1356406	399708	405770	Grade II Listed Building	4, Saint Mary's Gate	No. 4 G.V. II House. Early C19. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1068132	399714	405772	Grade II Listed Building	2, Saint Mary's Gate	No. 2 - G.V. II Includes No. 73 High Street (west side) Uppermill. 2 houses and a shop. Early C19 and late C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1163642	399705	405776	Grade II Listed Building	Manor Yard	No. 1 - G.V. II House. Late C18. Hammer-dressed watershot stone with slate roof.	Post-Medieval

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
1067427	399723	405778	Grade II Listed Building	Uppermill Conservative Club	Uppermill Conservative - Club G.V. II House, now club. 1790s. Hammer-dressed watershot stone with slate roof. Double-range plan with 2 storeys.	Post-Medieval
1068147	399349	406510	Grade II Listed Building	Lower Cottage	Lower Cottage - G.V. II House. Hammer-dressed stone with graduated stone slate roof. Late C17 but with an addition dated "IWAW 1742" on lintel (Winterbottom).	Post-Medieval
1068146	399313	406516	Grade II Listed Building	Bridge House	Bridge House 29/6/78 G.V. II House. Late C18. Hammer-dressed watershot stone with graduated stone slate roof partly replaced by slate. 3-bay U-shaped range with 3 storeys and 1-storey wing to right.	Post-Medieval
1068187	399352	406518	Grade II Listed Building	Hillcot	G.V. II House. Early/mid C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1356718	400255	406726	Grade II Listed Building	Cottage Adjoining North Of Holly Grove Cottage	Cottage adjoining north - of Holly Grove Cottage G.V. II House. Early C19. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1309262	400277	406746	Grade II Listed Building	Hollin Greave	G.V. II House. Mid/late C18. Hammer-dressed watershot stone with graduated stone slate roof. Double-depth central-entrance plan with 2 storeys.	Post-Medieval
1356717	400270	406750	Grade II Listed Building	Hollin Grove	G.V. II House. Mid C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1163218	400261	406753	Grade II Listed Building	Lane Side	G.V. II House. Late C18 but incorporating earlier work. Hammer- dressed watershot stone with graduated stone slate roof.	Post-Medieval
1067429	400256	406756	Grade II Listed Building	Bont	G.V. II House. Late C18 but incorporating earlier work. 3-storey 1- bay house. Door obscured by C20 porch.	Post-Medieval
1067430	400243	406761	Grade II Listed Building	Hollin Greave Farmhouse	Farmhouse G.V. II Laithe-house. c.1800. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
1268291	400294	406783	Grade II Listed Building	Wool Wall At Se 003 068	Wool Wall. Early C19. Rubble sandstone masonry wall of drystone construction. Approx. 50 metres long and 1.7 metres high, aligned north-west/south-east, with near vertical north-east face and sloping,	Post-Medieval
1067440	399864	407050	Grade II Listed Building	25, Huddersfield Road	No. 25 - - II House. Mid to late C18. Hammer-dressed watershot stone with graduated stone slate roof.	Post-Medieval
CA12 DGM3166	339701	405900	Conservation Area	Uppermill, Saddleworth	Designated a conservation area in 1977, Uppermill is a Saddleworth village characterised by its 19th-century industrial origins and largely intact domestic stone-built architecture. The village developed around the textile industry, utilising the River Tame for power, and features mills, residential areas, and public buildings aligned along the High Street. Key historical infrastructure includes the Huddersfield Narrow Canal, completed in 1811, and the 1849 railway viaduct. The conservation area preserves the 19th-century village core, with its natural stone buildings, while excluding later suburban expansion.	Post-Medieval
DGM2201	396335	398538	Conservation Area	Stalybridge Town Centre	Stalybridge town centre, designated a conservation area in 1991, reflects its 19th-century growth as a mill town shaped by the cotton industry, the River Tame, and the Huddersfield Narrow Canal. Its built environment, largely constructed from local stone, includes industrial and domestic buildings along streets like Market, Melbourne, and Grosvenor, which follow the valley contours and integrate with the Pennine landscape. While the area retains its historic character, challenges such as economic decline, modern alterations, and street clutter have led to its inclusion on the ‘At Risk’ Register. A Heritage Action Zone (2020–2024) aims to address these issues through restoration projects and heritage-focused initiatives.	Post-Medieval

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CA02 DGM3168	399200	406587	Conservation Area	Dobcross	Dobcross was designated a Conservation Area in 1972, and extends over an area of 5.74 hectares. The settlement of Dobcross lies on a moderately sloping site to the west of the A670 (Wool Road), between the villages of Uppermill and Diggle. To the south are the River Tame and Dobcross New Road (A6052), which links the A670 with the A62 in Delph. To the north the land rises up to Harrop Edge and the Pennine Moors beyond. Prior to the Industrial Revolution Dobcross was a small hamlet on one of the main packhorse routes over the Standedge Moors. The origin of the name Dobcross is somewhat obscure, although it is thought that it could be derived from the situation of the settlement at a point where ancient trans-Pennine routes met to cross the marshy land of the Tame Valley. With the increase in trade and communication Dobcross began to grow around a natural route junction at the confluence of the two valleys of the River Tame and the Diggle Brook, until by 1800 it was the main commercial centre of Saddleworth. At this time the textile industry was in the process of transformation, with domestic workshops giving way to large factories, the looms being mainly driven by water power. Evidence of the earlier domestic handloom textile industry is provided by the large strip windows at first and second floor levels in the earlier dwellings. To the east of the original settlement between Sugar Lane and Sandy Lane are the more recent council estates of Briarfield and Southgate, while to the west is the Nudger Green private housing estate. The settlement form follows the traditional Pennine moorland pattern with the buildings clustered closely together along the narrow roadways. Towards the centre the positioning of the buildings is such as to create a series of irregularly shaped squares linked by narrow roadways and passages. This, together with the somewhat oddly shaped buildings and different roof heights etc., emphasises the organic growth of the settlement and reflects the close-knit community living around which it was built. The layout is basically introspective with unexpected corners and rapid changes in level providing interesting vistas with occasional dramatic long-distance views between buildings, to Ladcastle and across the Tame Valley. The square in the centre of the settlement, although surrounded by attractive buildings, is dominated by the Ramsden Memorial, erected in 1901 in memory of Dr. WHF Ramsden, the local country doctor. Another interesting building is the Church of the Holy Trinity, built in the Italian Style in the 1780s. Walls in the settlement are of local gritstone, blackened by the atmospheric pollution of the Industrial Revolution, with long and short stonework at the corners and door openings. Roofs are of grey stone slate laid to a shallow pitch. Windows are basically of the mullion type and the general absence of timber features on the buildings emphasises the attention paid to the rigours of the climate.	Post-Medieval
CA03 DGM3171	400591	408155	Conservation Area	Harrop Green	Harrop Green was designated a Conservation Area in 1972 and extends over an area of 0.78 Hectares. Harrop Green is a physically distinct hamlet to the north west of Diggle Village. The Diggle Brook flows along the valley to the south to join the River Tame between the villages of Uppermill and Dobcross. To the north of the settlement marginal agricultural land sweeps up to merge into the Pennine Moors while to the east is the bleak Pennine section of the Peak District National Park. Most of the buildings date back to the 18th Century although it is thought that some may be considerably older. Originally Harrop Green and the neighbouring conservation area of Diglea were small farming hamlets clustered around route junctions but the large strip windows at first and second floor levels provide evidence of the hand loom textile industry. The route pattern was radically altered and the hamlets physically separated by the construction of the Huddersfield Narrow Canal and the later Trans-Pennine railway line which enters the Standedge tunnels at this point. The settlement form of Harrop Green follows the traditional Pennine moorland pattern with the main block running with the contours and the buildings virtually set into the hillside producing, in some cases, a 3 storey building on one side and a 2 or single storey building on the other. Standing nearly 700 feet above sea level on the windward side of an exposed hillside the buildings huddle together as if to provide a united front against the elements. The layout of the interior of the dwellings, with part of one directly above another etc., emphasises the close-knit community living around which the settlements were built. The layout is basically introspective with unexpected corners and turning providing interesting vistas with occasional long distance views, between buildings, down the Diggle Valley and up to the hills around. Sudden changes in level can result in an interesting roof line almost at eye level, while the irregularity of the roof patterns emphasises the organic growth of the settlement. Walls are of local gritstone with long and short stone work at corners and door openings. Roofs are of grey slate at a fairly shallow pitch although some buildings have been re-roofed in concrete tiles. Windows are basically of the mullion type and the general absence of timber features in the buildings emphasises the attention paid to the rigours of the climate. Harrop Green has areas of open space at route junctions, probably village greens originally, containing clumps of mature trees and other individual mature trees which play an important part in the village scene. The basic floorscape is hard, with house walls back and front coming up to, and alongside, the public roadways while stout stone walls divide public from private open space where individual garden plots have been developed.	

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CA01 DGM3172	400858	408043	Conservation Area	Diglea	Diglea was designated a Conservation Area in 1972. It extends over an area of 1.33 hectares. Diglea is a physically distinct hamlet to the north west of Diggle Village. The Diggle Brook flows along the valley to the south to join the River Tame between the villages of Uppermill and Dobcross. To the north of the settlement marginal agricultural land sweeps up to merge into the Pennine Moors, while to the east is the bleak Pennine section of the Peak District National Park. Most of the buildings date back to the 18th century although it is thought that some may be considerably older. Originally Diglea and the neighbouring Conservation Area of Harrop Green were small farming hamlets clustered around route junctions, but the large strip windows at first and second floor levels provide evidence of the handloom textile industry. The route pattern was radically altered and the hamlet physically separated by the construction of the Huddersfield Narrow Canal and the later Trans-Pennine railway line, which enters the Standedge tunnels at this point. The settlement form of Diglea follows the traditional Pennine moorland pattern with the main block running with the contours and the buildings virtually set into the hillside producing, in some cases, a 3- storey building on one side and a 2- or single-storey building on the other. Standing nearly 700 feet above sea level on the windward side of an exposed hillside, the buildings huddle together as if to provide a united front against the elements. The layout of the interior of the dwellings, with part of one directly above another etc., emphasises the close-knit community living around which the settlements were built. The layout is basically introspective with unexpected corners and turnings providing interesting vistas with occasional long distance views, between buildings, down the Diggle Valley and up to the hills around. Sudden changes in level can result in an interesting roof line almost at eye level, while the irregularity of the roof patterns emphasises the organic growth of the settlement. Walls are of local gritstone with long and short stonework at corners and door openings. Roofs are of grey slate at a fairly shallow pitch although some buildings have been re-roofed in concrete tiles. Windows are basically of the mullion type and the general absence of timber features in the buildings emphasises the attention paid to the rigours of the climate. Diglea has areas of open space at route junctions, probably village greens originally, containing clumps of mature trees and other individual mature trees which play an important part in the village scene. The basic floorscape is hard, with house walls back and front coming up to, and alongside, the public roadways while stout stone walls divide public from private open space where individual garden plots have been developed.	
CA15 DGM3182	398409	404078	Conservation Area	Royal George Mills, Greenfield	Royal George Mills was designated a Conservation Area in 1982 and extends over an area of 15.41 Hectares. Royal George Mills The Royal George Mills comprise a self-contained and isolated industrial complex lying between the River Tame and the Huddersfield Narrow Canal two thirds of a mile to the west of Greenfield. The Royal George Mills were originally called Gibbs Mills and were built in 1786 with local stone. The present name dates from 1800 and was intended as a compliment to King George III. The acquisition of the mills in 1835 by the Whitehead Brothers began a period of growth whereby the Whiteheads acquired considerable land interests in the Grasscroft and Friezland area. The Royal George Mills were the cornerstone of the Whitehead's 'empire' and hence one of significant local historical importance. The mills were originally concerned with the woollen trades. This was continued for some time although the Whiteheads were renowned as flag makers. With increasing demand for specialisation the firm entered the business of felt making and produced fine quality felts of all varieties. The complex has recently been converted to residential use.	
CA25 DGM3186	400317	406712	Conservation Area	Holly Grove, Diggle	Holly Grove Conservation Area was designated in 1988. The conservation area encompasses a small hamlet with a few structures which date from the 18th to 20th century. A significance majority of these structures are grade II listed and include farmhouses, houses, cottage and a wool wall. The presence of a wool wall indicated the domestic production of woollen cloth in the area. On historic maps from the mid to late 19th century, the small hamlet is located at the intersection of Moor Lane and Butterhouse Lane with various footpaths connecting the area to surrounding roads and structures. The former London, Midland and Scottish Railway tunnel was established underlead the small hamlet. The conservation area appears to have undergone minimal change and intervention since its depiction in historic maps, and remains legible as a 18th to 20th century hamlet. The materiality used across the conservation area include hammer-dressed watershot stone with graduated stone slate roof for the residential structures, and rubble sandstone masonry for the wool wall. The area is located within a rural setting, with a western slop towards the Huddersfield Narrow Canal and Diggle Brook. Trees and stone boundary walls surround Moor Lane and Butterhouse Lane and frame the views into and out of the conservation area with distant views of the Pennines in the distance. The approach from Butterhouse Lane enables for expansive views of the western landscape and looks down upon the open fields, Diggle and the Pennines.	
CA	397820	399634	Conservation Area	Millbrook	Millbrook Conservation Area was designated in 1991, and was later subject to a boundary review (n.d.). The conservation area is established along the north-east to south-west axis of Huddersfield Road and encompasses the planned Victorian	

NHLE / GMHER Ref	Easting	Northing	Designation	Name	Description	Period
DGM2202					industrial village of Millbrook, set within natural topography of the Swineshaw Valley. The area developed around key mills in the area; Staley (Howard), Staley (Kernshaw) and Oakwood mills, which were prominent features in the establishment of the industrial character. Millstone grit is the predominant building material used throughout Millbrook, contributing towards a unified townscape and forming a key element of the area's overall character and appearance. It was used in the construction of houses, St Jame's Church and school, boundary wall along Huddersfield Road and the stone setts on the street surfaces. The setts are considered to be an important feature in the area. Stone terrace houses dating from c. pre-1850 with internal courtyards to the west of Huddersfield Road, are also key features. Larger buildings such as St James's Church and School, Oakwood Mill and mill owner/managers houses flank Huddersfield Road and help frame the route through the conservation area. Situated within the Swineshaw Valley on the lower slopes of the eastern side of the Tames Valley, the conservation area benefits from distinctive viewshed. The views into and out of the conservation area capture the industrial character of Millbrook against the Pennine landscape in the surrounding area and contributes towards its overall appearance.	

A.4 Offline Non-Designated Heritage Assets

HER PrefRef	Easting	Northing	Type	Name	Description	Period
1000.1.0	396907	399433	Historic Building	Woodfield Farmhouse	Range of farmhouse and cottages, mid-C17 to mid-C18. 2-unit, 2-storey farmhouse.	Post-Medieval
1000.1.1	396899	399456	Historic Building	Barn at Woodfield Farm (former) (rebuilt?)	Barn, C17 cruck frame with walls and roof of squared rubble. 4-bay, single aisle, with lean-to additions to east, central door to the gable which has stone quoins, and a left hatch. Survived on site until 1990 when dismantled with a view to re-erection.	Post-Medieval
10426.1.0	397270	402557	Historic Building	Unitarian Church (former)	Low gabled front, two doorways with heavily rusticated arches and five-light window between. Tablet in gable "Christian Church and Sunday School built 1852".	Post-Medieval
13849.1.0	399737.282	406689.6405	Historic Building	Woolroad Bridge canal warehouse (former)	Canal warehouse, belonging to Nevell's Class II (1). Constructed of stone with two taking-in archways at ground-floor level and a possible taking-in door at first-floor level on the western frontage.	Post-Medieval
13850.1.0	399574	406613	Historic Building	Woolroad Canal Warehouse (at Stone Bottom Mills)	Canal warehouse, belonging to Nevell's class IV. A single-storey shed built flush with the canal with the roof projecting over the canal.	Post-Medieval
173.1.0	399613	406426	Historic Building	Saddleworth Station (former)	At north end of Saddleworth Viaduct, closed 1968; on west are 2-storey station buildings with gable and bay window, ornamental roof, veranda with cast-iron pillars, in use as residence.	Post-Medieval
17825.1.0	397429	401494	Historic Building	Mitre House	Built for the Bury Street Working Men's Club in 1900 at a cost of £3,000. Substantial multi-storey stone building, unusually shaped at one end like a bishop's mitre, where the main entrance used to be. Name and date carved into the stonework above original entrance. In the 1950s, it was used to house French, Italian and Irish workers brought over to work in the mills. (Milton Mill, Brunswick Mill and Carrhill Mills) owned by the Spinning and Wool Combing Company, locally known as 'The French Firm'. Then the Company used it as a children's nursery in the 1960s. Converted to apartments c.1997. (1)	Modern
17827.1.0	397420	401713	Historic Building	Post office (former)	Single-storey building of brick construction with tiled roof. Round-arched windows and doorway. Built in a corporate post office style rather than attempting to blend in with local buildings of stone construction. Constructed c.1930 in the garden of Albert House, to which it was attached, possibly with connecting access. Building now used as business premises.	Modern
17828.1.0	397423	401726	Historic Building	Albert House	Former mill owner’s house constructed from stone in a plain style. Two storeys plus attic. Large rectangular windows with stone lintels and sills. Round-arched window to stairs at rear. Constructed pre-1860 with south-facing frontage and entrance onto garden and short carriage drive. Occupied by Robert Buckley, who built the Albert Mills on the land between the house and the river Tame. Robert died in 1870, at the age of 62, only three years after the completion of the mills. The mills were then run by his sons until they got into financial difficulties in 1896, when the mills were sold to the Egmont Spinning Company. Cotton production ceased in 1933. Around 1930 a post office [HER 17827.1.0] was built in the garden of Albert House, attached and possibly with a connecting access via the former main entrance to the house. The house is now a private residence again. The west side of the house, which faces Manchester Road, was originally a side wall.	Post-Medieval to Modern
17864.1.0	397406	401869	Historic Building	Best of Brass public house	Two-storey public house with access to basement from the rear. Constructed of stone with a slate roof. An extension into the corner between the roads is in brick that has been painted cream. The building occupies a wedge-shaped site with a depth of around one metre at the south end. Built in the 1830s in the awkward angle between Manchester Road and Smith Hill (later Waggon Road).	Post-Medieval to Modern
17865.1.0	397294	401866	Historic Building	Apsley House	Very large Victorian house, built in 1848 with extensions added by 1890. Now divided into three separate dwellings: front of house overlooking carriage drive (northern section) retains name of 'Apsley House'; south-west section, which had contained the library, now called 'Apsley Cottage'; south-east section, which had been the servants' quarters, now called 'Apsley Side'. Gothic style. Stone construction with steeply pitched slate roof and overhanging eaves. Small slate-clad steeple. Some windows with round or pointed arches. Stone porch on main entrance from carriage drive. Built in 1848 with extensions added by 1890 with slight differences in style. Built by mill owner George Mayall for his daughter Hannah when she married mill manager George Andrew in 1848. Hannah died in 1877. George Andrew was elected as the first mayor of Mossley in 1885. He died in 1890.	Post-Medieval to Modern
17866.1.0	397093	401929	Historic Building	Livingstone Primary & Nursery School	Opened in 1915 as Livingstone Council School. It was built partly to take pupils from Abney British School, which closed that year. It was described as “an open-air school for education and health”. The classrooms were arranged around three sides of an open courtyard with a veranda at one end, giving opportunities for outdoor lessons. The classrooms had windows on both sides, designed so as not to let wind in when they were open. Inside the school was a bust of David Livingstone, after whom the school was named. He was seen as a good role model, having started work aged 10 in a cotton mill. A plaque referring	Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
					to David Livingstone is situated near the entrance door. Single-storey building of brick construction with stone bands and a slate roof. Originally built around three sides of an open courtyard; extensions have since been added on the fourth side.	
17867.1.0	397249	401972	Historic Building	Brambles Lodge	Lodge, built c.1862 as gatehouse at one of the entrances to Mossley Hall, originally 'White Hall', built for mill owner George Mayall. The carved stone symbolic eagle on the front gable is from the Mayall family self-styled coat of arms. Single-storey house of stone construction with stone banding, quoins, pediment and decorative features. Slate roof. Symmetrical design but with added glazed porch to left.	Post-Medieval to Modern
17869.1.0	397319	402003	Historic Building	Royal Bank of Scotland (former)	Substantial imposing building of four storeys plus basement, previously a bank, built in 1892. Occupying a prominent position near Mossley railway station and on a major thoroughfare. Many original features, both inside and outside, have been retained. The former bank is an imposing building, exhibiting many decorative architectural features: stone balustrade fringing two levels of rooftop, decorative stonework over entrance porch and windows, with decorative sculptured stonework incorporating date. Many of the bank's original indoor features have been conserved, including panelling, fireplaces, architraves and cupboards. Building originally William Deacons bank, which was a bank local to the North West. Built to serve a 19th-century mill town, reflecting the importance and status projected by banks at that time. An interesting feature is that it was built to incorporate accommodation for the manager and his family. Became Royal Bank of Scotland (RBS). Closed as a bank in 2016, re-opening as a bar.	Post-Medieval to Modern
17870.1.0	397366	401978	Historic Building	The Commercial Inn	Elegant three-storey public house of symmetrical design constructed of stone with a slate roof. Second-floor windows are topped with flat cornices. First-floor windows have arched cornices with false keystones. Two bay windows to ground floor, with central doorway. The Commercial was the first public house to open in 'Bottom Mossley'. It was originally a private house constructed at the side of the new Turnpike road. When the road was completed and opened to through traffic in 1830, owner Joseph Carter obtained a full licence and opened it as the Commercial Hotel in 1831. It was busy as a stopping point for travellers on the Turnpike until the opening of the railway in 1849. It was then conveniently close to the station as well as being centrally located in the bottom part of the town.	Post-Medieval to Modern
17871.1.0	397358	402019	Historic Building	Mossley Station	Mossley Station was built by the London & North Western Railway Company as part of the Manchester to Huddersfield railway line. It opened on 1st August 1849. Along with the Huddersfield Narrow Canal, the railway was transformational in the industrial development of the Mossley cotton mills. A turntable in the goods yard (now the car park) enabled wagons to be taken, via a tunnel beneath the road, directly into the Britannia Mills complex, owned by the Mayall family, who had helped to finance the construction of the railway. The station building, of stone construction with steeply pitched slate roof, is both distinctive and iconic in relation to its importance to the identity of the town of Mossley.	Post-Medieval to Modern
17872.1.0	397392	402005	Historic Building	Bank House (formerly Devonshire House)	Built c.1840s and known as Devonshire House. It was the home of mill-owner George Mayall and his wife Esther for a number of years. In the 1860s he had White Hall, a grand mansion, built on the hill looking down over Devonshire House. White Hall later became Mossley Town Hall. The District Bank was built in 1848, attached to Devonshire House, which became the bank manager’s house and was then known as The Bank House. The bank closed in 1997 and the two properties are now both occupied by Pennine Medical Centre doctors’ surgery. Two-storey former mill-owner’s house of stone construction with slate roof. Stone window and door surrounds. South-facing frontage of symmetrical design, having an open outlook when the house was built. In 1884 the District Bank building [HER 17873.1.0] was attached to the north side.	Post-Medieval to Modern
17873.1.0	397389	402022	Historic Building	Former District Bank	Built for the Manchester and Liverpool District Banking Company, which shortened its name to the District Bank in 1924. The Mossley branch opened in 1847. This particular building was constructed in 1884. It eventually became the Nat West Bank, closing in May 1997. The Pennine Medical Centre doctors’ surgery, which had taken over the former bank manager's house next door, expanded to occupy the vacated building. A while after the change of use had taken place, a hapless robber burst in, expecting to hold up the bank and having to retreat sheepishly when his error was pointed out. Stone-built former bank in Italianate style comprising a single storey of almost double height. Round-arched windows with keystones. Cornice with dentil ornamentation. Pediment over entrance includes a relief of the bank’s coat of arms, bearing the motto “Decus Prudentiæ Merces” ("honour is the reward of prudence"). Italianate stone-built square chimney tower at side.	Post-Medieval to Modern
17874.1.0	397380	402073	Historic Building	The Sailors™ and Soldiers™ Recreation Rooms (former)	One of several cottages that were part of a row, originally built c.1850 by John Mayall, the owner of a number of cotton mills. No.207 stands on the corner of Queen Street, which led down to Mr Mayall's mills. The other cottages and the Britannia Inn have a low wall in front of them. No.207 has no front wall. Its doorway, set on the corner apex, makes it a suitable premises for use as a shop. They are all built of stone. No.207 has a stairway at the side to give access to the upper rooms. There	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
					appears to be a rear extension to the upper floor. Two of the cottages next to No.207 have now been joined to provide space for a hairdressers. In 1905 the property had been listed as a dining room then, in 1917, it became The Sailors' and Soldiers' Recreation Rooms. In 1939 No.207 was vacant. Since that time it has been occupied as the Railway Café, then a variety of shops including ladies' fashionable clothing, a DIY centre in 1974, and from 2018 as Aurora Wine Bar. In 2018 it was awarded a Blue Plaque as part of the town's First World War Trail.	
17875.1.0	397378	402100	Historic Building	The Britannia Inn	In 1857 two cottages owned by John Mayall (known as 'The Prince of Cotton Spinners' as he owned more mule spindles than any other private firm in the world) were turned into a beerhouse called The Musicians Arms. After eventually being granted a full licence, it was renamed The New Inn. In 1870 the two cottages were rebuilt and a new floor added and it became The Britannia Inn. John Mayall also owned the nearby Britannia Mills. The Britannia Inn was used for dinners and celebrations, e.g. railway porters' supper; Albert Mills fire brigade annual dinner; Mossley Botanical Society annual dinner; Tradesman's Mutual Protection Society dinner. In 1878 It was also used for meetings to discuss the plans for a second railway line through Mossley. It was also used for coroners' inquests, one being the case of Joseph Scott who died in an accident at the Little Britannia Mill, and which was reported in the local paper. Three-storey building of stone construction. Stone lintels and sills but otherwise of plain design.	Post-Medieval to Modern
17876.1.0	397309	402163	Historic Building	Mossley Hall Gatehouse	Built as gatehouse in c.1862 at one of the entrances to Mossley Hall, originally 'White Hall', built for mill owner George Mayall. A carved plaque shows the Mayall family's self-styled coat of arms, with motto 'Ne Cede Malis' ('Yield not to adversity' or 'Yield not to misfortune'). It is believed that the gatehouse was occupied by the family's butler. Two-storey house of stone construction with slate roof. Stone band below first-floor windows, stone quoins and decorative cornice. Curved-arch windows to first floor with keystones. Ground-floor windows facing road are slightly projecting, with central door now converted to window. Entrance to side. Side wall has coat of arms.	Post-Medieval to Modern
17877.1.0	397307	402172	Historic Building	Wesleyan Sunday school (former)	Previously a Wesleyan Methodist Sunday school, built in 1913. Substantial four-storey building, incorporating a slate rendered spire. Entrance approached by a substantial flight of steps with name and date carved in the stonework above. One of only two remaining examples of a Methodist Sunday school building to survive in Mossley	Modern
17889.1.0	397296	402239	Historic Building	East View	Large house of stone construction built c.1860. Single-storey bay window to front. Originally occupied by Samuel Buckley, a waste cotton dealer, and his family. By 1871 East View was occupied by William Mayall, son of mill owner John Mayall, with his family. In 1901 William's son Leonard was head of the household. By 1911 Doctor Joseph Walters and his family were living there, having moved from Glamorgan. The house would appear to have been the doctor's surgery as well as his residence	Post-Medieval to Modern
17890.1.0	397297	402259	Historic Building	Clifton Villa	A villa, built around 1860 by the Mayall family, who owned mills in the town. Originally occupied by Miles Mayall, who lived there until his death in 1900. The house was then divided into two separate properties. The building is of stone construction with stone quoins and stone bands. Slate roof. Originally almost symmetrical, with small central front gable. Small side extension to accommodate a second entrance and staircase when the house was divided into two around 1900. Wooden porch extension to right.	Post-Medieval to Modern
17891.1.0	397134	402261	Historic Building	St Joseph's School	The present school opened in 1930, replacing an earlier school nearby built in 1874. Apart from a recent extension, the school is single storey, of red brick with a slate roof. Built on an awkwardly shaped plot, it was designed on what were then modern principles, with a corridor allowing each room to get through ventilation, a central hall, and large rooms for handicrafts and domestic science. The toilets were separated from the building by an open-air walkway, which was considered to be a good thing on health grounds. There was even hot water on tap. When the building was complete, the council provided the furniture and equipment.	Modern
17900.1.0	397106	402356	Historic Building	St Joseph's Roman Catholic Church	A Roman Catholic parish was formed in Mossley in 1856, with the members meeting originally in a room on Smith Street which was also used by other denominations. A church was built on Argyle Street, opening in 1862. From 1864 to 1874 the church was also used as a school until a school was built on adjoining land. In the 1960s this church was demolished and replaced by the present building on the same site. It was designed by architects Desmond Williams & Associates and opened by the Bishop of Salford in March 1965. Its striking modern design won much praise. It was the first church in the diocese to have two altars in line with the Vatican's new recommendations. Church constructed mostly in brick, with steeply pitched tiled roof. Small copper steeple. Circular window on east side. Angle of roof reflected in design of canopy above entrance.	Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
17903.1.0	397262	402722	Historic Building	The Shears Inn (former)	A 1790s three-storey stone-built property, originally a pub and now divided into private houses. In the 1850s it hosted regular September fairs and vegetable shows and a 1858 newspaper noted a visit from the newly formed Mossley Druids' Band. When auctioned in 1878 the sale included land, brewhouse and stabling. However, in 1890 a public house survey noted there was no accommodation for travellers, stabling for only 2 horses and only a maximum of 10 people could be provided with refreshment other than drink. An inspection in 1913 stated that the ceilings were too low, sanitary conditions were poor and the approach to the pub too steep (a gradient of 1 in 3). It was suggested that it needed an entire rebuild. However, it continued on for many more years and finally closed as a pub in 1970. It has been converted into two private dwellings.	Post-Medieval to Modern
17906.1.0	397531	403000	Historic Building	Church Inn	Public house at end of terrace. Two storeys plus basement. Brick construction with stone frontage. Slate roof. Stone lintels and sills. Built in the 1820s as a detached private house. By 1837 it had been turned into a fully licensed pub called the Hardman’s Arms. After the church of St John the Baptist was opened close by in 1878, the pub was renamed the Church Inn. A terrace of houses was built a little to the east. Then, around 1900, two houses were built in the gap between the terrace and the pub, making it part of the terrace.	Post-Medieval to Modern
17907.1.0	397556	402980	Historic Building	St John's School (former)	Opened in May 1865 as 'Roughtown School', paid for mainly by James Heywood Whitehead of Royal George Mills. Became 'St John’s School' when the adjacent church was opened in 1878. It had a large main classroom measuring 70' by 22' and a smaller classroom for infants, plus an adjacent school house. The infants' section was badly damaged by a fire in 1912, with the roof collapsing. It was rebuilt and additional space added, with a corridor separating it from the original 1865 section. The school closed in 1979, when it amalgamated with nearby Milton School, which became Milton St John’s School. The building continues to be used as a community centre. Stone construction with slate roof. Single storey with part-basement. Central corridor with former classrooms on each side.	Post-Medieval to Modern
17908.1.0	397628	403289	Historic Building	The Rising Sun public house	Two-storey detached pub, constructed of stone with slate roof. Original central doorway on front wall has been converted to a window. Entrance porch added on side wall. The Rising Sun was open as a beer house by 1850. It became a fully licensed public house in 1880. The Rising Sun was the tram terminus from 1904 to 1925. The name probably comes from its uninterrupted views eastwards across the valley, making it an ideal place from which to view the rising sun.	Post-Medieval to Modern
17909.1.0	397725	403726	Historic Building	Grove Sunday School (former)	Opened in 1843 to accommodate a branch of the New Connexion Methodist Sunday School. However, after just three years, the school closed as the trustees could not afford to maintain it and had to sell the building. It has been converted to provide residential accommodation. Constructed in stone with slate roof. Two storeys at rear plus attic. Entrance at road level is to the upper ground floor on gable end wall, where there are two windows at attic level, plus three windows, a door and a blocked-up doorway at road level.	Post-Medieval to Modern
17911.1.0	397451	402661	Historic Building	Milton St John's School	Opened in 1913 as 'Milton Council School', the first council school to be built in Mossley. Built on a steep hillside, it originally had part of one playground underneath three of the classrooms, providing shelter from rain. A bust of poet John Milton was given to the school at its opening, although the name of the school refers to a local area. In 1979 Milton School amalgamated with nearby St John’s School, to form 'Milton St John’s School', using the Milton School building. The amalgamation was due partly to falling birth rates at the time. 40 students plus 8 nursery pupils from St John’s joined the 130 pupils at Milton. The merger was reported to have gone very smoothly in spite of some initial anxiety from parents. School, constructed in brick with slate roof. Built on a slope in a V-shape having a central hall with corridors leading to classrooms on each side. Classrooms have large rectangular south-facing windows. Small two-storey sections on north side providing office accommodation.	Modern
17912.1.0	397637	402707	Historic Building	Drill hall (former)	ormer drill hall built in 1912, now clubhouse of the Tameside Sports Association. The drill hall was built for companies of the Duke of Wellington's Territorial West Riding Regiment. It was classed as a medium structure. It was for the accommodation of two companies of Infantry, the Mossley/ Micklehurst companies, 7th Battalion West Riding Duke of Wellington's Regiment. The site is a corner one and lent itself easily to the arrangement of entrances and exits. A large drill hall allowed gatherings of the regiment to take place. Along one side of the hall were the Officer's and Orderlies' rooms, the clothing and arms stores. At the opposite end of the hall communication is made with the back block which contained the lecture room, the men's club and the sergeant's mess, each with their own toilet facilities. In the basement is a shooting range 75' long for instruction in aiming and for miniature cartridge practice. The floor of the drill hall had had 1" Redwood boarding laid on breeze. To the rear of the drill hall is a house built for the drill instructor. It is the only local drill hall with a shooting range. The building eventually replaced an old drill hall sited off Lees Road that had been made of iron and timber and was the	Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
					headquarters of the Mossley Detachment of the 2nd Volunteer Battalion West Riding Regiment. That building blew down in 1938 after it had remained unused for many years	
17914.1.0	397604	402862	Historic Building	Methodist school (former)	Former Methodist school, now occupied by organ builders. Substantial building in brick and stone with slate roof. Circular stone plaque above entrance reads “Erected AD 1866”. Single storey to front; two to three storeys at back. Original 1866 building in light-coloured brick with decorative 2-tone brickwork around entrance, windows, date plaque and below roof guttering. Pointed-arched windows. Large extension in stone, at right-angles to original, forming an L-shape. Further modern extension imitating the older style.	Post-Medieval to Modern
17915.1.0	397532	402846	Historic Building	64â“72 Carrhill Road	Five houses of two-storey stone construction with slate roof. Mullioned windows. Now joined onto other houses at each end to form part of a longer terrace. These houses were built around 1820–1840 for individuals who were members of an association. This could be considered an early form of building society, in contrast to the nearby terraces built by mill owners for their workers	Post-Medieval to Modern
17916.1.0	397857	402915	Historic Building	Roughtown Tavern (former)	Former beerhouse of two storeys plus basement. Stone construction with slate roof. The main entrance had striking stone quoins on each side. The building occupied an unusual triangular footprint. Now split into two private residences. Built in the 1850s. It was a beerhouse until it closed in 1939 when it was described as being out of date with bad sanitary conditions and facilities. Trade had been falling off, so the brewery did not contest the decision. It was divided into two small houses.	Post-Medieval to Modern
17917.1.0	397278	402464	Historic Building	Annaville Terrace	A terrace of three houses with an engraved datestone stating 'ANNAVILLE TERRACE 1870'. A Belgium Relief Committee was set up in Mossley in November 1914. Towns were asked to provide accommodation for Belgian refugees and it was determined that an unoccupied house might be found. A number of efforts raised money for the relief fund and tradesmen were soon freely decorating, plastering and doing general repairs to a house at Annaville Terrace. It was conveniently near to the military hospital at the Mechanics Hall where some injured Belgian soldiers were already being cared for. Flags of Belgium were hoisted on poles at Annaville Terrace and at the Mechanics. In January 1915 a young Belgian girl, Maria Decorte, travelled alone to Mossley looking for her brother Evariste who was a wounded soldier in the military hospital. She was met at the station, brought to meet him and became the first of the Belgian residents at Annaville Terrace. She was a dressmaker and was willing to do tasks in return for Mossley's hospitality. Annaville Terrace was awarded a Blue Plaque in 2018 as part of the Mossley First World War Trail. It also features on the Routes to Roots Trail.	Post-Medieval to Modern
17918.1.0	397293	402345	Historic Building	Mount Gambier	Mount Gambier is a pair of stone-built, semi-detached houses built in 1871. The building is symmetrical with steps at each side to access the doorways. Number 25 had 7 rooms, whilst number 27 had 6 rooms (declared in the census of 1911) The windows are stone mullioned. An extra piece of land between the building and Jacob's Ladder was purchased, by the Miss Beswick and Mrs Kershaw from the Earl of Stamford in 1880. It is of historic interest due to its name and the Beswick family's history including their benevolence to local churches and charities. In 1871 the family living in "Mount Gambier" Mossley was Sarah Beswick head, widow 73 born in Bordeaux France, Matilda Kershaw daughter, widow 43 born Bordeaux France, Hannah Beswick daughter, un married 41 born Bordeaux France. Andrew Beswick son had not yet arrived home. He first appeared in 1881 listed in the Census as the head, unmarried 58 retired sheep farmer born France along with his sisters Matilda and Hannah also born France They now employed a servant. The other part of the building was occupied and presumably rented at each census. In the1891census just Andrew and Hannah Beswick with two servants were in Mount Gambier. Matilda had died in 1889. By 1901 Andrew then a JP had died leaving Hannah, his sister aged 70 living with two servants in 25 Stamford Road (Mount Gambier). The Beswick family gave the font, the clock for the tower and several beautiful memorial stained glass windows to St George’s during their lifetimes. When Hannah Beswick died aged 74 on 30th December 1905 she left an estate of £23,810 Each Anglican Church in Mossley benefitted from her generous bequests as well as all the local hospitals including The Henshaw Blind Asylum Old Trafford and The Manchester Eye Hospital. Mount Gambier was auctioned for £600 in June 1905. From 1915 until 1945 it was used as Police houses. Since that time the two separate dwellings number 25 and 27 have been occupied continuously.	Post-Medieval to Modern
17920.1.0	397979	403150	Historic Building	Roaches Lock public house	Two-storey detached public house constructed from stone with a slate roof. Modern single storey extension on left hand side built to match original. Stone lintels and sills. The Roaches Lock public house opened in the 1860s as a beerhouse called the ‘Bridge Inn’, being adjacent to the new bridge carrying the Manchester to Wakefield turnpike road over the River Tame. It was sometimes used for holding inquests into deaths that had occurred in the part of Mossley that lay within Cheshire. It remained a beerhouse until 1960, when it became fully licensed. In 1982 it was re-named ‘Roaches Lock’ after the canal lock that stands close by at the rear.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
17921.1.0	398014	403211	Historic Building	Tin Tabernacle Methodist Chapel (former)	Single-storey former chapel originally having corrugated iron finish, but now with walls rendered and modern roof. The Roaches Wesleyan Methodists met initially in a room in nearby Bank Mill. In 1898 a small chapel was opened and was used for services and for Sunday School. It was known as the 'Tin Tabernacle' because of its construction. The chapel closed in 1964 when the congregation had diminished to 20 members. The building has since been used for light engineering, printing and as an Indian restaurant.	Post-Medieval to Modern
17922.1.0	398032	403253	Historic Building	Old Fire Station	Two-storey building of brick construction with stone curved lintels above windows and vehicle doors. Castellated brick tower, probably built for training purposes. Newer steel training tower in rear yard. Vehicle doors now infilled with glazing. Opened in April 1913, with two appliance bays and an ambulance bay. The adjoining house accommodated the chief fire officer. The first holder of this post was Mr RH Buckley, who was also the town surveyor. Many of the fireman were part time and had previously been members of the volunteer fire fighting groups of individual mills. When the station opened it had only one fire appliance. In 1915 a second was obtained and the brigade took over responsibility for Saddleworth district. At first an ambulance was also housed in the station, manned by the firemen. Emergency telephone calls went straight to the fire station. The station closed in 1989 when a replacement was built near the market ground	Modern
17923.1.0	398085	403336	Historic Building	Tollemache Arms public house	Two-storey end of terrace public house constructed from stone with a slate roof. Stone lintels above door and windows. The row of cottages were built in 1793, around the time a start was being made on the canal behind them. This was an area of new development on what was to become a new turnpike road along the valley bottom. By 1837 the left hand cottages had been made into the Tollemache Arms. The name refers to Lord Tollemache, who had owned the land in the part of Mossley that lay in Cheshire before selling the land to Lord Stamford in 1841. The pub sign features a coat of arms from the Tollemache family.	Post-Medieval to Modern
18088.1.0	400285	407853	Historic Building	Ellis Mill	Part of group of industrial buildings known locally as Tanners after the Greenfield Tanner brothers took over. Two-storey, 14-bay, double-depth mill. Blue slate double ridge roof and central valley with stone copes, left gable ashlar stone stack. 14x 9 pane windows on each of ground and 1st floors, stone lintels and sills running as string course; 2 courses from roof line a decorative proud string and corbels run full length. Left gable: blocked main doorway with inserted modern door, door surround of ashlar stone with console brackets, frieze and pediment; 2x6-pane windows ground floor and modern goods access door below attic hoist tower; 1st floor 4x6-pane windows and 1 toilet window. Some original cast iron downspouts which are inset in wall below ground floor window sill level. First shown on the Ordnance Survey 2nd Revision 1:2500 map of 1932.	Modern
18981.1.0	400796.8825	408052.8864	Historic Building	Diggle Hotel	Diggle Hotel built early 19th century. Three-storey and three-bay double depth. Central doorway with rusticated quoins. Ground floor left and right square faced lintel, sills & sides windows. Two stringer courses separate the first and second floors each with three windows smaller with height. The front with rusticated quoins. Left gable with beer cellar door each storey with one window with large lintel. Right gable single storey facilities and kitchen. Rear central stair window three stories with emergency door and metal steps at first-floor level. Each floor with four-light recessed square mullion windows to left and right, string courses between each floor. Quarry faced stone. Ridge chimney stack. A beer house in Diglee was licenced 1833-1858 the forerunner of The Diggle Hotel. Frederick Radcliffe ran both establishments	Post-Medieval to Modern
18982.1.0	400503.8821	408026.2072	Historic Building	Beaulah House	Built before 1897 as a residence for Matthew Bailey, shawl manufacturer, Grove Mill. Later Dobcross Loom Works General manager's mansion. 2-storey, 2 bays, double depth. Hammer-dressed sandstone with proud plinth. Blue slate hipped roof, 4 gable tall stone stacks. Front elevation; dressed stone surround arched doorway with moulding and overlight with '1' etched in glass; ground-floor dressed-stone bay windows to right with stop-chamfered mullions, leaded roof; left ground-floor and first-floor windows 3-light mullion windows left and right with hooded moulding across the whole elevation, central 1-light window above door pair. Gable with corbel brackets for guttering. Example of industrial success in the form of an imposing mansion with large, enclosed gardens.	Post-Medieval to Modern
18983.1.0	400399.7816	407639.2035	Historic Building	Diggle Junction Signal Box	Diggle Junction Signal Box, originally Diggle No1 signal box, opened in 1885 near the western portal of the Standedge Tunnels. It was equipped with 59 levers and was extended to 81 levers in 1891 on closure of Diggle No2 signal box near the station. Initially it controlled traffic on one down line (away from London) and one up line. Second lines were added in 1886 when the Micklehurst loop line from Stalybridge was opened. The signal box also controlled a single line that served the Dobcross Loom Works, which had their own engine 'The Foundry Rocket.' The building is a good example of a large London & North Western Railway Type 4 signal box, comprising a timber-framed box mounted on a brick base. It features a slate-covered gabled roof, introduced by the LNWR in 1876.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
18984.1.0	400590.7035	408158.9249	Historic Building	Hillcrest	A double-fronted house dating to the early 19th century, possible infill built between two earlier properties. Two-storey, single depth. Dressed millstone-grit. Central doorway with ashlar stone lintel & quoins door jambs, overlight with name on glass. Ground floor insert windows three-pane bow windows on ashlar large stone base with blue slate roof. First floor has three sets of four recessed flat-faced mullion windows. Sills form a single string from side to side. Moulded support for large ashlar pediment. Shallow roof with joint chimney stack with No.8	Post-Medieval to Modern
18986.1.0	400922.4773	408570.7216	Historic Building	Grove House	Detached house in sloping grounds: deeds 1870. Manager/owner's house for Grove Mill (woollen). Joseph & Thomas Reynolds, occupiers of Grove (Limbo) Mill in census of 1871. Rock-faced stone, blue slate roof with gable and rear extended. Stone stacks, gable cope stones and corbel gutter supports. Front elevation comprises central dressed stone surround doorway with overlight, two-light windows either side with stopped chamfered lintel and stone sill. Garden walls with rounded cope stones and ornate iron gate. Stone gateposts extant. Water trough opposite.	Post-Medieval to Modern
18987.1.0	400865.324	408425.9118	Historic Building	1-3 Harrop Court	Part of group of four connected buildings. Nos, 1, 2, 3,4 and Barn. No. 1: Three-storey building: E/M19C; 1 bay, single depth, 2nd and 3rd storey hidden by No. 2 at a right angle. Hammerdressed watershot sandstone with graduated stone roof. No indication of separate construction; front elevation 1x 2nd floor window above the attached building; gable end on roadside; ground floor, extreme left dressed stone doorway, large vertical stone slab to left of door as protection from stable door, 1 large window with flush lintel and proud sill, 1st floor 2 large windows with large lintel and proud sill, 2nd floor 5 light square face mullion window, both sets of windows probably not original. No. 2. Road side., E19C separate construction with later alterations, graduated stone roof, gable ashlar block stack, rear; 1 in filled doorway, 1 square cut insert stone 1st floor window, 1 large 2-floor stair window with evidence of insertion, extended single storey keyed by three separate stones, with 1 doorway and later window insert, graduated stone roof, ashlar stone stack. Front elevation; 2 storey, 2 bays, single depth, roof with stone cornice; central doorway with window either side, 1st floor 3 large windows with square cut surround, corbels gutter brackets. No. 3. Front elevation right 2 bays: ground floor dressed stone surround doorway, either side three-light recessed square faced mullion window, stone flush lintel and sill; 1st floor either side three-light recessed square faced mullion windows, stone flush lintel and sill, with central slightly taller and wider inserted window; 2nd floor the same Rear: ground floor left 3 light mullion window, to right window below proud lintel, (possible step outside two taking in doors, now windows); second floor 8 light square faced mullion window. Left hidden bay.	Post-Medieval to Modern
18988.1.0	400870.9196	408439.3673	Historic Building	Barn	Barn E/M 19C, 2 storey, 3 bay, single depth, watershot hammer dressed stone. Front elevation; central dressed stone surround, keyed arch with proud keystone, shippon door to left and stable door to right with square cut stone surround, 3 original wooden doors and cast iron downspouts, gable; 2 later 1st floor windows with apex owl hole; rear same 3 doors with 3 pigeon loft holes. Part of group of five connected buildings. The hamlet grew up around the late 18th/early 19th C Harrop Court Mill now demolished	Post-Medieval to Modern
18989.1.0	401115.0898	408099.6051	Historic Building	Marsh Head	Extended farmhouse and barn L18/E19 C. Built in fields labelled as Marsh on 1770 Estate map. 2-storey, 5-bays, double depth with M19C cat slide roofed 2 storey extension to rear of dwellings. Hammer dressed sandstone Re-roofed with blue slate, 2 gable, 1 ridge water tabled stacks. Front elevation from left: originally 2 single bay houses with visible join now one dwelling; ground floor 20C sun room and porch; square faced recessed mullion windows, 1st and 2nd floor 2x5-lights, left gable with 20C single store extension, 2x2 light windows each floor; centre barn with lintelled doorway and dressed stone surround shippon door, higher taking in door; right single bay 3-storey dwelling with 3 floors of 5-light windows; right gable at front ground floor doorway, 2 light windows on each floor, 2-storey gable end extension with reused 4-light window, quoins both front and rear. Rear extension behind dwelling both with rows of reused mullion windows; rear of barn with in-filled taking in door and ground floor access door. Left 2-bays much restored. Indoor well. Circa 2019 central barn converted to dwelling with retained barn doorway & 3-light mullion windows on 3 floors. Rear taking in door converted to windows.	Post-Medieval to Modern
18997.1.0	400542.3197	407719.7323	Historic Building	Shaw Lee	Large and imposing dwelling dating to the early 19th century and originally freestanding with mid-19th century row of cottages attached. The house is two storey, two bay and double depth with watershot hammer dressed stone and graduated stone roof with gable cope stones. The front elevation features a central doorway hidden by 20th-century porch but with square stone surrounds and symmetrically spaced sash windows on the first and second floors, replaced on the ground floor in the 20th century; gable end with sash windows two on each floor with stone sills and lintels, first floor additional small window, one ground floor window covered by single storey lean-to. Rear elevation with 20th-century central doorway at first floor level, original ground floor soil removed; First and second floors with two square-faced recessed three light mullion	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
					windows in the vernacular style. Roof with 20th-century window lights. Good repair. Mullioned rear windows not in style of remainder of house	
18998.1.0	400603.8253	407805.2528	Historic Building	Green Bank House	Former mill owner's house in own grounds built for WD Hall of Diggle Bridge Mill in 1858. The two-storey, four-bay, double depth house is of hammer-dressed sandstone with outer two bays with transverse gables. It has a blue slate roof with stone copes on gables, and the roof is divided into four sections. Front elevation: Two gable ends with large stone surround bow window at ground level with large window divided into three sections by square stone mullion. Crenelated central section set back with two windows either side of proud door section doorway with semi-circular arch and stone voussoirs. Ends of building with two large windows on each floor either side of outside chimney breast, one of which has tall stone stack. Rear end bays have one first-floor window and two lower stair windows. Central section with arched tall window. Rear public road separated by high wall now with ornamental gate way. Stone garage in grounds and gate posts on main road on entry to drive.	Post-Medieval to Modern
19000.1.0	400714.2714	407931.1822	Historic Building	Kiln Green School	Formerly day school. Original non-denominational school built in 1785 with 10 ground floor mullion window. Later four roomed teacher's house attached. Built by public subscription 1870, and extended 1894 at the cost of W.D. Hall. Became a church school before closure in 1927 when it was transferred to the West Riding new school on Sam Road. Pointed front proud with 3 arched windows with rubbed stone arch with bevels & quoin surrounds, proud sills. Above pointed arch bevelled window with decorative stonework surround to both sides. Left wing front 2 tall windows with lintels & proud sills, to right doorway with decorative surround. Gable with 2 tall windows with decorative, chamfered lintels and proud sills. Right window with half height inserted modern door. Gable end ridge chimney. To right inserted 1960s door with steps retaining top half of window decorative stonework. New chancel added 5-sided triangular roof & windows to sides. Steps to cellar. Blue slate roof with stone copes with ogee supports to the front. 3 ridge ventilators. Chimney to rear. Original outside toilets removed 1960s. Playground walls mostly extant. Plaque Diggle School rebuilt by subscription AD 1870. Chiselled into quoin on extension 1894 W.D.H.	Post-Medieval to Modern
19001.1.0	400089.6394	407589.5056	Historic Building	The Gate Inn	The Gate Inn was established next to the Ward Lane crossroads on the new Standedge to Oldham turnpike in c.1801. The building is listed in the 1803 licensing records as the Gate Inn. The inn was rebuilt to a design by Alfred James Howcroft in 1926 by Gartsides Brewery.	Post-Medieval to Modern
19002.1.0	400456.0446	408033.0186	Historic Building	Diggle Primary School	The school was erected in 1927 by West Riding to replace a public subscription and later church school at Kilngreen. Original millstone grit building with central corridor with three classrooms to the south elevation and two smaller rooms either side of large hall to north. South elevation features a central bay gabled with copings and three windows with sandstone sills and lintels, windows repeated on other two bays, basement door with steps and three in-filled windows. The east elevation has a deeply recessed central doorway topped by 15 horizontal paned fan light, framed by ashlar pilasters. The north elevation has a large central middle bay with four large windows of which two are arched extending up into the two central false gables, ashlar coping stones, west bay has three-light mullion window and two square ones on the east bay. Roof blue slate. Alterations and extension to front elevation and to west elevation. Original setting surviving intact; gate posts, fan light, south west approach steps. Original wrought-iron fencing renewed.	Modern
19003.1.0	400829.9272	408036.8102	Historic Building	3 Diglea	The westernmost property of a row of three-storey, stone-built cottages dating to the late 18th century. The property comprises a double-bay, double-depth, three-storey house attached to listed building. Watershot squared millstone grit. The elevation to rear appears to be original whilst that to the south dates to the late 19th century. The roadside elevation features two windows each floor, with large double lintels and proud square sills. Modern windows. Gable, central ground floor door with quoins surround, first floor left of door and two two-light window and to right second floor mullion windows with king mullion opposite gable has one two-light window. Unusually, the north-facing rear is front. Ground floor covered by approach to house, only single window visible. All floors with quoins & door surround. First floor to left doorway. To right are seven square faced recessed mullion windows with lintel and sill. Second floor has ten windows of the same type. Gutters on ogee stone corbels. Roof graduated stone slate. Gable watertabled chimney adjoining No 5, central ridge chimney, rear front corner stack opposite gable.	Post-Medieval to Modern
19004.1.0	400823.8964	408045.8561	Historic Building	1 Diglea	House C18. Double depth, 2 bays. Ground floor right door with large lintel & quoin surround infilled with window top & stone below. Left modern window with lintel square faces lintel & jambs, left square surround for replaced 2-light modern window. First floor from right 2-light mullion window with square surround, possible infill, then 8-light square-faced mullion window. Corbels. Graduated stone slate roof with ridge stack to right. Roof & front wall indicate adjoining different build. Rear from right ground floor partial hidden, change in wall construction & 2-light square-faced mullion window with infilled doorway. First	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
					floor from right 4-light square surround mullion window tight against eaves, left 3-light mullion window with mid height 2-light mullion window. Change of wall structure for adjoining building	
19005.1.0	400893.7075	408031.7244	Historic Building	Bloomer Cottage	A weaver's cottage dating to the late 18th / early 19th century. A two-bay, single-depth cottage with additional later bay. Hammer-dressed watershot stone with graduated stone slate roof. Two-storeys with access door on far gable. Ground floor has two blocked doorways with square lintels and two-piece door jams with horizontal square cut mid height strengtheners. First-floor workshop has ten-recessed square flat-faced mullion windows. Far gable end has door and ground-floor windows. Single-storey rendered building to left gable. Single watertabled stack. A doorway and window inserted into the gable wall in the 20th century.	Post-Medieval to Modern
19032.1.0	399494.6241	405420.2406	Historic Building	2 Oldham Road	First depicted on OS mapping from the 1930s. A large, broadly L-shaped, brick-built villa occupying a prominent location on the southern approach to Uppermill. Located within terraced grounds on the south side of the railway close to the listed Railway Accommodation Underbridge MVL3/29. Imitation quoins in brick, large two-storey bay window, and a projecting gable facing Oldham Road with arched upper-storey window and decorative dog-tooth eaves, painted white to contrast with the red painted brickwork. Circular window with white keystone border on the first floor of the angled elevation between the projecting gable and transverse body of the house – this elevation also has the main front entrance at ground-floor level. Slate roofs throughout. Post-dates an earlier, large, red-brick semi-detached villa which is downslope and closer to Oldham Road but imitates its scale and massing.	Modern
19033.1.0	398244.6406	404027.7455	Historic Building	Canal Lock 18W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, double lower gate and mouth grooved for stop planks.	Post-Medieval to Modern
19034.1.0	398345.3772	404122.9911	Historic Building	Canal Lock 19W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, double lower gate and mouth grooved for stop planks.	Post-Medieval to Modern
19035.1.0	399413.8008	404944.9874	Historic Building	Canal Lock 20W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, double lower gate and mouth grooved for stop planks/	Post-Medieval to Modern
19036.1.0	399538.8273	405463.7807	Historic Building	Canal Lock 21W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, double lower gate and mouth grooved for stop planks.	Post-Medieval to Modern
19037.1.0	399659.3923	406641.4355	Historic Building	Canal Lock 24W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, double lower gate and mouth grooved for stop planks.	Post-Medieval to Modern
19038.1.0	399814.7201	406712.1624	Historic Building	Canal Lock 25W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, double lower gate and mouth grooved for stop planks.	Post-Medieval to Modern
19039.1.0	399903.5594	406770.4588	Historic Building	Canal Lock 26W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, single lower gate	Post-Medieval to Modern
19040.1.0	400023.4443	406870.7981	Historic Building	Canal Lock 27W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, single lower gate	Post-Medieval to Modern
19041.1.0	400105.2599	406976.8896	Historic Building	Canal Lock 28 on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Hammer-dressed stone with tooled markings. Single upper gate, single lower gate.	Post-Medieval to Modern
19042.1.0	400178.1679	407095.0267	Historic Building	Canal Lock 29W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Located immediately north of the Grade II Listed Huddersfield Narrow Canal No.69 Bridge (HER 5501.1.0). Hammer-dressed stone with tooled markings. Single upper gate, single lower gate.	Post-Medieval to Modern
19043.1.0	400226.2697	407231.441	Historic Building	Canal Lock 30W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Close to the site of the former Dobcross Loom Works (HER 6244.1.0). Hammer-dressed stone with tooled markings. Single upper gate, single lower gate	Post-Medieval to Modern
19044.1.0	400340.7103	407686.2865	Historic Building	Canal Lock 32W on Huddersfield Narrow Canal	Built between 1794 and 1799. Benjamin Outram engineer. Located on the eastern edge of Diggle Fields Park. Hammer-dressed stone with tooled markings. Single upper gate, single lower gate.	Post-Medieval to Modern
19046.1.0	399608.7739	405603.6573	Historic Building	Sacred Heart & St William Catholic Church	A prominent church on the High Street that was built in 1873 and owned originally by the Ebenezer Congregation. In 1966, the Diocese of Leeds purchased the church building from the Ebenezer Congregation, which relocated to new premises across the road.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
19048.1.0	399701.3985	405674.3759	Historic Building	Saddleworth Boutique	Two-storey (plus attic) commercial; property of a rectangular plan and gabled roof. The western gable overlooks High Street and contains the main entrance. The ground floor of the gable elevation has a modern shop front window, with four sash windows illuminating the first floor and a single bulls-eye window affording light to the attic, with the '1914' datestone above.	Modern
19055.1.0	399842.5677	406103.6212	Historic Building	Uppermill School	Uppermill's Council School was opened by the West Riding County Council (WRCC) in 1911. In 1961 it was incorporated into a large, modern School for secondary education, however, the school closed in February 2022 and much of the site was demolished shortly after. The historic building at the centre of the site is the only structure that remains on the site.	Modern
19058.1.0	398344.7218	404249.203	Historic Building	Friezland School	The school was opened in 1915. It is only one of three surviving Edwardian schools in Saddleworth. The building was constructed by the West Riding County Council in the very early 20th century. It was one of only four WRCC schools built to these designs along with those in Diggle, Uppermill and Greenfield.	Modern
19059.1.0	398309.5775	404478.3788	Historic Building	Westfield	A large, stone-built property identified as 'Westfield' on the Ordnance Survey 1st Edition map of 1894. Grand, stone-built, detached house, with separate L-shaped stone structure (probable converted barn with attached living quarters, No.39A) located to the west on the road frontage. Numerous small extensions to both house and barn, with all structures in use as domestic dwellings. Imposing structure, originally just one of a small number of grand residences along Mossley Road, which is now much infilled with numerous types of other houses. Westfield occupies a position overlooking a distinct bluff and hillslope down to the railway (L. & N.W.R. Oldham Branch).	Post-Medieval to Modern
19060.1.0	398445.5101	404545.0096	Historic Building	10-12 Mossley Road	First shown on the Ordnance Survey 1st Edition map of 1894. (1) A three-storey (plus basement), double-fronted, stone-built detached house. Symmetry across three bays, all windows within stone borders. Central entrance at ground floor surrounded by decorative stone quoin-esque border with trapezoidal lintel, approached via front steps and ‘bridge’ over basement lightwell. Short chimney stacks over the apexes of the east and west facing gables.	Post-Medieval to Modern
19061.1.0	398562.6729	404577.9737	Historic Building	58 Oldham Road	First shown on the Ordnance Survey 1st Edition map of 1894. (1) Proportions and mullioned windows indicative of the building likely having origins in the 18th century. A small, stone-built cottage of probable 18th-century date. Main entrance on the right-hand side of the front elevation with stone step, jambs and lintel. Three rectangular windows and a small square window share a stone casement, with matching cills, lintels and mullions at ground level. Four windows at first floor level have a similar construction. Single chimney stack over the western gable apex. Two-thirds of a triple window on the eastern gable have been blocked up. Access lane between the house and the adjacent pub is cobbled, with dressed stone blocks forming two smoother surfaces to ease passage of historic and modern vehicles. Shares characteristics with the adjacent Farrars Arms and its attached domestic forms, suggesting a shared construction date.	Post-Medieval to Modern
19062.1.0	398581.6964	404580.1842	Historic Building	The Farrars Arms public house	Pub website states established 1702. The building is referred to as Shaw Hall in the Saddleworth Church Register for 1762, which records Radcliffe Whitehead as the innkeeper. The Farrars were the lords of the manor and the Whiteheads were their agents, responsible for collecting rents from the tenants. Ralph Whitehead took over the pub in 1788 and, in July 1796, the inn was the venue for a meeting of the trustees of the Standedge to Mumps Brook Turnpike. The tenancy of the Farrars Arms was advertised in the Manchester Guardian on 3 March 1832, which stated that there was a brewhouse, barn, stables and other outbuildings, together with approximately 20 acres of land. The pub was said to adjoin the turnpike road approximately halfway between Manchester and Huddersfield. A two- and three-storey stone-built property dating to the early 18th century. All windows with stone sills, lintels and mullions (painted black) – single, double, triple and quad forms, in various square and rectangular shapes. Dominates the street-scene along this section of Oldham Road and shares characteristics with other built forms, including Nos.52 and 54 (to which the pub is attached), the adjacent 58 Oldham Road, and the cobbled street separating the two structures.	Post-Medieval to Modern
19069.1.0	400651.5948	407816.4424	Historic Building	Green Bank Cottage	Row of two cottages built in the mid-19th century to house laundry girls. Single depth, 2 storey, 3 bay cottages (with late 20thcentury extension at eastern end) converted to one. Hammer dressed sandstone. Roof: graduated stone with stone corbels, 1 gable stone stack and 1 removed. Front elevation: original 2 central doorways, one filled in and one with porch covering. Each house with 2 windows on each floor. Rear 2 first floor windows and one with guard at ground level. Separated from Lane at rear by wall, in same grounds as Green Bank House. The original Laundry converted to a house in the late 20th century.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
2175.1.0	397139	402381	Historic Building	Mossley Police Station (former)	Still a working police station. Mid-C19. Very similar to Droylsden Station. Stone built.	Post-Medieval to Modern
2179.1.0	396080	398639	Historic Building	Palace Cinema (former)	Originally known as the Empire Picture Palace, this cinema was opened in 1913.	Modern
2180.1.0	397388	402620	Historic Building	Spring Cottages, Mossley	Built between 1822 and 1851. The 5 rows of terraces known as Spring Cottages were erected on land attached to Carr Hill Mill.	Post-Medieval to Modern
2184.1.0	396199	398649	Historic Building	Stalybridge Fire Station (former)	Of the purpose-built [fire] stations in Tameside which still survive, one of the earliest is the building at Stalybridge, on the corner of Waterloo Road and King Street. This building was begun in 1903 and opened in 1905.	Post-Medieval to Modern
2196.1.0	396236	398553	Historic Building	71 Market Street, Stalybridge (shop)	Where shop fronts were distinguished from domestic houses this was normally by a larger ground-floor window, perhaps displaying some of the goods on sale as with this building.	Post-Medieval to Modern
2197.1.0	396258	398575	Historic Building	78â“84 Market Street, Stalybridge	Nos.78–84 Market Street were built in 1895 and are a group of four shop units contained within a single building.	Post-Medieval to Modern
3301.1.0	398062	403255	Historic Building	Bank Mill	Marked as a cotton mill on maps. Very little remains. The sole surviving building is a mid-C19 stone-built weaving shed, and two walls from the former spinning mill to the north side.	Post-Medieval to Modern
3305.1.0	397549	402050	Historic Building	Queen Street Mills (former)	Marked on maps as a cotton mill. Very heavily modified site. Two spinning mills of uncertain date. Built by John and George Mayall, to 5 storeys and attic and of 20 bays.	Post-Medieval to Modern
3306.1.0	397439	402050	Historic Building	Longlands Mill	Marked on map as a cotton mill and on map as a cotton waste mill. The mill is of 3 storeys and 9x3 bays, stone built. Built in 1871 as a steam-powered cotton spinning mill. Built by the firm of John Mayall, it closed down in 1931.	Post-Medieval to Modern
3307.1.0	397369	402139	Historic Building	Britannia Mill (Britannia Old Mill)	Marked on maps as a cotton mill. The main building is mid-C19, of 2 storeys (plus basement) and 14x2 bays. Stone built. Britannia Mills remained for thirty-four years (1857–91) the largest cotton spinning firm in the world, operating 440,000 spindles at its peak in 1893–96	Post-Medieval to Modern
3307.2.0	397478.7276	402116.7221	Historic Building	Britannia New Mill	The 1955 Ordnance Survey map (1) depicts Britannia Mill as being still in use as a cotton mill, but the adjoining structures had been demolished and a large single-storey north-light shed labelled 'Britannia New Mill (Cotton & Fabric)' erected on the land to the east in the mid-20th century; the mill is absent from the OS 1:2500 revision map of 1938 but is shown on the next revision of 1955.	Modern
3338.1.0	397260	400959	Historic Building	Weir Mill	Marked on maps (1,2) as a cotton mill. Mid-C19 spinning mill site. Spinning mill No.1: 4 storeys (including basement), stone built.	Post-Medieval to Modern
3382.1.0	396610	398679	Historic Building	Stokes Cotton Waste Mill	Marked on the maps as a cotton waste mill (1)(2). There are two main buildings. No.1: early C19, stone built. 2 storeys and 9x2 bays. Gable roof, partly replaced with asbestos.	Post-Medieval to Modern
3476.1.0	396750	398900	Historic Building	North End Mill (Higher Mill)	Marked on maps (1,2) as a cotton mill and on (3) as a paper mill. The main building is brick built, of 3 storeys and 16x3 bays.	Post-Medieval to Modern
5800.1.0	396867	398951	Historic Building	Riverside Mills (former)	Mentioned in (1) as a weaving mill from 1883 until 1889, again from c.1930s until c.1962, and as a cotton spinning mill from 1889 until the 1930s.	Post-Medieval to Modern
6045.1.0	397969	403730	Historic Building	Wright Mill	Marked on maps (1,2) as a woollen mill. Now only the mill building itself survives. It is early C19 and stone built. 2 storeys and 4x2 bays.	Post-Medieval to Modern
6046.1.0	398330	403997	Historic Building	Royal George Mills (former)	Mill No.1: mid- to late C19, stone built with timber internal structure. 4 storeys and 12x4 bays.	Post-Medieval to Modern
6094.1.0	400413	407837	Historic Building	Warth Mill (or Wharf Mill)	Marked on the map as a cotton mill (1). Former woollen mill belonging to the Co-operative Wholesale Society, taken over by Tanner Bros. 1931, for cotton weaving. [Built 1919.] Ceased production in 1971	Post-Medieval to Modern
6097.1.0	399564	406638	Historic Building	Stone Bottom Mill	Marked on map (1) as a woollen mill and as a flannel mill on map (2)	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
6098.1.0	399732	405955	Historic Building	Buckley (New) Mill	Marked on maps (1,2) as a woollen mill. The spinning mill building is late C19 and stone built. Lowered to 3 storeys and 7x3 bays wide.	Post-Medieval to Modern
6105.1.0	399409	404689	Historic Building	Wellington Mills	Marked on map (1) as a cotton mill. Original mill built in 1853, larger mill erected in 1861 and extended in 1926, closed down in 1932.	Post-Medieval to Modern
6107.1.0	399591.0144	405580.4942	Historic Building	Victoria Mill	Marked on map (1) as a woollen mill. Cotton mill built around 1861 by John Edward Platt.	Post-Medieval to Modern
6108.1.0	399655.1978	405513.1643	Historic Building	Alexandra Mill	Marked on maps (1,2) as a woollen mill. Built 1868 by Robert Stott and later sold.	Post-Medieval to Modern
6109.1.0	399729	405603	Historic Building	Spring Mill	Marked on maps (1,2) as a woollen mill. The spinning mill is mid-C19 and stone built with timber internal structure.	Post-Medieval to Modern
6342.1.0	397320	401199	Historic Building	Scout Mill (New Scout Mill)	Mentioned as a fulling mill c.1777, and as a cotton spinning mill from pre-1793 until 1935	Post-Medieval to Modern
751.2.0	397221	399751	Historic Building	Heyrod Hall	Site Type: A1. 2 hectares. House and grounds to the east of Wakefield Road. Reservoirs and the river Tame lie to the east, and open fields bound the site to the north. Heyrod Cottage and Hartshead Road lie to the south. The site is cut through on the western side by the London & North Western Railway. The drive leading from Wakefield Road over the bridge within the grounds gives access to the house. Productive garden and pleasure ground with walks and boundary belt. Extant. (1,2) The present hall is an undistinguished mid-19th-century building. It is a two-storey stone house, part of which is left empty, part still inhabited	Post-Medieval to Modern
9179.1.0	396766	399437	Historic Building	Woodfield (House and grounds)	1 hectare. House with grounds to the west of Wakefield Road, open fields on all other boundaries. Drive to the north-east of the site, productive garden beyond. Separate path system from Wakefield Road through pleasure ground dotted with trees.	Post-Medieval to Modern
3337.1.0	397569	399920	BLD	Spring Grove Mill	Marked on the map as a woollen mill. This site dates originally from around 1818. It was originally a water-powered, later steam-powered and finally electricity-powered cotton spinning and later woollen manufacturing mill. [It was the] last water-powered mill built in Stalybridge. Built by John Howard, a woollen manufacturer, but used at first for cotton spinning.	Post Medieval
644.1.0	397710	402060	BLD	Micklehurst Station (former)	The Diggle loop line on the east side of the valley, opened 1885, now closed, surviving building in station road of Middlehurst Station, closed to passengers 1907, goods 1962.This station was one of three along the now disused railway line from Stalybridge station to Upper Mill. The other stations were at Friezland and Millbrook. The line stayed open to through trains until September 1964 as it continued to serve Heyrod Power station	Post Medieval
13764.1.0	397789	402117	BLD	All Saints Church, Mossley (former)	A prominent landmark building within the Tame Valley. It is of mid-Victorian date, not a grand church, but it has a pleasant, rusticated charm in keeping with the townscape of Mossley. The tower, small architectural details such as the finials, and the roofing slates make the church an attractive local landmark	Post Medieval
17888.1.0	397690	401982	BLD	The New Bridge Inn	Detached three-storey stone-built property with arched windows with keystones to the third floor. Originally a beer house established c.1860.	Post Medieval
17902.1.0	397146	402687	BLD	51-51a Stockport Road	Former grain store and shop of two storeys plus attic. The building has been converted into two private dwellings. .	Post Medieval
17904.1.0	397302	402811	BLD	Westholme	Two-storey detached house built in stone with a slate roof. Built c.1860s.	Post Medieval
19049.1.0	399694	405707	BLD	NatWest Bank Building (former)	An impressive stone-built bank dating to the late 19th century and identified on the Ordnance Survey 1st Edition 1:2500 map of 1893	Post Medieval
19050.1.0	399737	405745	BLD	Globe Chambers	First identified on the Ordnance Survey 1st Edition 1:2500 map of 1893. Labelled as a public house on mapping from the early to mid-20th century. Today in use as a Business Centre, split between numerous businesses.	Post Medieval
19053.1.0	399784	405819	BLD	Uppermill Methodist Church	Methodist chapel, erected in 1912-13 as a replacement for an earlier chapel. A deed dated August 19th 1811 confirms that the original chapel on the site was built by public conscription. The chapel was described a ‘Churchwarden’s Gothic’ and ‘Ionic’; a simple, compact building. The church remains a place of worship and centre for numerous activities within the village.	Post Medieval

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19054.1.0	399782	405847	BLD	Commercial Hotel	A detached, two-storey, stone-built public house displaying Georgian architecture. Built in c.1820 for a banker named James Buckley.	Post Medieval
479.1.0	397299	401299	Find Spot	Stone hammer (antiquarian find)	Dark grey stone hammer from Tame Valley, exhibited 1877.	Late Neo/Early BA
5903.1.0	399700	405599	Find Spot	Stone hammer (antiquarian find)	Small, dark grey stone hammer found by Mr Shaw in gravel alongside the river Tame near Uppermill Station. Exhibited in 1868. Neolithic - Bronze Age	Late Neolithic to Late Bronze Age
9003.1.0	399598	405251	Find Spot	Station Brow, Diggle (stone heads)	Two heads, one male, one female. Found behind wall at Churchill Playing Fields by Michael Openshaw & Paul Siddall (County School, Diggle), 31/01/86.	Medieval
9003.1.1	399151	404636	Find Spot	Station Brow (stone heads)	Two heads on corner house above doorway. Victorian, one male, one apparently female, wearing a ?hat. Rather weathered; near Churchill Playing Fields	Post-Medieval
9017.1.0	399629	405421	Find Spot	146 Carr Lane (stone head)	Two heads in house wall at 146 Carr Lane, over river bridge from High Street. Two heads (now missing) built into inside wall facing house (unusually), covered by thicket (usually head(s) face away from house). Possibly moved from elsewhere. House has haunting tradition. Heads missing by 1990. NB – there is no No.146 on Carr Lane – the first house over the bridge is No.136. The mapped location was in any case c.760m to the south-west of the bridge (at NGR SD 99 05). The GIS point has been moved to a position close to No.136 Carr Lane	Iron Age
1096.1.0	399750	406499	Monument	Barrow on Brown Hill (site of)	Possible barrow or flat cemetery was dug by quarrymen in May 1844 and its contents for the most part destroyed.	Bronze Age
11138.1.0	397335	401895	Monument	Tumbling Bank Mill (site of)	Located in the vicinity of Abney Congregational Church overlooking Manchester Road. Mill extant by 1793. No usage detailed until 1816 when John Buckley, cotton spinner, was listed at Tumbling Bank. No details exist for the mill, which was presumably water-powered at first until a steam-engine was installed in 1819	Post-Medieval
11140.1.0	396338	398505	Monument	Congregational Chapel (site of)	Formed part of the RCHME survey. Decorated Gothic with large gabled front divided by buttresses and twin-arched outer porch with date of 1861. By Poulton and Woodman. Replaced 1835 chapel.	Post-Medieval to Modern
11142.1.0	397486	401939	Monument	Paper Mill (site of)	Small water-powered mill stood near the later River Mill between the [river] Tame and Smith Hill. Extant by 1793, owned by Samuel Seel, a farmer and fulling miller, in 1810 and partly occupied by Thomas Dyson until c.1818. Owned by John Buckley in 1838 who leased the mill in 1839 to John Neild for 21 years when steam replaced water as the power source. Known as Paper Mill from 1839. Described as a cotton mill in 1863. Taken over by Robert Wilkinson in 1866 and by Samuel Dyson in 1872. Demolished prior to the construction of River Mill in 1889.	Post-Medieval
11225.1.0	396235	398494	Monument	Tame Foundry (site of)	The foundry site lies at the eastern end of the Castle Street Mill.	Post-Medieval to Modern
13851.1.0	399537	406556	Monument	Woolroad Canal Warehouse (site of)	Site of canal warehouse, shown on the OS maps from the 1854 1st edition 6".	Post-Medieval to Modern
16625.1.0	399503	406261	Monument	Mytholm Mill (site of)	Mytholm Mill was established as a fulling mill c.1780, when it was occupied by James Byrom. It was a woollen mill until about 1840, then a timber works until the 1880s. The outline of the mill dam, the mill race and the waterwheel pit are visible	Post-Medieval
174.1.0	399178	404691	Monument	Greenfield Station	At junction of LNWR [London North Western Railway] main line to Huddersfield with line from Oldham. Modernised, no buildings, wooden signal box at west, single-arch skewed stone bridge at east.	Post-Medieval to Modern
17442.1.0	397712	403497	Monument	Midge Hall (site of)	A small building identified as Midge Hall on the Ordnance Survey 1st edition 6":1 mile map of 1854. The same building footprint is shown on OS mapping for much of the 20th century, although it appears to have been cleared during the late 1970s/ early 1980s	Post-Medieval to Modern
17817.1.0	396806	398764	Monument	Huddersfield Narrow Canal: Knowl Canal Bridge	Stone-arched pedestrian bridge across canal, built c.1794 for Huddersfield Canal Company. Hammer-dressed stone. Elliptical arch and curved parapet walls which have round-topped coping stones and a stone band. Pathway across bridge laid in setts.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
17818.1.0	397087	399038	Monument	Huddersfield Narrow Canal: boundary stone	Small boundary stone at side of towpath. Erected some time before 1882, when it is shown on OS mapping (an earlier map indicates a boundary post at this location). Approximately 30cm high. Letter ‘S’ inscribed on one side. Erected to mark a Parliamentary boundary	Post-Medieval to Modern
17819.1.0	397453	399798	Monument	Huddersfield Narrow Canal Lock No.8w	Canal lock originally built c.1794 for the Huddersfield Canal Company. Partly rebuilt by railway company in 1897. Infilled and buried during a period of canal closure. Excavated by HCS Restoration in 1996. The condition of the lock chamber was such that rebuilding was required. The sides were constructed with L-shaped pre-cast concrete sections 1m wide x 3m high, faced with engineering bricks to match the 1897 rebuild.	Post-Medieval to Modern
17820.1.0	397504	399930	Monument	Swing bridge (remains of)	Constructed c.1794, a swing bridge at Spring Grove providing access across the Huddersfield Narrow Canal between Heyrod and Grove Road, Millbrook. When the canal was closed the bridge was removed and a roadway was laid across the infilled canal channel. When this section of canal was being restored c.1996 a new box culvert bridge was built alongside. The base area of the former swing bridge was excavated and preserved. Visible remains include a stone-walled concave recess in which the bridge swung, iron central turntable pivot, and curved iron tracking.	Post-Medieval to Modern
17821.1.0	397508	400379	Monument	Huddersfield Narrow Canal Lock No.9w	Narrow canal lock built c.1794 with chamber approximately 72' long and 7' 3" wide. Difference in canal levels around 10' (3m). Stone construction with lock chamber walls in brick. Single gate at lock head; double gates at lock tail. Metal footbridge added at lock tail. Safety railings added to quadrants. Lock quadrant wall is curved on towpath side and squared on offside. Recess cut into chamber wall for lock ladder. Grooves for stop planks upstream of top gate. 'Pepper-pot' air vents above ground paddle sluices at upper end of lock. Below downstream lock gates, stone boatman’s steps lead down towards water on offside. Bywash overflow channel runs parallel on offside.	Post-Medieval to Modern
17822.1.0	397478	400497	Monument	Huddersfield Narrow Canal Lock No.11w	Narrow canal lock built c.1794 for Huddersfield Canal Company. Narrow canal lock with chamber approximately 72' long and 7' 3" wide. Difference in canal levels around 10' (3m). Stone construction with stone capping. Single gate at lock head; double gates at lock tail. Metal footbridge added at lock tail. Safety railings added to quadrants. Lock quadrant wall is curved on both towpath side and offside. Recess cut into chamber wall for lock ladder. Grooves for stop planks upstream of top gate. 'Pepper-pot' air vents above ground paddle sluices at upper end of lock. Below downstream lock gates, stone boatman’s steps lead down towards the water on both sides. Bywash overflow channel runs parallel on offside.	Post-Medieval to Modern
17823.1.0	397556	401272	Monument	Huddersfield Narrow Canal Lock No.12w	Narrow canal lock built c.1794 for Huddersfield Canal Company with some later reconstruction. Narrow canal lock with chamber approximately 72' long and 7' 3" wide. Difference in canal levels around 10' (3m). Brick construction with stone capping. Single gate at lock head; double gates at lock tail. Wooden footbridge added at lock tail. Recess cut into chamber wall for lock ladder. Grooves for stop planks upstream of top gate. Lock quadrant wall is curved on both towpath side and offside. 'Pepper-pot' air vents above ground paddle sluices at upper end of lock. Flow gauge on offside to measure lock usage. Below downstream lock gates, stone boatman’s steps lead down towards the water on offside. Bywash overflow channel runs parallel on offside	Post-Medieval to Modern
17910.1.0	397705	403733	Monument	County boundary stone (former)	One of several boundary stones that marked the boundary between Lancashire and Yorkshire. Erected in 1885 by the newly formed Mossley Borough Council. Top face says: 'Boundary'. Left face originally said: 'County of Lancashire Salford Hundred Borough of Mossley'. Right face originally said: 'County of Yorkshire West Riding'. As part of a Second World War initiative to confound prospective invaders, the words 'Lancashire', 'Salford', 'Mossley', 'Yorkshire' and 'West Riding' were chiselled off. All the boundary stones erected by Mossley Borough Council in 1885 have been similarly defaced.	Post-Medieval to Modern
17919.1.0	397991	403097	Monument	Huddersfield Narrow Canal Lock No.15w (Roaches Lock)	Narrow canal lock built c.1794 for Huddersfield Canal Company. Known as 'Roaches Lock'. Narrow canal lock with chamber approximately 72' long and 7' 3" wide. Difference in canal levels around 10' (3m). Stone construction with lock chamber walls in brick. Small brickwork patch in towpath-side quadrant. Single gate at lock head; double gates at lock tail. Wooden footbridge added at lock tail. Recess cut into chamber wall for lock ladder. Grooves for stop planks upstream of top gate. Lock quadrant wall is curved on both towpath side and offside. Safety railings added to quadrants as footpath crosses the lock via the footbridge. 'Pepper-pot' air vents above ground paddle sluices at upper end of lock. Below downstream lock gates, stone boatman’s steps lead down towards the water on offside. Bywash overflow channel runs parallel on offside.	Post-Medieval to Modern
17924.1.0	398116	403567	Monument	Huddersfield Narrow Canal Lock No.17w	Narrow canal lock built c.1794 for Huddersfield Canal Company. Narrow canal lock with chamber approximately 72' long and 7' 3" wide. Difference in canal levels around 10' (3m). Stone construction but one lock chamber wall rebuilt in brick. Single gate at lock head; double gates at lock tail. Wooden footbridge added at lock tail. Recess cut into chamber wall for lock ladder. Grooves for stop planks upstream of top gate. Lock quadrant wall is curved on towpath side, square on offside.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
					'Pepper-pot' air vents above ground paddle sluices at upper end of lock. Below downstream lock gates, stone boatman's steps lead down towards the water on both sides, which would have enabled the boatman to get on or off the boat. Bywash overflow channel runs parallel on offside	
18952.1.0	397423.1424	403544.4938	Monument	Quick Quarry	A sandstone quarry marked on the Ordnance Survey 1st edition 1:10,560 map of 1854, with the same extent and detail shown on the 1st edition 1:2500 map of 1894 (1), although it is annotated as 'Quick Quarry'. It is marked 'Disused' on the 1:2500 map of 1955 (2). The quarry survives as a distinct feature of the local landscape.	Post-Medieval to Modern
18990.1.0	400954.5394	407867.7685	Monument	Diggle Mill Weir	A curved weir of stone block construction across the Diggle Brook. Formed part of the water-management system for Diggle Mill, rasping mill and corn mill.	Post-Medieval to Modern
18999.1.0	400700.8699	407880.1227	Monument	Diggle Bridge	Bridge over Diggle Brook. Parapet topped with large squared stones with keyed arch. From medieval times the route from Standedge to Saddleworth Church and Mottram in Longdendale would have crossed here. At Quarter Sessions 1774 the bridge was declared very narrow, ruinous and in decay. Saddleworth awarded £39 towards rebuilding.	Post-Medieval to Modern
19019.1.0	397532.4286	403697.5263	Monument	County boundary stone (former)	Prism-shaped stone: flat-backed with two sloping sides and triangular forward-sloping top. Set against a stone wall occupying a back-of-pavement location. One of several boundary stones that marked the boundary between Lancashire and Yorkshire. Erected in 1885 by the newly formed Mossley Borough Council. Top face says: 'Boundary'. Left face originally said: 'County of Yorkshire West Riding'. Right face originally said: 'County of Lancashire Salford Hundred Borough of Mossley'. As part of a Second World War initiative to confound prospective invaders, the words 'Lancashire', 'Salford', 'Mossley', 'Yorkshire' and 'West Riding' were chiselled off. All the boundary stones erected by Mossley Borough Council in 1885 have been similarly defaced. Located against the stone wall on the eastern side of Quick Road between Ash Lea and Quick House.	Post-Medieval to Modern
19045.1.0	399601.4897	405558.9624	Monument	K6 telephone kiosk	The K6 telephone kiosk, introduced in 1935 to celebrate the jubilee of King George V, designed by Sir Giles Gilbert Scott (1880–1960), is one of Britain's most recognisable pieces of industrial design and street furniture. Around 60,000 were installed between 1936 and 1968, so these are a familiar sight across the country. A fine example of a K6 telephone kiosk. Cast iron, painted red. Square kiosk with domed roof. Unperforated crowns to top panels and margin glazing to windows and door.	Post-Medieval to Modern
205.1.0	400677	407940	Monument	Kiln Green Aqueduct (Huddersfield Canal)	The Huddersfield Canal was diverted 1846-49 in connection with construction of a railway tunnel. On the old line a small section and remains of an aqueduct are visible opposite the school at Kiln Green.	Post-Medieval to Modern
237.1.0	400800	408119	Monument	Standedge Canal Tunnel	On the summit level of the Huddersfield Canal, the highest stretch of navigable water in the country. It is the longest canal tunnel in Britain. Originally 5,456 yds, but extended with the construction of platform for railway tunnels in 1893–94 to 5,698 yd. Opened April 1811, closed 1944. Maintained to drain railway tunnel – still navigable.	Post-Medieval to Modern
238.1.0	400769	408149	Monument	Standedge railway tunnels	Entrances immediately north of Diggle Station, closed 1963, on LNWR [London North Western Railway] Manchester–Huddersfield line. Longest railway tunnel in Britain, 3 miles 66 yd (4.89 km) until opening of Severn tunnel in 1886	Post-Medieval to Modern
3302.1.0	398120	403299	Monument	Union Mill (site of)	Marked on maps as a cotton mill. Late C19/early C20 spinning mill of 3 storeys and 4x3 bays. Brick built. Multi-ridge hipped slate roof.	Post-Medieval to Modern
3304.1.0	397479	401899	Monument	River Mill (South End No.3 Mill) (site of)	Mid-C19 stone-built spinning mill of 4 storeys (plus basement). Steam-powered cotton spinning mill that dates from around the mid-C19. Built by the firm of John Mayall in 1848. Rebuilt in 1889 and closed in 1931.	Post-Medieval to Modern
3308.1.0	397549	402149	Monument	Victoria Mills (site of)	Marked on both maps as a cotton mill.	Post-Medieval to Modern
3309.1.0	397509	402410	Monument	Mossley Brow Mill (Border Mill) (site of)	Marked on map (1) as a vacant site and on map (2) as a cotton mill. Originally built in 1873/74 by the Mossley Spinning Co. Ltd, and later taken over by the Border Spinning Co. It was taken over by the Mossley Wool & Spinning Co Ltd in 1933, along with Milton Mills.	Post-Medieval to Modern
3310.1.0	397609	402480	Monument	Milton Mills (site of)	Marked as a cotton mill (1). The spinning mill is late C19/early C20, of 5 storeys, 36x5 bays and a flat roof. Brick built. Built by the Milton Spinning Co Ltd on the site of the demolished Cheshire Side Mill in 1892.	Post-Medieval to Modern
3311.1.0	397612	402600	Monument	Carrhill Mill (Creswell Mill) (site of)	Marked on maps (1,2) as a cotton mill. Spinning mill is of 4 storeys (plus basement), of 10x4 bays. Brick built, late C19.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
3377.1.0	397080	399300	Monument	River Meadow Mills (site of)	Marked on maps as a cotton mill (1,2,3). 1851 keystone to the mill. 4 storeys and 15x4 bays. Stone built, with a flat roof.	Post-Medieval to Modern
3377.3.0	396971	399297	Monument	Acres Bank (site of)	House with grounds in association with the River Meadow Mills [HER 3377.1.0]. Bounded by mills to the east, the river Tame to the south and open fields to the north.	Post-Medieval to Modern
5387.1.0	397883	402977	Monument	Roughtown Mill (site of)	The oldest known water-powered site in Mossley, dating to 1764 when a fulling mill was erected in Roughtown by John Andrew. A second fulling mill was added in 1769 and the scribbling process was added c.1781. A cotton mill was built in 1805 connected to the earliest mill. Powered by two waterwheels in 1815.	Post-Medieval to Modern
5792.1.0	396090	398679	Monument	Garside's Mill (site of)	Mentioned as a cotton spinning mill, in use c.1798 until 1826.	Post-Medieval
5793.1.0	396140	398549	Monument	Water Street Mill (site of)	Mentioned as a cotton spinning mill, in use from 1797 until c.1870s.	Post-Medieval
5794.1.0	396140	398630	Monument	Bayley's Mill/ Hope Mill (site of)	Mentioned as a cotton spinning mill, in use from c.1800 until 1857. The site is now occupied by a Job Centre.	Post-Medieval to Modern
5795.1.0	396147	398688	Monument	Queen Street Mill (site of)	Mentioned as a cotton spinning mill, in use from 1803 until 1881. Site now a car park, mill demolished.	Post-Medieval to Modern
5797.1.0	396199	398539	Monument	Adshead's Mill (site of)	Mentioned as a cotton spinning mill, in use from c.1795 until 1818.	Post-Medieval
5798.1.0	396239	398649	Monument	King Street Mill (site of)	Mentioned as a cotton spinning mill, in use from c.1800 until the 1870s. Now demolished (TAS 99).	Post-Medieval
5802.1.0	397239	399595	Monument	Heyrod Mill/ Hartshead Print Works (site of)	Mentioned as a cotton spinning mill, in use from c.1786 until 1848, and converted to a print works from 1848 until	Post-Medieval to Modern
5805.1.0	397077	402455	Monument	Albion Mill, Mossley (site of)	Mentioned as a cotton spinning mill 1837–1938	Post-Medieval to Modern
5807.1.0	397549	401789	Monument	South End Mills (site of)	Mentioned as a cotton spinning mill from 1859–62 until 1930. Built by John Mayall in 1860. Stone built, 5 storeys.	Post-Medieval to Modern
5808.1.0	397504	402020	Monument	Bottoms Old Mill (site of)	Mentioned as a fulling mill c.1777 to c.1807 and as a cotton spinning mill c.1807–1931.	Post-Medieval to Modern
5809.1.0	398099	403480	Monument	Spring Mill (Una Mill) (site of)	Mentioned as a cotton spinning mill from 1861/2 until 1929.	Post-Medieval to Modern
6095.1.0	400815	408390	Monument	Harrop Court Mill (site of)	Marked on map as a woollen mill. Woollen scribbling mill built c.1800 and used for cotton spinning by John Hall & Co. 1861–75. Reverted to woollen manufacture until its closure in 1981	Post-Medieval to Modern
6244.1.0	400149	407244	Monument	Dobcross Loom Works (site of)	Famous textile machinery works started by Hutchinson & Hollingworth in 1861, making Dobcross woollen and worsted power looms with chain-operated mechanism for changing shuttles in weaving patterned cloths.	Post-Medieval to Modern
6335.1.0	398094	403219	Monument	Platt's Mill (site of)	Mentioned as a wool mill from c.1796 until 1829.	Post-Medieval
6337.1.0	397879	402920	Monument	Andrew Mill (site of)	Was a fulling mill from 1765 until 1871, and a cotton spinning mill from 1805 until 1960.	Post-Medieval to Modern
6339.1.0	397400	400590	Monument	Black Rock Mill (site of)	Mentioned as a wool mill from c.1781 until 1810, and as a cotton spinning mill from c.1810 until 1876.	Post-Medieval
6341.1.0	397899	402750	Monument	Stamford Mill (site of)	Mentioned as a cotton spinning mill from 1860–61 until 1960.	Post-Medieval to Modern
6343.1.0	397219	402521	Monument	Westhill Mill (former electricity substation) (site of)	Mentioned as a cotton spinning mill 1900–31. However, on the maps of 1910 & 1929 the building is described as an electricity substation.	Modern
6345.1.0	397499	401670	Monument	Albert Mill (site of)	Mentioned as a cotton spinning mill from 1860–61 until c.1960.	Post-Medieval to Modern

HER PrefRef	Easting	Northing	Type	Name	Description	Period
751.1.0	397192	399747	Monument	Heyrod Old Hall (site of)	Heyrod Hall was built close to the river Tame, north-east of Stalybridge. In the early 15th century the estate of Heyrod belonged to John del Heyrod, and there may have been a hall here at this time. Judging from a datestone of 1638, the old hall was built, or rebuilt, in the early 17th century. This hall was demolished in 1843, at the time of the construction of the railway which runs nearby.	Post Medieval
757.1.0	396560	398560	Monument	Staly Bridge	The bridge which gives its name to Stayley appears to have existed from an early date: it was in decay in 1621. It was repaired and existed till 1707 when a new one was erected.	Post-Medieval to Modern
3315.1.0	397800	401850	MON	Brunswick Mill (Victoria & Albert Mill) (site of)	Marked as a cotton mill. Late C19/ early C20. One of the larger Mossley Mills. Built by John Schofield and described as incomplete in a deed of 1853. Schofield died in 1859, but the mill continued in the family until 1875 when it passed to Edward & John Clementson. Burnt down in 1880. Brunswick Cotton Co formed in 1882 to rebuild the mill. Taken over again in 1933.The original mill was known as Ponge Mill, known to be in existence in 1793 but probably extant 8 years previously. Possibly a woollen mill.	Post Medieval
5791.1.0	396059	398520	MON	The Hen-cote (site of)	Mentioned as a cotton spinning mill, in use from c.1800 until c.1819. Mill demolished (TAS 99)	Post Medieval
6336.1.0	397679	401520	MON	Bottoms New Mill/ Bankside Mill (site of)	Mentioned as a wool mill from c.1829–31 until post-1872.	Post Medieval
6338.1.0	397769	401940	MON	New Hollins/ Victoria Mill (site of)	Mentioned as a cotton spinning mill from c.1829/31 until 1933, and as a woollen mill from 1933 until 1961	Post Medieval
636.1.0	397660	402020	MON	Croft Mill (site of)	Long four-storey stone-built cotton mill on east bank of Huddersfield Canal with internal engine house. Worked by Robert Hyde Buckley with Woodend Mill in late C19. In 1884 had 166,000 spindles and 450 looms. Mentioned as a cotton spinning mill from c.1838 until 1960.	Post Medieval
11224.1.0	396095	398436	MON	Caroline Street Methodist Chapel (site of)	First purpose-built Wesleyan chapel in Stalybridge. Built in 1815, enlarged in 1827 and rebuilt in 1872. The OS 60" maps of 1850 (2) and 1891/92 (3) show the chapel set within a burial ground. These maps also show that the chapel as rebuilt in 1872 was larger than its predecessor, the front elevation of which lay further back from Caroline Street. Chapel was demolished, site now used as a car park.	Post Medieval
3470.1.0	395999	398579	MON	Harrop Street Mill (site of)	Marked on the map as a cotton mill. Unusual plan.	Post Medieval
17913.1.0	397610	402819	Place	Roughtown Green	Small unenclosed park pleasantly situated on a steep hillside between Roughtown Road and New Earth Street. Mostly grass with a number of mature trees. Playground area has slide and swings.	Modern
3377.2.0	396987	399267	Place	Acres Bank (Park)	Site Type: A1, B. 2 hectares. Partial survival of the park belonging to Acres Bank house [HER 3377.3.0]. The park is clipped on the north-west corner by the London & North Western Railway.	Post-Medieval to Modern
3583.1.0	396300	398590	Place	Stalybridge village core	Burdett shows the settlement as a linear spread south of Ridge Hill, crossing the river Tame.	Medieval to Post Medieval
6224.1.0	400849	408000	Place	Diglea settlement	1770: a few buildings in a linear spread.	Medieval to Post Medieval
6254.1.0	397520	403749	Place	Quick settlement	1770: shows a group of buildings now named "Higher Quick Farm", also some further south, either side of the Stockport Road. 1851: the farm area is named "Hollingworth Quick", the main concentration of Quick to the south	Medieval to Post Medieval
6255.1.0	398599	404549	Place	Shaw Hall settlement	Shaw Hall is shown as a building on the Oldham Road	Medieval to Post Medieval
9174.1.0	397139	399827	Place	Rushfield (site of house and grounds)	Site Type: A1. 2 hectares. House with grounds to the west of Wakefield Road opposite Heyrod Hall. Open fields on all other boundaries.	Post-Medieval to Modern
6192.1.0	399750	405800	PLA	Uppermill settlement	1770: a group of buildings east of the river Tame, around the present High Street. 1851 OS map: as before, with much development including mills, the church, canal and railway.	Post Medieval
17826.1.0	397882	401371	PLA	Mossley Old Cemetery	A Victorian cemetery with chapels, lodge, entrance gates, pathways, lawns, flower beds and a garden of remembrance. There are a significant number of graves from the First World War.	Post Medieval
ATK1	396872	399360	Monument	Former Souracre Farm	Two extant structures remain on site comprising a farmhouse and barn belonging to Souracre Farm, both of which are in now in derelict condition.	Medieval

HER PrefRef	Easting	Northing	Type	Name	Description	Period
ATK2	396400	398469	Monument	Former Goods Station	Site was formerly used as Micklehurst Goods Station on the 'Micklehurst Loop', c. 1881-1966. The goods warehouse survives, encased by later sheds on three sides. Three-storey goods warehouse of blue engineering brick with modern roof covering.	Post Medieval

A.5 Historic Environment Record event data

HER UID	Easting	Northing	Name	Description
EGM3497	399726	405950	Buckley New Mill	Archaeological building survey of a textile mill complex originating in the 1820s, undertaken in fulfilment of a planning condition. There were four main phases to the site, spanning the period 1822/51 to the 1940s and including both fireproof and non-fireproof structures as well as the remains of a second-phase engine house and chimney and a warehouse.
EGM3516	399727	405599	Spring Mill	Building survey of a former woollen mill established c.1850, possibly on the site of an earlier waterpowered mill. The survey was undertaken in order to provide an analysis and understanding of the evolution and function of the building complex as part of the planning process, ahead of redevelopment.
EGM4222	396179	398478	Longlands Mill	A brief 'historical and archaeological guide' to a former cotton mill dating to 1805 was produced for Tameside MBC.
EGM4470	399396	404685	Knoll Mill	Strip and record exercise and an archaeological watching brief at a former mill site. The strip and record comprised the excavation and recording of a trench at the former location of the engine house, whilst the watching brief served to demonstrate the layout and some of the internal features of the earlier mill building, confirming and expanding the evidence of old maps of the site. The strip and record area was excavated under archaeological direction by a 360-degree tracked excavator. The watching brief area was observed archeologically. The 'turnover' work was carried out by a 360- degree tracked excavator using a toothed bucket. The size of the machine and the bucket used meant that close observation was often difficult for safety reasons and the remains were occasionally only seen after they had been removed or damaged.
EGM4472	397315	402088	Mossley Park Refurbishment	Heritage statement, produced to accompany a planning application for the refurbishment of Mossley Park. The intention of the report is to outline the proposed works and their effect on the character of the park. All proposed works have been sympathetically designed to fit in with the heritage and history of the hall using matching materials wherever possible. The proposal is divided into the following areas: removal of steps and concrete barriers; resurfacing the southern approach road; and resurfacing the bowling green car park.
EGM4823	396203	398483	Castle Street Mills and Tame Foundry	Evaluation undertaken in order to fulfil a condition attached to planning consent for redevelopment. A previous desk-based assessment had identified potential for surviving archaeological remains relating to the early/ mid-C19 Castle Street Mills complex, and the mid-C19 Tame Foundry. Four trial trenches were placed across the footprint of buildings of potential archaeological interest, specifically an engine house built in 1827 for the Castle Street Mills, and the main processing areas of the iron foundry. The trenches also aimed to elucidate further information on the power-transmission system from an engine hose added to the mill complex in the mid-C19. The archaeological remains uncovered within a trench across the footprint of the 1827 engine house were deemed to be of sufficient significance to merit further excavation. This exposed part of the original mill floor and the engine room with in-situ engine beds, together with part of a chimney. However, it was evident that much of the engine house's footprint, together with the associated boiler house, extended beyond the western boundary of the development site, and was thus not available for excavation. The other evaluation trenches uncovered remains of a late C19 or early C20 basement with a passage heading towards the front of a standing engine house for Castle Street Mills, although there was no firm evidence for an underground power shaft between the engine house and the site of the adjacent spinning block. The trenches placed across the Tame Foundry exposed fragmentary remains of several walls, drains and floor surfaces, but yielded little evidence for the iron-founding processes.
EGM5165	396173	398488	Castle Street Mills Engine House	Archaeological investigation which aimed to uncover and record the foundation beds and other fixtures and fittings associated with the mid-19th-century steam engine that occupied the detached engine house at a Grade II Listed former mill complex, in advance of redevelopment. Most of the mill complex was demolished in the early 2000s except for a substantial four-storey wing, outside of the

HER UID	Easting	Northing	Name	Description
				current development site, which was converted to residential use in 2009, and the engine house that forms the focus of the present planning and Listed Building Consent applications and archaeological investigation. During the investigation, a visual inspection of the surviving fabric did not identify any fixtures and fittings, whilst excavation within the footprint of the building demonstrated that the foundation beds for the engine had been removed completely in the C20. It is possible that the engine had been sold and that this sale included the foundation beds and all fixtures and fittings, leaving little physical trace of its original layout and configuration.
EGM5566	397051	399307	Stalybridge Battery Storage Facility	A heritage impact assessment setting out the potential significance of the below-ground archaeological remains and built heritage of a brownfield site on the fringe of Stalybridge. The site was ocupied previously by the 19th-century River Meadow Mills, which warrants further investigation in advance of development.
EGM5717	396203.1	398484	Castle Street Mill	A desk-based assessment of Castle Street Mill. The report concluded that the site has considerable potential to contain buried remains of high local, and potentially regional, importance, in particular, any surviving buried remains of an early 19th-century steam engine that powered part of the mill complex, together with below-ground structural elements of the 19th-century iron foundry.
EGM5747	397379	402126.3	Britannia Mill	A heritage assessment of Britannia Mill in Mossley that was prepared to support an application to demolish the remaining structures of the mill. The report provides an assessment of the existing building within its historic context, and an understanding of the surrounding area based on historical research and a rapid archaeological survey of the mill.
EGM3222	397566	399716	Stayley Hall: Dendrochronological sampling	Samples from the hall and cross wings suggested they are broadly contemporary, with a construction date of the mid-1550s. Two inserted doors in the western wall of the west wing provided felling dates of 1556 and 1563. The poor condition of the building restricted the timbers that could be accessed for the survey.
EGM4305	395267	396936	Dendrochronological Analyses of Some Cruck Frame Buildings in Tameside	Dendrochronological analyses of some cruck frame buildings in Tameside
EGM4652	393042	404104	TransPennine Route West of Leeds	Desk-based assessment of the TransPennine Route West of Leeds in advance of proposed upgrade of TransPennine Railway route from Manchester to York and Selby. The aim of this report is to provide an assessment of the significance of the historic buildings and structures along this part of the route. Comprised of a gazetteer prepared using information supplied by Network Rail, site visits, archive research and desk-based analysis.

ANNEX B – DESK-BASED ASSESSMENT OF OFFLINE SCHEME AREAS

B1. PRINTWORKS WORKS MAIN COMPOUND

Location Printworks Road, Cocker Hill, Millbrook, Tameside, Greater Manchester SK15 3BD

NGR SJ 96848 99337

Land use and proposals

Current use: Rough pasture.

Proposals: Construction of the main compound at Printworks Road north of Stalybridge Tunnel, with upgrades to the existing road access.

Known archaeological remains and potential

The proposed compound area is shown as an agricultural field on historic maps. A stone is shown in the west of the site, near Wakefield Road; a well or spring is indicated in the west of the site, near the junction of Wakefield Road and Printworks Road.

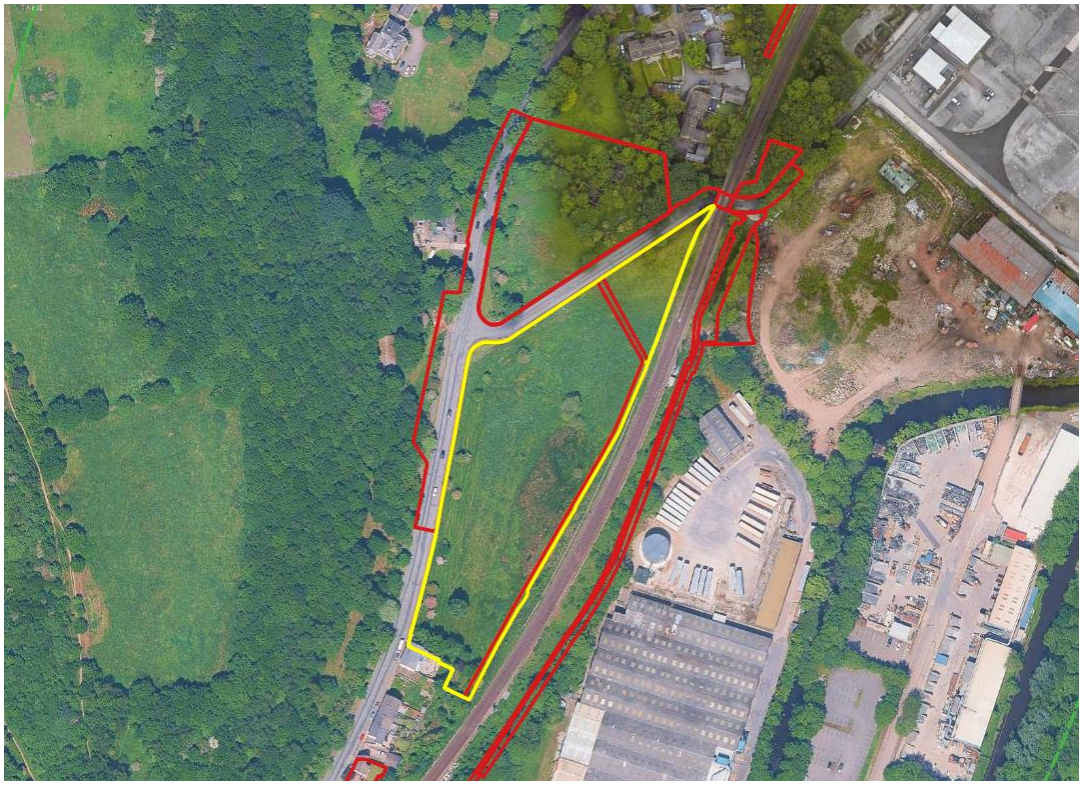
The site was observed to slope steeply eastwards towards the railway line, with a level area towards the north, likely to result from tipping of spoil from excavation of the adjacent underbridge. The spring was observed to run into an area of marshy land towards to the east.

The site has experienced limited ground disturbance and has low potential for significant archaeological remains. It may contain remains associated with medieval or post-medieval farming, or with earlier periods.

Likely Scheme impacts

Converting the area into a compound would require vegetation clearance, ground levelling and drainage and construction of hardstanding. Vegetation clearance and groundworks may damage buried archaeological remains with shallower ground cover.

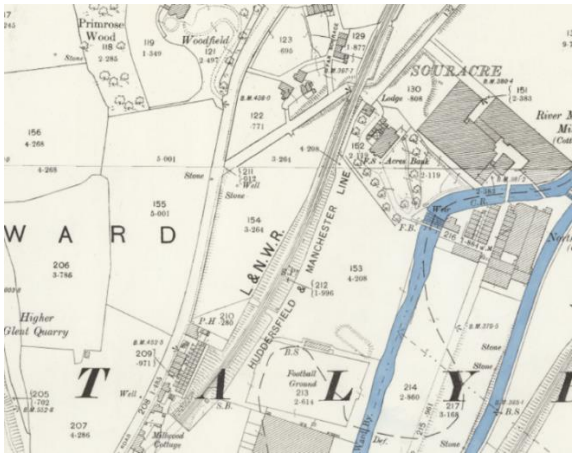
Embedded design mitigation should be considered to limit ground disturbance, e.g. limiting land-take, raft foundations, using existing routes for utilities runs. Further consultation will be undertaken with GMAAS to determine the scope and nature of any mitigation, if required, when further information is available about compound layout and establishment.



Location of proposed compound. Base Map: Google Earth 2025

Photograph from site walkover showing proposed compound location

Map DDS/1989 – not dated (c. 1846) Draft plan of Heyrod Hall showing land intended to be taken by the Huddersfield & Manchester Railway Canal Company. Tameside Archives. Shows area of compound annotated 'Daffodil Meadow'.



OS 25" Cheshire III.10. Revised: 1896 to 1897, Published: 1898. Source: National Library of Scotland

OS 1:1250 SJ9699SE – A. Surveyed: 1964, Published: 1965. Source: National Library of Scotland

B2. PRINTWORKS ROAD OFFICE COMPOUND

Location Main Office Compound, Printworks Road, Cocker Hill, Millbrook, Tameside, Greater Manchester SK15 3BD

NGR SJ 96848 99337

Land use and proposals

Current use: Overgrown land including derelict buildings

Proposals: Construction of the office compound at Printworks Road north of Stalybridge Tunnel, with upgrades to the existing road access.

Known archaeological remains and potential

Within the site, historic mapping dating to the 19th and 20th centuries indicates the buildings and tracks of Souracre Farm. Two extant structures remain on site comprising a farmhouse and barn, both of which are in now in derelict condition. Due to their poor condition, the buildings are fenced off and not accessible.

The farmhouse is of stone construction and of post medieval date. It comprises a two-storey structure of two room plan, with outshut to the rear with catslide roof. The building is now roofless, but retains substantial purlins with possible evidence of chamfering. Brick-built chimneys of later 20th century date were present on the gables. The principal elevation faces east. Formed in two bays, this elevation formerly had multi-light mullioned windows which are now lost or concealed behind boarding. The entrance into the farmhouse is located in the south gable. Internally, a pegged timber partition was visible, and a pegged window frame was retained to the rear of the structure. To the right of the rear (west) elevation a small blocked stone window with arched head was visible at first floor level.

The barn is rectangular plan and of stone construction. It is roofless and ruinous. A full height opening was formerly present in the north elevation, however this has been infilled with squared stone blocks, to leave a smaller door opening, whilst a window opening was present to its right. The barn had been subject to several phases of alteration, including blocking and creation of new openings, and the addition of brick extensions to the north and south of the building. The interior of the building was not accessible.

Immediately north-east of the proposed compound location is Woodfield Farmhouse and cottages (MGM1423; 1000.1.0). This farm formed part of one of the oldest tenanted properties in the manor of Ashton and is first noted in documentary sources in 1422, and again in 1597–98. There was a stone-built range with a farmhouse and cottages, dating to the mid-17th to mid-18th century. The farmhouse was dismantled in 1990 with a view to re-erection. Both No.8 and No.9 have been de-listed following renovation and repair.

To the north of Woodfield Farmhouse and cottages was a 17th century aisled cruck-framed barn (MGM1424; 1000.1.1), which survived until 1990 when it was dismantled with a view to re-erection. Tree-ring analysis dated elements of the cruck frame to have been felled AD 1300–1310, and another, c. AD 1640, indicating a rebuild using two earlier frames.

To the north-west of the proposed compound location is Woodfield House and grounds (MGM10322; 9179.1.0).

East of the proposed compound location and east of the railway, is the site of River Meadow Mills (MGM4158), a cotton mill established in 1851, now demolished. To the south of the site of River Meadow Mills was Acres Bank (MGM4160) a 19th century house and grounds associated with the factory.

The site contains two extant but ruinous historic farm buildings of post medieval date. It has high potential for associated remains dating to the medieval and post-medieval periods. The site is at the southern end of a farming hamlet known to have been occupied since at least the 15th century. It has experienced limited development or ground disturbance, and there is potential for the good survival of intact archaeological deposits, possibly of low (local) or medium (regional) significance.

Likely Scheme impacts

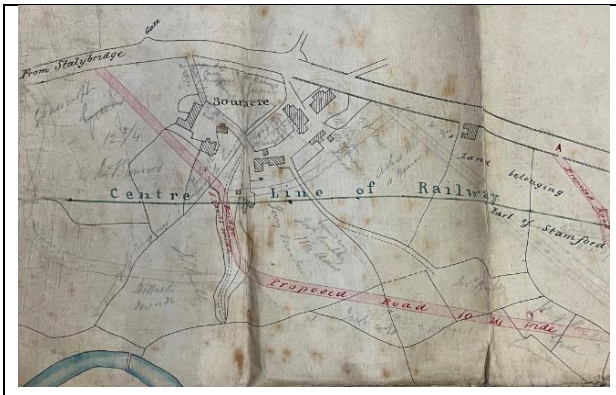
Whilst proposals for compound establishment are not yet available, it is anticipated that this may require demolition of extant historic buildings, vegetation clearance and ground levelling, and groundworks. These works would result in impact to historic buildings and the truncation or removal of potential archaeological remains.

Archaeological mitigation works will be required in advance of development, including historic building recording and archaeological investigation. Further consultation will be undertaken with GMAAS to determine the scope and nature of such mitigation when further information is available about the compound layout and establishment.

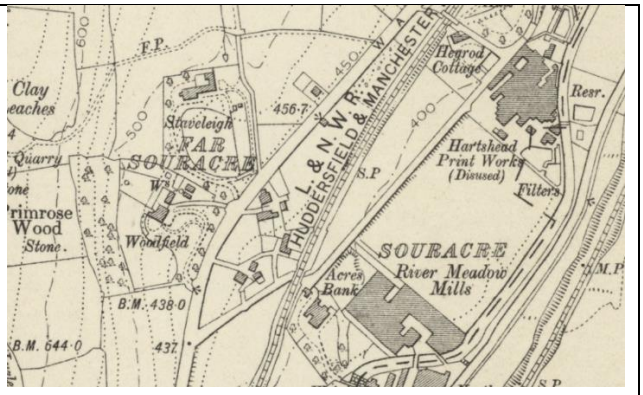
Location of proposed compound. Base Map: GoogleEarth 2025

Aerial image showing extant structures within proposed compound location. Base Map: Google Earth 2025

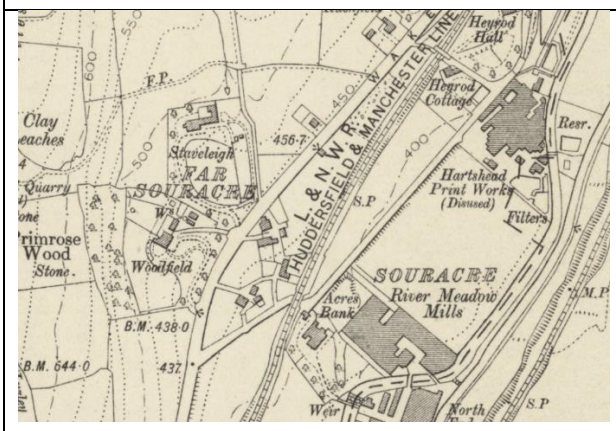
Photograph from site walkover showing proposed compound area.



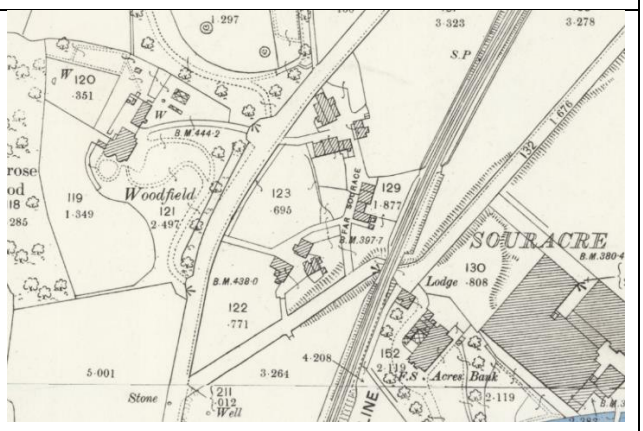
Map DDS/1989 – not dated (c. 1846) Draft plan of Heyrod Hall showing land intended to be taken by the Huddersfield & Manchester Railway Canal Company.



OS 6” Cheshire Sheet IIIA.SE & III.SW Revised: 1896 to 1897, Published: 1899. Source: National Library of Scotland



OS 6” Cheshire Sheet IIIA.SE & III.SW Revised: 1896 to 1897, Published: 1899. Source: National Library of Scotland



OS 25” Cheshire III.10 Revised: 1896 to 1897, Published: 1898. Source: National Library of Scotland

OS 1:10560 SJ99NE – A Surveyed / Revised: 1930 to 1954, Published: 1954. Source: National Library of Scotland

OS 1:1250 SJ9498SE – A Surveyed: 1963, Published: 1964. Source: National Library of Scotland

Principal (east) elevation of the farmhouse at Printworks Office Compound

Rear (west) elevation of the farmhouse at Printworks Office Compound

Principal (north) elevation of the barn at Printworks Office Compound

West gable elevation of the barn at Printworks Office Compound

B5. HEYROD HALL COMPOUND

Location Wakefield Road, Heyrod, Tameside, Greater Manchester, SK15 3BY

NGR SJ 97193 99744

Land use and proposals

Current use: Forms part of private garden of Heyrod Hall.

Proposals: Temporary site compound to support works to Heyrod Hall Overbridge (MVL 3/7), with associated earthworks and private access track upgrades.

Known archaeological remains and potential

To the east of the site is Heyrod Hall (751.2.0), a mid-19th-century two-storey stone building. This hall replaced an earlier building, recorded to have been demolished when the railway (751.1.0) was built in the 1840s.

The Heyrod estate belonged to John del Heyrod in the 15th century and may have included a hall at this location. Writing in 1827, James Butterworth described Heyrod Hall as an ancient estate, and the hall to have included a date stone inscribed R.W. 1638.

To the north is Heyrod Hall Overbridge (MVL3/7) (NHLE1449242), constructed in the mid-late 1840s by A S Jee for the Huddersfield & Manchester Railway. The railway was built in cutting to the west of Heyrod Hall, severing the hall from its grounds to the west, which were later developed with suburban housing.

There is moderate potential for archaeological remains relating to the development of Heyrod Hall in the medieval and post medieval periods to survive in this area.

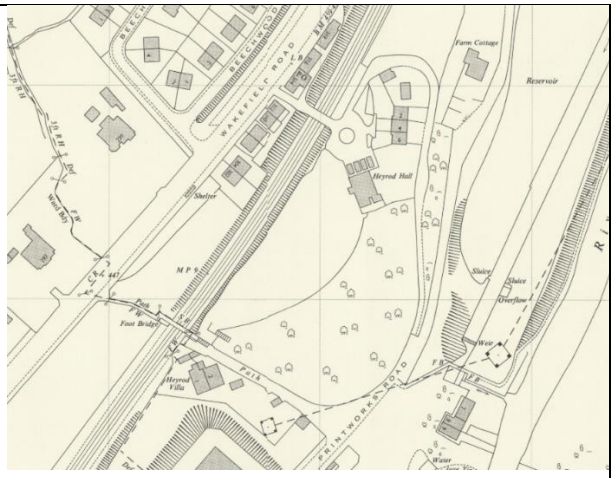
Likely Scheme impacts

Proposals for compound establishment and access track upgrades are not yet available, it is anticipated that this may require vegetation clearance, ground levelling, and some limited groundworks. These works have the potential to result in the truncation or removal of potential archaeological remains associated with Heyrod Hall's medieval and post medieval history, which may be of low (local) or medium (regional) significance. Archaeological works may be required to mitigate this impact. Consultation will be undertaken with GMAAS to determine the scope and nature of any such mitigation when further information is available about the compound layout and establishment.

Location of proposed compound Base Map: Google Earth 2025

Lancashire Sheet CV Surveyed: 1845-1880, Published: 1848

Source: National Library of Scotland

	
Cheshire Sheet III.NW Revised: 1907, Published: 1911 **Source: National Library of Scotland**	**SJ9799NW – A Surveyed: 1964, Published: 1965** **Source: National Library of Scotland**

B3. WAKEFIELD ROAD PLANT ACCESS AND COMPOUND

Location Wakefield Road, Brushes, Millbrook, Tameside, Greater Manchester OL5 9QG

NGR SD 97326 00470

Land use and proposals

Current use: disused former railway sidings.

Proposals: Upgrade works to the existing vehicular access at Wakefield Road, and the creation of a compound area north of the Springbank Lane Overbridge (MVL3/9) and west of Mossley Wastewater Treatment Works.

Known archaeological remains and potential

No archaeological remains are known from within the boundary of the compound.

At the northern end of the proposed compound is the grade II listed Manchester Road Underbridge (MVL3/10) (NHLE 1452392), and to the south is the grade II listed Springbank Lane Overbridge (MVL3/9) (NHLE 1449241). Both were built in the mid-late 1840s to designs by A S Jee for the Huddersfield & Manchester Railway.

Approximately 50m to the south west of the compound site is Holly Cottage (grade II, NHLE 1309247) and approximately 75m to the south west is 14, 16 and 18 John Street (grade II, NHLE 1163008).

Historic mapping indicates that the area has been used as railway siding since the late 19th century. Since the removal of the sidings in the late 20th century the parcel of land has not been subject to development.

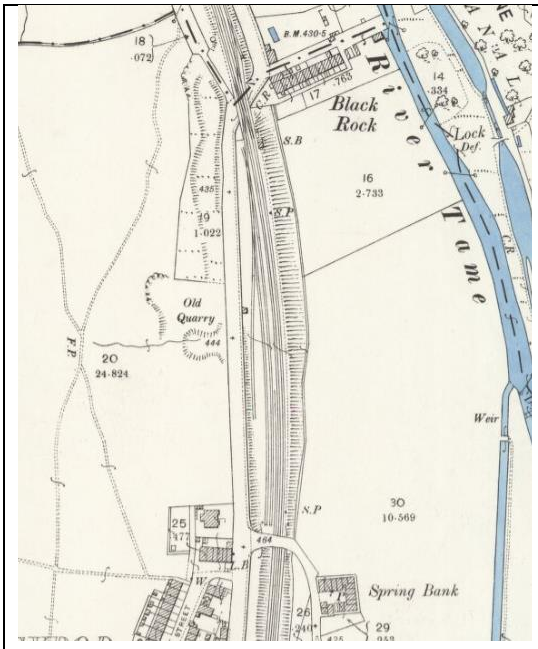
The compound area is considered to have limited archaeological potential, as it is located within a railway cutting and has been subject to previous levelling and construction of hardstanding.

Likely Scheme impacts

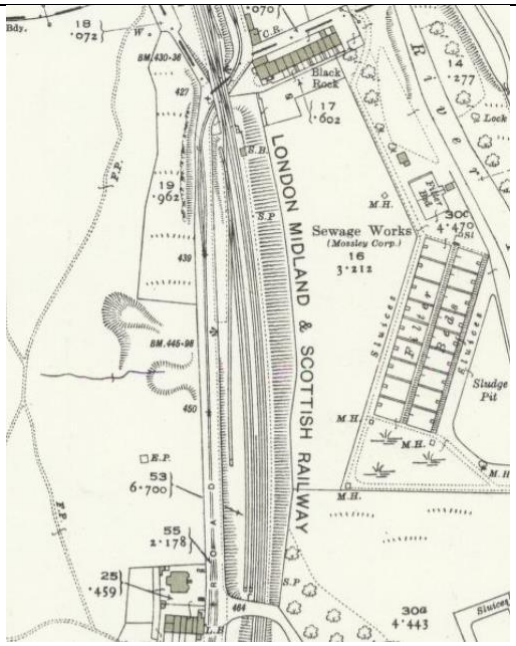
It is not anticipated that the Order Scheme will impact upon any significant archaeological remains or built heritage. No further mitigation.

Location of proposed compound. Base Map: Google Earth 2025

GoogleStreetView of compound location



OS 25" Cheshire III.6 Revised 1896, Published 1898. Source: National Library of Scotland



OS 25" Lancashire CV.4 Revised 1935, Published 1935. Source: National Library of Scotland

OS 25" SD9600-SD9700-AA Revised 1963 and 1964, Published 1965. Source: National Library of Scotland

B4. SCOUT TUNNEL SITE COMPOUNDS

Location Manchester Road, Mossley, Micklehurst, Tameside, Greater Manchester OL5 9AN

NGR SD 97385 02384

Land use and proposals

Current use: Woodland and hardstanding.

Scout West Ramp proposal: Compound, located to the west of the railway line - site compound with associated access and earthworks.

Scout West Laydown proposal: Compound: Laydown area and associated earthworks.

Known archaeological remains and potential

The proposed compound areas are located south of the Grade II listed Railway tunnel portal, MVL3/11 Scout Tunnel (south end) (NHLE 1452399) and north-west of Huddersfield Narrow Canal Lock No.12w (MGM20054; 17823.1.0), built c.1794 for Huddersfield Canal Company.

No heritage assets are recorded within the land parcels for Scout West Laydown area. Historic Ordnance Survey mapping does not depict any structures or notable features within these areas, save for a signal post and boundary stone within the Scout West Ramp area to the west of the Transpennine Route. This area was subject to major earthworks for the construction of Scout Tunnel in the mid-19th century, which is likely to have reduced the potential for survival of archaeological remains in this area. This area is therefore of limited archaeological potential.

To the east is the site of Scout Mill, a fulling mill dating to c. 1777 and a cotton mill from 1793 to 1935 (6342.1.0). It was reconfigured and became New Scout Mill, mapped in 1955 as producing candlewick bedspreads and quilts. The southern portion of this site is identified for use as a spoil point. This area is currently under hard standing and no features are visible, however historic mapping reveals an irregularly shaped structure to have formerly been located in the centre of the hardstanding, the function of which is unknown. It is possible that archaeological remains associated with the mill survive below the hard standing.

Further to the north-east is the Scout Tunnel North Entrance (NHLE 1309457), built between 1794 and 1797 for the Huddersfield Narrow Canal. There is no visual relationship between the canal tunnel and the site.

Likely Scheme impacts

It is not anticipated that establishment of Scout West Laydown area would impact upon any significant archaeological remains. No mitigation works.

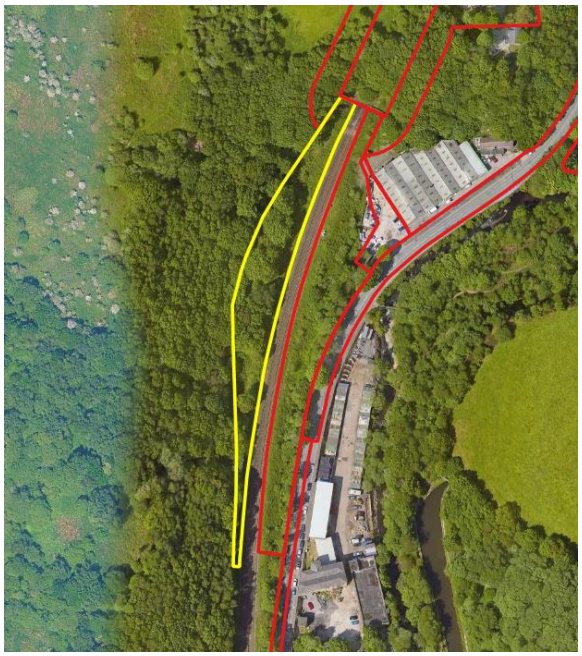
If required, intrusive groundworks on the Scout West Ramp site may disturb potential archaeological remains associated with Scout Mill within the Order Scheme boundary, such

as mill leats. Depending on the existence, character and date of any surviving remains, they may be of low (local) or medium (regional) significance, due to their association with a sequence of relatively early industrial mill sites.

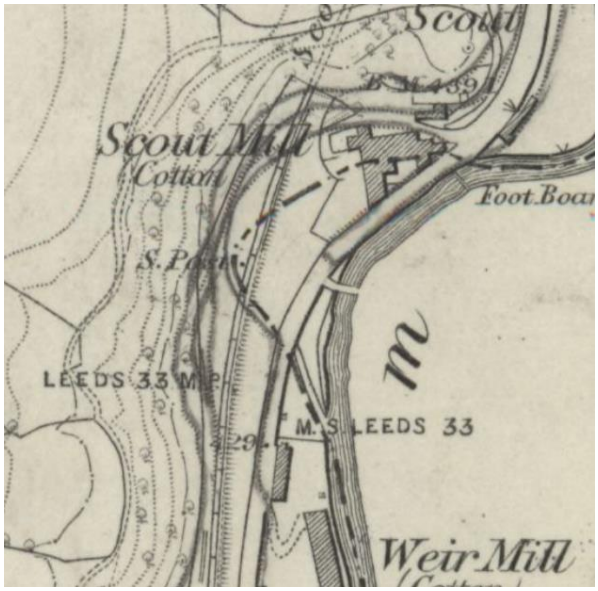
However, if existing hardstanding is retained and there are no intrusive groundworks, no archaeological mitigation works would be needed.

If the ramp site requires intrusive groundworks, it is anticipated that a staged programme of archaeological mitigation works may be required in advance of development. Further consultation will be undertaken with GMAAS to determine the scope and nature of any such mitigation when further information is available about the construction methodology.

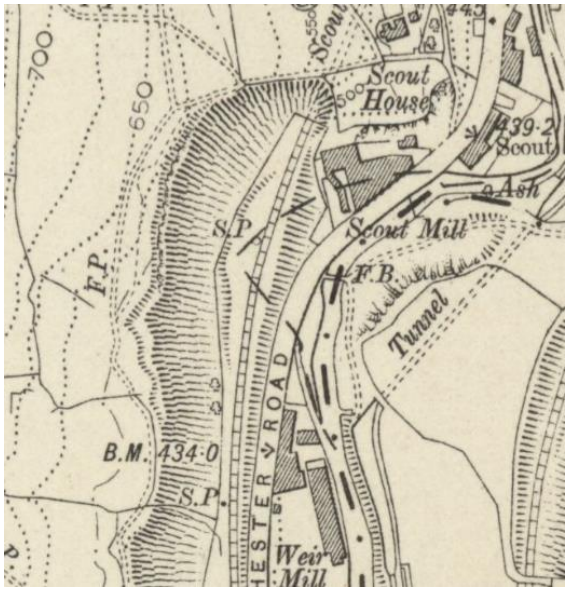
Location of proposed Scout West Ramp Compound. Base Map: Google Earth 2025



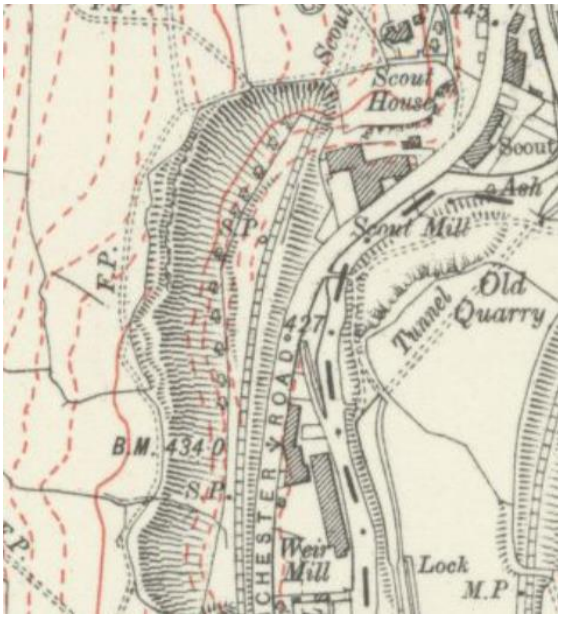
Location of proposed Scout West Laydown area. Base Map: Google Earth 2025



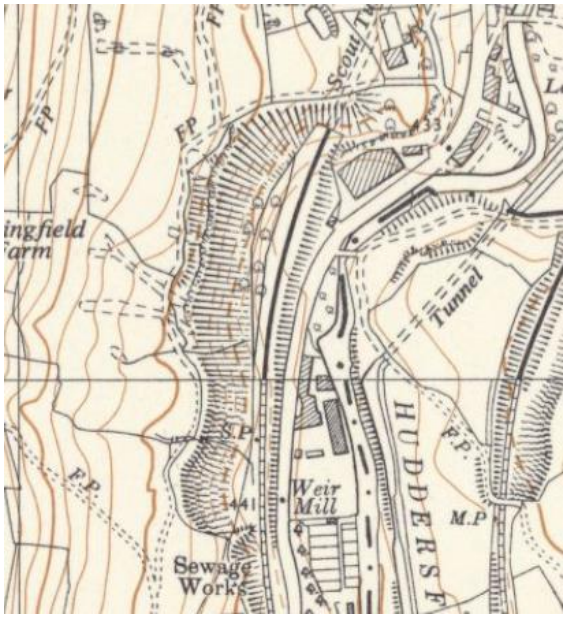
Lancashire Sheet CV Surveyed: 1845-1880, Published: 1848 Source: National Library of Scotland



Lancashire Sheet CV.NE Revised: 1906 to 1907, Published: 1911 Source: National Library of Scotland



Lancashire Sheet CV Revised: 1916 to 1918, Published: 1923 Source: National Library of Scotland



SD90SE – A Surveyed / Revised: 1951 to 1972, Published: 1973 Source: National Library of Scotland

View of the former site of Scout Mill within the Scout West Laydown area. May 2025.

Views of the proposed compound area – Looking north east from Manchester Road towards location of Scout West Ramp Source: Google StreetView 2025

B5. MANCHESTER ROAD, SCOUT WEST: SITE COMPOUND WORKS FOR SPOIL STORAGE

Location Manchester Road, Mossley, Micklehurst, Tameside, Greater Manchester OL5 9QN

NGR SD 97442 01232

Land use and proposals

Current use: Pasture land.

Proposed: Spoil point.

Known archaeological remains and potential

No heritage assets are recorded on the HER within this area. Historic Ordnance Survey mapping reveals a terrace of nine worker's houses formerly to have been located along the roadside within this parcel of land. These buildings are shown on historic maps from 1848 until the 1950s and are no longer extant. Buried archaeological remains associated with these structures such as foundations, utility runs and back-yard features may survive within the site.

To the west of the proposed spoil point is the Grade II listed Railway tunnel portal, MVL3/11 Scout Tunnel (south end) (NHLE 1452399) and to the south-east is the Huddersfield Narrow Canal Lock No.12w (MGM20054; 17823.1.0), built c.1794 for Huddersfield Canal Company. To the north-west is the Scout Tunnel North Entrance (NHLE 1309457), built between 1794 and 1797.

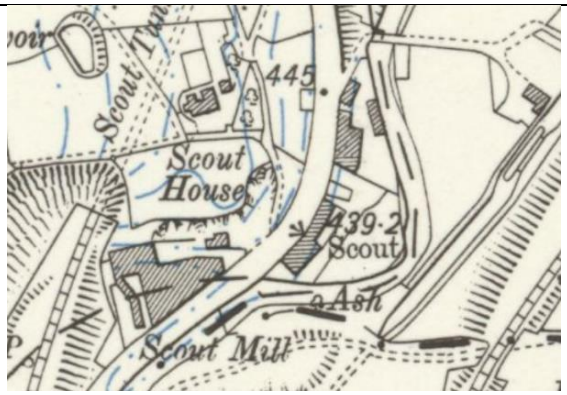
To the west is the former site of Scout Mill, a fulling mill dating to c. 1777 and a cotton mill from 1793 to 1935 (HGM42438; MGM7397). It was reconfigured and became New Scout Mill, mapped in 1955 as producing candlewick bedspreads and quilts. These assets are all located outside the proposed spoil point. There is no map evidence for any leats or conduits leading from the Tame to Scout Mill in this location.

Likely scheme impacts

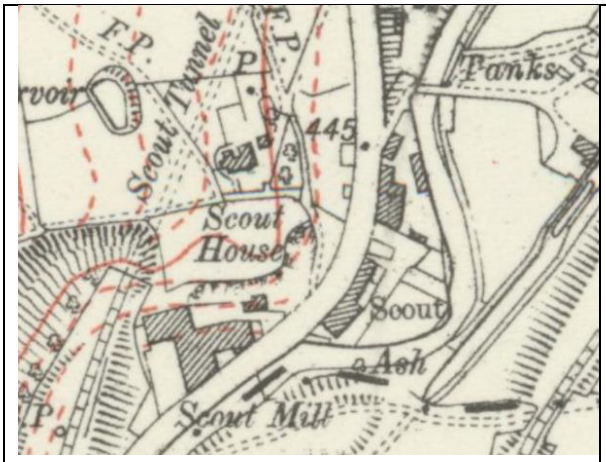
If required, intrusive groundworks on the Scout West Spoil Hold site may disturb potential surviving archaeological remains associated with terraced houses formerly located within the Order Scheme boundary. Any such remains are likely to be of low significance and may not require archaeological mitigation. Any remains associated with the 18th and 19th century Scout Mills and mill leats may be of local or regional significance. Depending on impacts, a programme of archaeological fieldwork may be required. Consultation will be undertaken with GMAAS in due course to determine the scope and nature of any such mitigation when further information is available about the compound layout and establishment.

Site location Base Map: Google Earth 2025

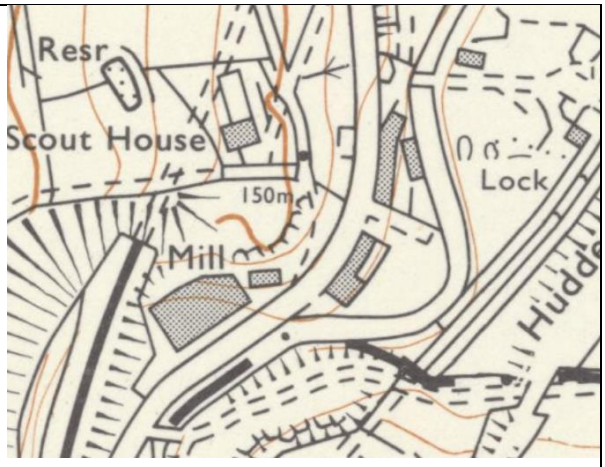
Lancashire Sheet CV Surveyed: 1845-1880, Published: 1848 Source: National Library of Scotland



Lancashire Sheet CV.NE Revised: 1906 to 1907, Published: 1911 Source: National Library of Scotland



Lancashire Sheet CV Revised: 1916 to 1918, Published: 1923 Source: National Library of Scotland



SD90SE – A Surveyed / Revised: 1951 to 1972, Published: 1973 Source: National Library of Scotland

Views of the proposed area – Looking east Source: Google StreetView 2025

B6. SCOUT EAST RAMP WORKS

Location Mossley, Manchester Road / opposite Egmont Street, Manchester Road, Mossley OL5 9LZ

NGR SD 97349 01503

Land use and proposals

Current use: Woodland, trackways and paths. Steep embankment down to railway.

Proposals: Trackside access.

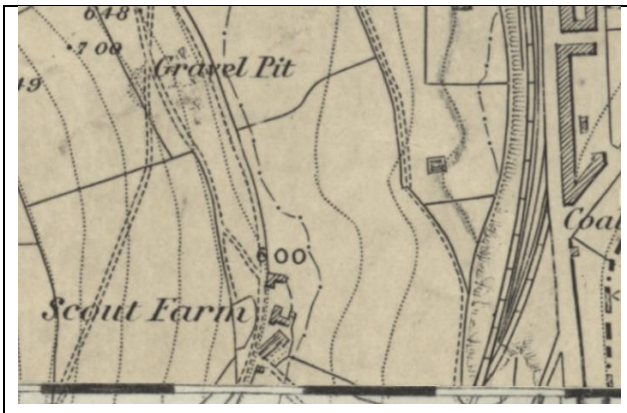
Known archaeological remains and potential

No archaeological remains are known from within this location. Historic mapping indicates that land near the proposed works areas were used as reservoirs in the 19th century, but were disused by 1896. The outlines of these reservoirs are still visible as earthworks and cropmarks on satellite imagery. By the 1950s, the northeastern part of the area was used as allotment gardens.

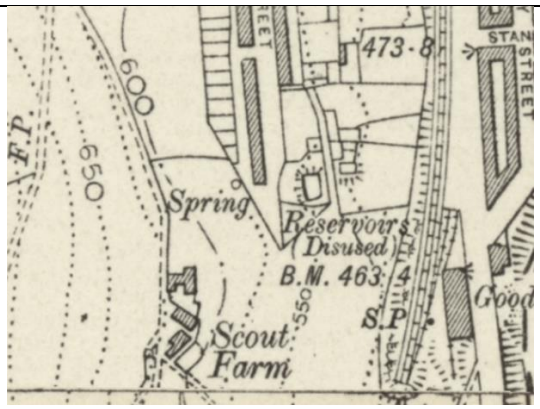
Potential Scheme impacts

It is not anticipated that establishment of Scout East Ramp Works would impact upon any significant archaeological remains. No mitigation works.

Site location Base Map: Google Earth 2025



Lancashire Sheet CV. Surveyed: 1845-1880, Published: 1848 Source: National Library of Scotland



Lancashire Sheet CV.NE Revised: 1906 to 1907, Published: 1911 Source: National Library of Scotland

Cheshire III.2. Revised: 1896, Published: 1898 Source: National Library of Scotland

SD9701 – A Revised: 1954, Published: 1955 Source: National Library of Scotland

B7. PLEVINS SITE COMPOUND WORKS

Location Plevin Mossley Depot Land South of Crown Hill, Mossley OL5 9NZ

NGR SD 97753 01507

Land use and proposals

Current use: Disused former light industrial site, including large sheds and historic brick building. The buildings were not accessible internally during the site inspection.

Proposals: Main site compound involving substantial demolition of existing commercial buildings.

Known archaeological remains and potential

The compound site is occupied by a former goods station warehouse, dating from the later 19th century, later industrial sheds and large areas of hardstanding.

This was formerly the site of Micklehurst Goods Station, constructed to serve the Micklehurst Loop. This line was constructed from 1881-85 to provide additional railway capacity and relieve congestion on the Transpennine Route, running to the east of Tame Valley between Stalybridge and Diggle. Shown as undeveloped land on the 1st edition Ordnance Survey maps of the mid,19th century, the goods station is first shown on the Ordnance Survey Town Plan map published in 1892, when it is shown to have included a goods warehouse, extending across two railway lines, sidings, cranes and a coal depot to the north. The Micklehurst Loop was closed in 1966, with the goods yard being converted to commercial use, with clearance of the railway lines and sidings and construction of modern light industrial sheds.

The goods warehouse survives, encased by the later sheds to the north, south and west. Construction is in blue engineering brick with a modern roof covering. The building is of three storeys, with a tall ground floor, and two shallower upper floors. The principal (east) elevation contains loading bays in the outer and central bays of the ground floor, flanked by blind windows at ground-floor level. Loading doors are present at first and second floor level in the central bay, the projecting lucam house shown on historic photos of the warehouse is , however, now lost. Paired segmental headed windows are present at first and second floor level, with original metal-framed multi-pane glazing with hopper openings retained to the second floor. This elevation has been subject to alteration including the insertion of fire escape doors to the left of the elevation, and loss of the timber canopy and central two-storey lucam house. Architectural detailed included the presence of brick dentils above ground floor openings and kneelers to the central loading doors. The remaining elevations are concealed by later buildings. Where visible, the warehouse was seen to survive within these later structures, and appeared to retain some original glazing and a broad opening in the north elevation which formerly accommodated railway tracks.

The remainder of the compound site was under concrete surfacing, with a sett surface retained to the entrance road to the site from Cheshire Street. There is potential for cobbled

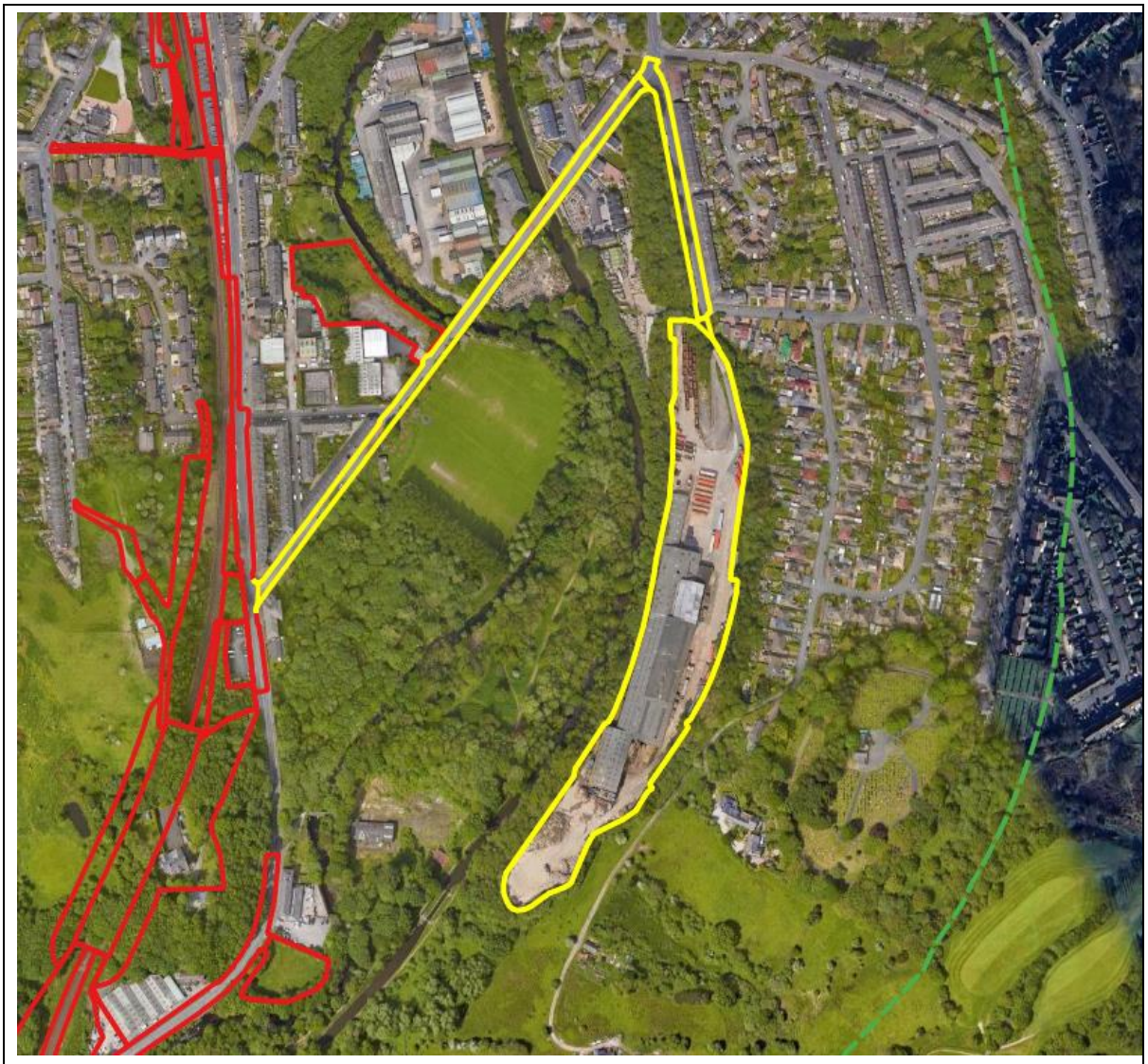
surfaces to survive under concrete across the site. No other historic features were visible during the site inspection.

There are some non-designated assets associated in the vicinity of this compound site. These are site of Bottoms New Mill/Bankside Mill (6336.1.0) approximately 42m east of the compound on the western side of the Huddersfield Narrow Canal, Huddersfield Narrow Canal Lock No. 12w (17823.1.0) approximately 55m to the south west, and Mossley Old Cemetery (17826.1.0) approximately 66m to the east of the compound site.

Likely Scheme impacts

Details of the works required to create the compound are not currently available. Using the precautionary principle it is therefore assumed that demolition of all structures on site may be undertaken, alongside vegetation clearance and ground works. This would result in loss of the historic goods warehouse and truncation or removal of potential surviving archaeological remains associated with the good station.

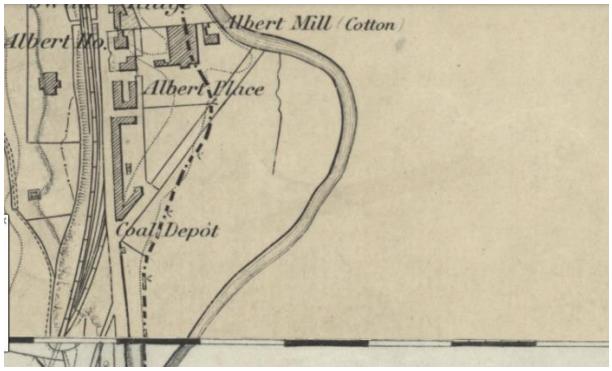
It is likely that a staged programme of archaeological mitigation works would be required in advance of development, including historic building recording of the goods warehouse. Further consultation will be undertaken with GMAAS to determine the scope and nature of mitigation when further information is available about the compound layout and establishment.



Location of proposed compound. Base Map: GoogleEarth 2025

General view of Plevins Compound, May 2025

Micklehurst Loop goods warehouse at Plevins



Lancashire Sheet CV Surveyed: 1845-1880, Published: 1848 Source: National Library of Scotland

Lancashire Sheet CV.NE Revised: 1906 to 1907, Published: 1911 Source: National Library of Scotland

Cheshire III.2 Revised: 1896, Published: 1898 Source: National Library of Scotland

SD9701SE – A Surveyed: 1954, Published: 1955 Source: National Library of Scotland

B8. EGMONT STREET COMPOUND

Location Land west of Egmont Street, Mossley OL5 9NB

NGR SD 97511 01733

Land use and proposals

Current use: Disused brownfield site with hardstanding and scrub.

Proposed: Construction compound requiring temporary signalisation to allow HGV movements.

Known archaeological remains and potential

Located west of King George Park, the River Tame and the Huddersfield Canal. Northeast of Huddersfield Narrow Canal Lock No.12w (HER MGM20054/17823.1.0).

Site covers part of the site of the former Albert Mill, including areas of former structures (HER MGM7400/6345.1.0). Albert Mill was established as a cotton spinning mill in 1860 by Robert Buckley and was a five storey stone-built mill. Further mills of five and three storeys were constructed to the east and south respectively in 1867. Comparison of historic Ordnance Survey mapping indicates the original mill building to have been located to the north of the site, with later additions located towards Egmont Road. Within the Order Scheme boundary, the 1890s Ordnance Survey Town Plan shows a detached building to have been located within the Order Scheme boundary, with chimney and tank located to its north, suggesting this to have been the boiler house. Historic photographs held by Tameside Metropolitan Borough Council show this to have been a plain single, storey structure, in contrast to the multi storey mill buildings to the north and west. Part of the eastern mill block also falls within the Order Scheme boundary.

Albert Mill, Micklehurst was owned by the Brunswick Cotton Spinning Co, Limited in 1891. In 1919 Brunswick was acquired by a consortium led by Alexander Young of the Northern Coates Spinning Co, Wigan, and W. H. Heywood of Huddersfield (Grace's Guide). The mill fell out of use in 1933 before demolition in the 1950s. The majority of the mill site has been redeveloped with light industrial premises, however the area within the Order Scheme boundary remains as hard standing.

North of the Tame is the site of the former South End Mills (HER MGM6846/5807.1.0).

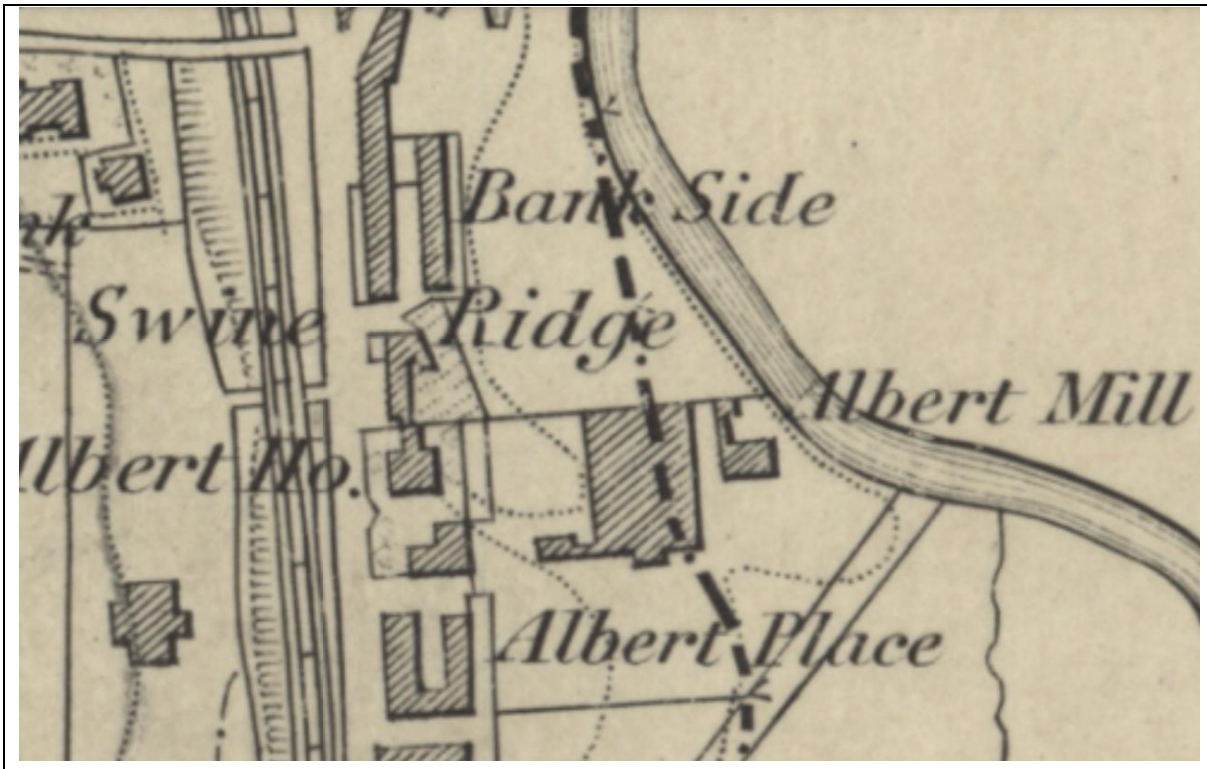
Buried remains of the 19th century Albert Mill may survive beneath areas of modern hardstanding. The site is assessed as having moderate archaeological potential.

Likely scheme impacts

If required, intrusive groundworks and vegetation clearance may disturb potential surviving archaeological remains of Albert Mill within the Order Scheme boundary. However, if existing hardstanding is retained and there are no intrusive groundworks, no archaeological mitigation works would be needed.

If the compound requires intrusive groundworks, it is anticipated that a staged programme of archaeological mitigation works may be required in advance of development, to investigate potential archaeological remains of low or medium significance. Further consultation will be undertaken with GMAAS to determine the scope and nature of any such mitigation when further information is available about compound layout and establishment.

Location of proposed compound. Base Map: GoogleEarth 2025



Lancashire Sheet XCVII Surveyed: 1844 to 1863, Published: ca. 1882 Source: National Library of Scotland

Lancashire Sheet XCVII.SE Revised: 1906, Published: 1910. Source: National Library of Scotland

Lancashire XCVII.16 Revised: 1916, Published: 1922. Source: National Library of Scotland

SD9701NE – A Surveyed: 1954, Published: 1955. Source: National Library of Scotland

B9. RELOCATED MOSSLEY STATION WEST SITE COMPOUND

Location A635 Manchester Road Manchester Road, Mossley Cross, Mossley, Micklehurst, Tameside, Greater Manchester OL5 9AN

NGR SD 97387 02384

Land use and proposals

Current use: Scrub land, woodland and rough grassland.

Proposed: Site compound with new access on the western side of the Mossley Station relocation site.

Known archaeological remains and potential

Mossley underwent rapid transformation in the early 20th century due to industrialisation, shown by the construction of Spring Cottage (2180.1.0) in 1822 c.75 m north-west of the compound location, a Unitarian Church (10426.1.0) in 1852, c.141 m west of the compound location, and Mount Gambier, a pair of stone-built, semi-detached houses built in 1871 (17918.1.0) located c. 35 m west of the compound location, as well as with the construction of the canal and the railway. Historic mapping reveals the proposed compound to have been used as railway sidings, as well as allotment gardens. This area was observed to have been used for dumping and now covered in shrubs and young trees.

Potential for significant archaeological remains within this area is assessed as low.

Likely Scheme impacts

Converting the area into a compound would require vegetation clearance and ground levelling. It is not anticipated that these works would impact upon any significant archaeological or built heritage remains. No mitigation works are anticipated.

Location of proposed compound. Base Map: Google Earth 2025

GoogleStreetView of compound location

Mossley Station Compound looking south. March 2025.

OS 6” Lancashire Sheet XCVII

Surveyed: 1844 to 1863, Published: ca. 1882. Source: National Library of Scotland

OS 6” Lancashire Sheet XCVII.SE

Revised: 1906, Published: 1910. Source: National Library of Scotland

OS 25” Lancashire XCVII.16

Revised: 1916, Published: 1922 & Cheshire III.2.

Revised: 1896, Published: 1898. Source: National Library of Scotland

OS 1:1250 SD9702SW - A

Surveyed: 1954, Published: 1955. Source: National Library of Scotland

B10 MOSSLEY STATION RELOCATION WORKS

Location: Manchester Road, Mossley Cross, Mossley, Tameside, Greater Manchester, OL5 9AN

NGR: SD 97378 02478

Land use and proposals

Current use: former railway sidings, used as depot / storage area

Proposals: Site compound with access widening onto Manchester Road. The site will then be developed

This site will then be developed for the relocated Mossley Station. The works include a new access layout, station building, parking area, footbridge, and lift shafts.

Known archaeological remains and potential

Mossley underwent rapid transformation in the early 20th century due to industrialisation, with the development of several mills to the east of the site (Mossley Brow (3309.1.0) 80 m to the east and Milton Mills (3310.1.0) 175 m to the east), the canal and the railway. Historic maps indicate that the north-eastern area of the site was occupied by a coal depot from the late-19th to mid-20th century with coal chutes now partially demolished and backfilled with made ground.

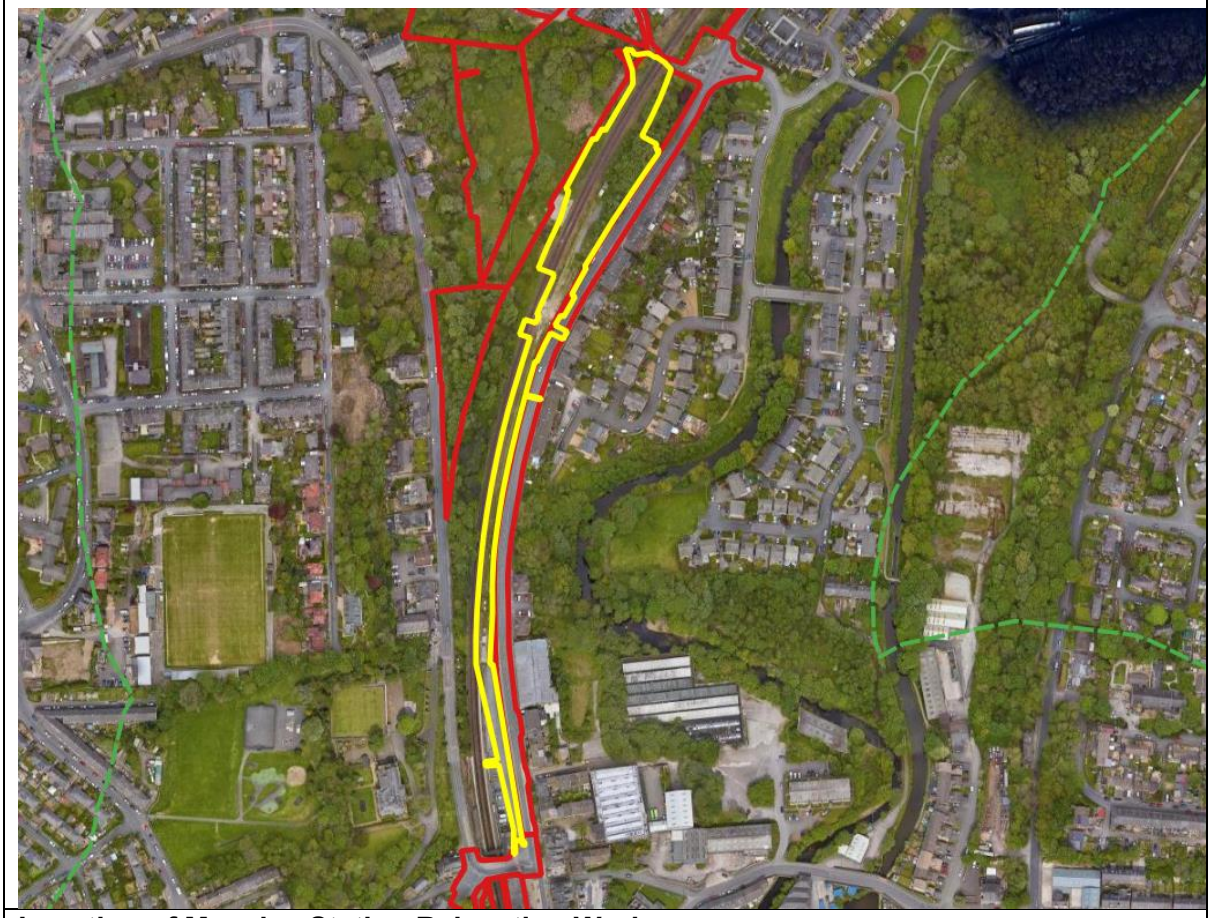
The area is bounded to the east by a wall fronting Manchester Road which may be contemporary with the construction of the railway including a substantial pair of ashlar gateposts. These structures are not listed but may be historically significant due to their potential association with A. S. Jee's railway architecture. Within the former sidings cobbled surfaces and rails survive. Towards the south of this area, the boundary wall to Manchester Road contains a blocked arch leading under the carriageway which formerly provided access to the mills to the east of Manchester Road, enabling raw and manufactured goods to be easily transferred between he mills and railway network.

It is assessed that the site has moderate potential for remains of low significance associated with the railway sidings, and low potential for remains of other periods. The previous works on the site associated with the construction of the railway is likely to have removed any pre-railway remains.

Likely Scheme impacts

The Order Scheme will involve the removal of elements of the surrounding stone walls and gateposts fronting Manchester Road. Construction works will include construction of a new station building, car parks, and a road-rail access point which would remove surviving historic surfaces within the compound. There will be no impact to the blocked arch to the south of the area.

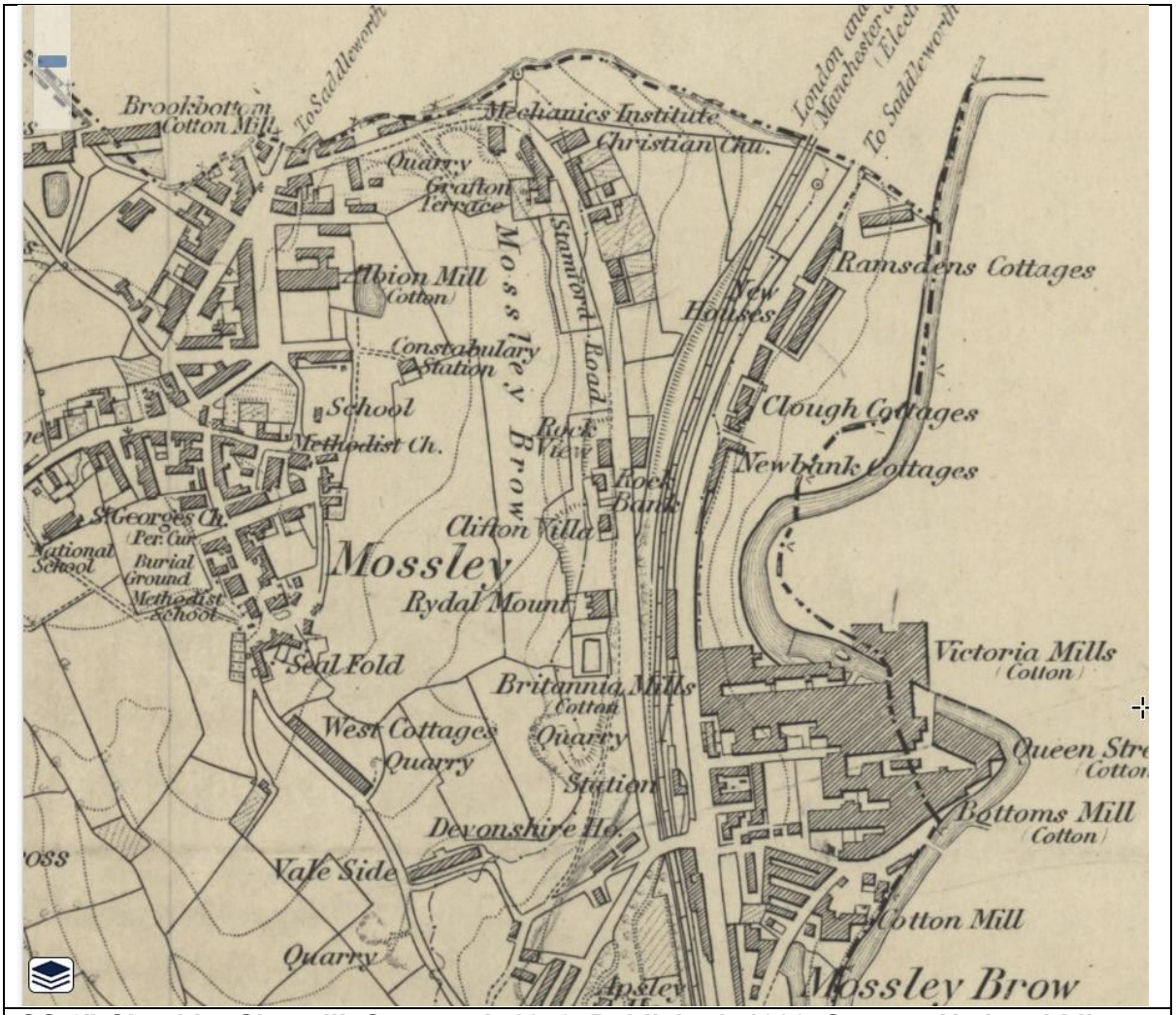
A scheme of historic building recording is recommended to document the existing form and condition of the boundary wall, gateposts and historic surfaces within this compound, prior to compound establishment and construction of the Order Scheme. Further consultation will be undertaken with GMAAS to determine the scope and nature of mitigation when further information is available about the compound layout and establishment.



Location of Mossley Station Relocation Works.

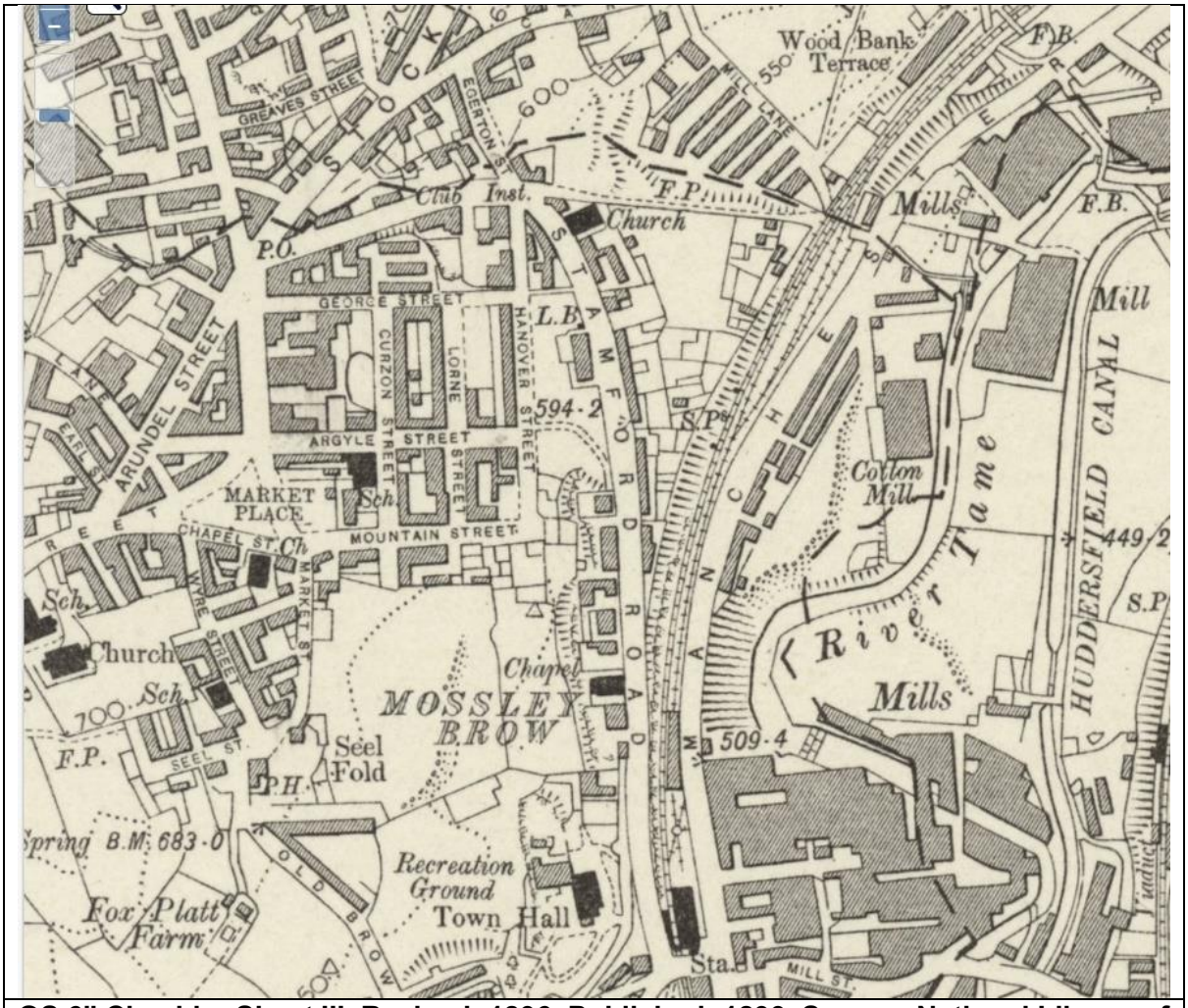
Retaining wall fronting Manchester Road, March 2025.

Stone gateposts fronting Manchester Road, March 2025.



OS 6” Cheshire Sheet lll. Surveyed: 1872, Published: 1882. Source: National Library of Scotland; and

OS 6” Lancashire Sheet XCVll. Surveyed: 1844 to 1863, Published: 1882. Source: National Library of Scotland



OS 6” Cheshire Sheet III. Revised: 1896, Published: 1899. Source: National Library of Scotland; and

OS 6” Lancashire Sheet XCVII Revised: 1906, Published: 1910. Source: National Library of Scotland

OS 25” Cheshire Sheet III. Revised: 1896, Published: 1898. Source: National Library of Scotland; and

OS 25” Lancashire XCVII. Revised: 1916, Published: 1922. Source: National Library of Scotland.

OS 1:2500 SD9701. Revised: 1954, Published: 1955. Source: National Library of Scotland

B11. NEW EARTH STREET COMPOUND

Location Milton View, Mossley, Micklehurst, Tameside, Greater Manchester OL5 0SX

NGR SD 97571 02716

Land use and proposals

Current use: Area of unused land adjacent to terraced houses.

Proposals: Laydown area for materials to support bridge works. No earthworks required.

Known archaeological remains and potential

No heritage assets are recorded within this compound. Historic Ordnance Survey maps show this to have been undeveloped land, adjacent to a terrace of worker's housing and the railway cutting. The land slopes steeply from New Earth Street to the railway, and from the railway towards Manchester Road.

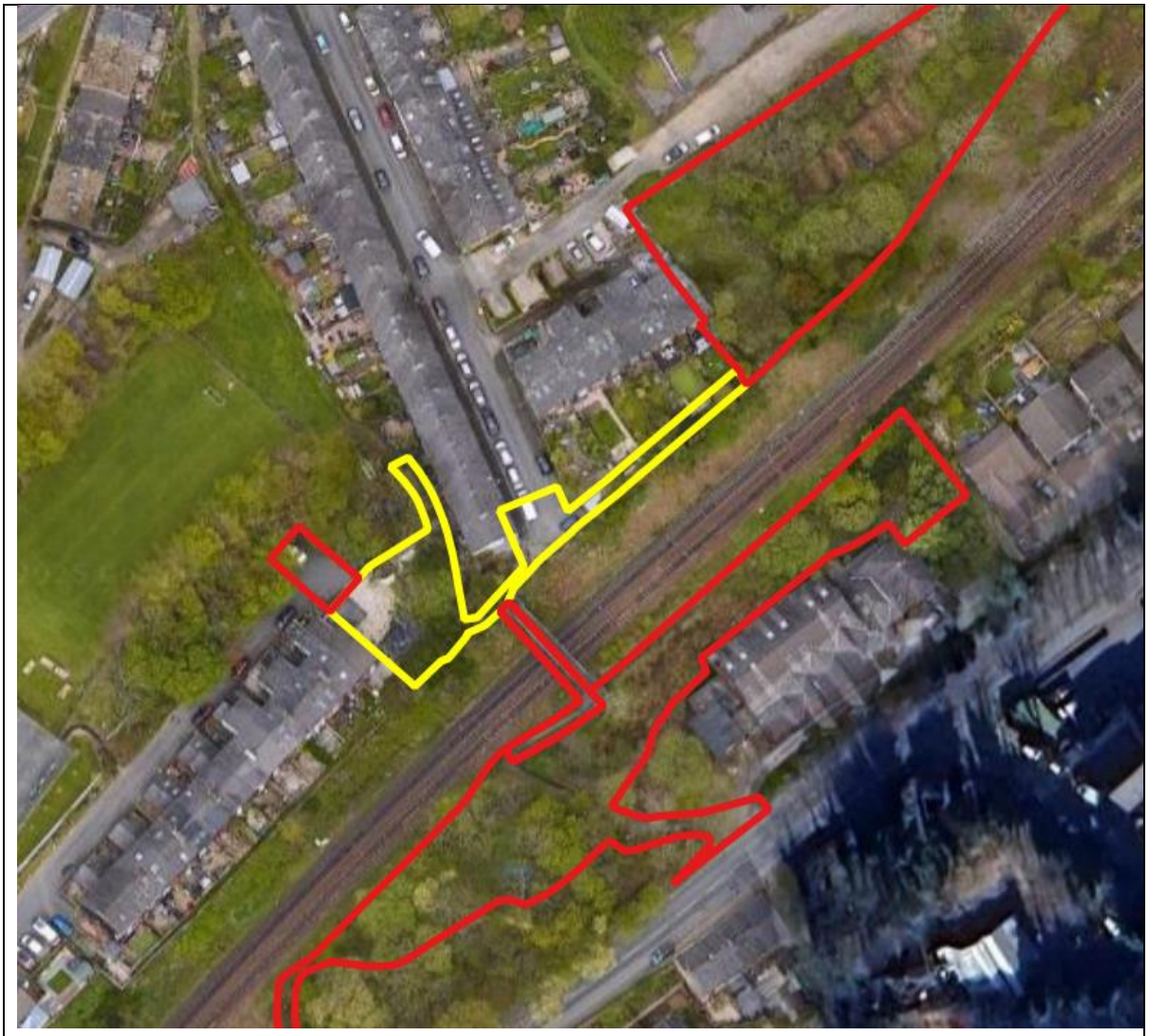
The compound site is located to the west of New Earth Footbridge (MVL3/16) and the former site of Drill Hall (17912.1.0), built in 1912, now clubhouse of the Tameside Sports Association. Woodend Mill (grade II listed, NHLE 1268030) and the former site of Carrhill Mill (3311.1.0), a water-powered woollen scribbling mill from 1793 which evolved into a steam-powered cotton spinning mill by 1818, are located to the east of the railway line from the compound.

The potential for significant archaeological remains to be present within this area is assessed to be low.

Likely scheme impacts

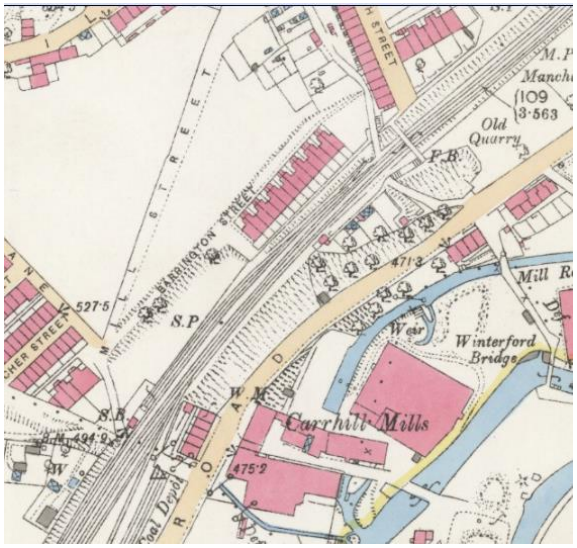
Converting the area into a compound would require vegetation clearance and ground levelling.

It is not anticipated that these works would impact upon any significant archaeological or built heritage remains. No mitigation works are anticipated.

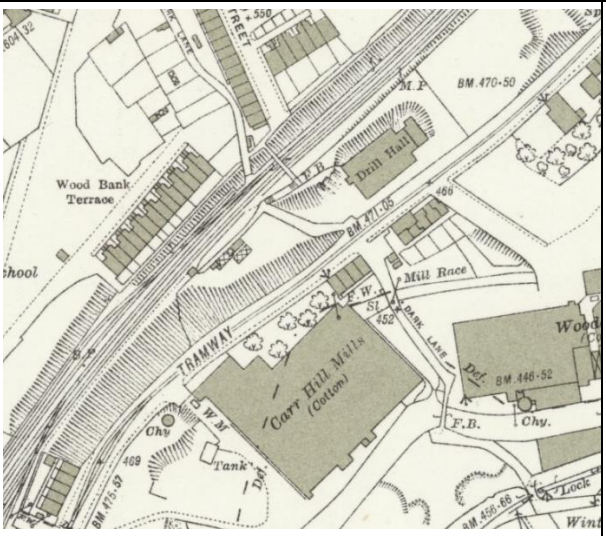


Location of proposed compound. Base Map: GoogleEarth 2025

Yorkshire Sheet 270 Surveyed: 1848 to 1850, Published: 1854 Source: National Library of Scotland



Yorkshire CCLXX.16 Surveyed: 1889 to 1891, Published: 1894 Source: National Library of Scotland



Lancashire XCVII.16 Revised: 1933, Published: 1935 Source: National Library of Scotland

SD90SE – A Surveyed / Revised: 1951 to 1972, Published: 1956 Source: National Library of Scotland

B12. ROUGHTOWN ROAD OVERBRIDGE (MVL3/17) WORKS

Location Roughtown Road, Mossley, Micklehurst, Tameside, Greater Manchester, OL5 0SR

NGR SD 97693 02839

Land use and proposals

Current use: The southwestern extent of the area has temporary fencing and some works have been undertaken within it. Land slopes steeply down to the railway cutting.

Proposals: Temporary working area.

Known archaeological remains and potential

The railway cutting is crossed by Roughtown Road Railway Overbridge (MVL3/17; NHLE 1452405, grade II listed) and a footbridge (MVL3/18) with riveted wrought iron girders with cross-braced panels spanning the railway, which rest on masonry abutments and date to the construction of the Huddersfield & Manchester Railway (1845-9).

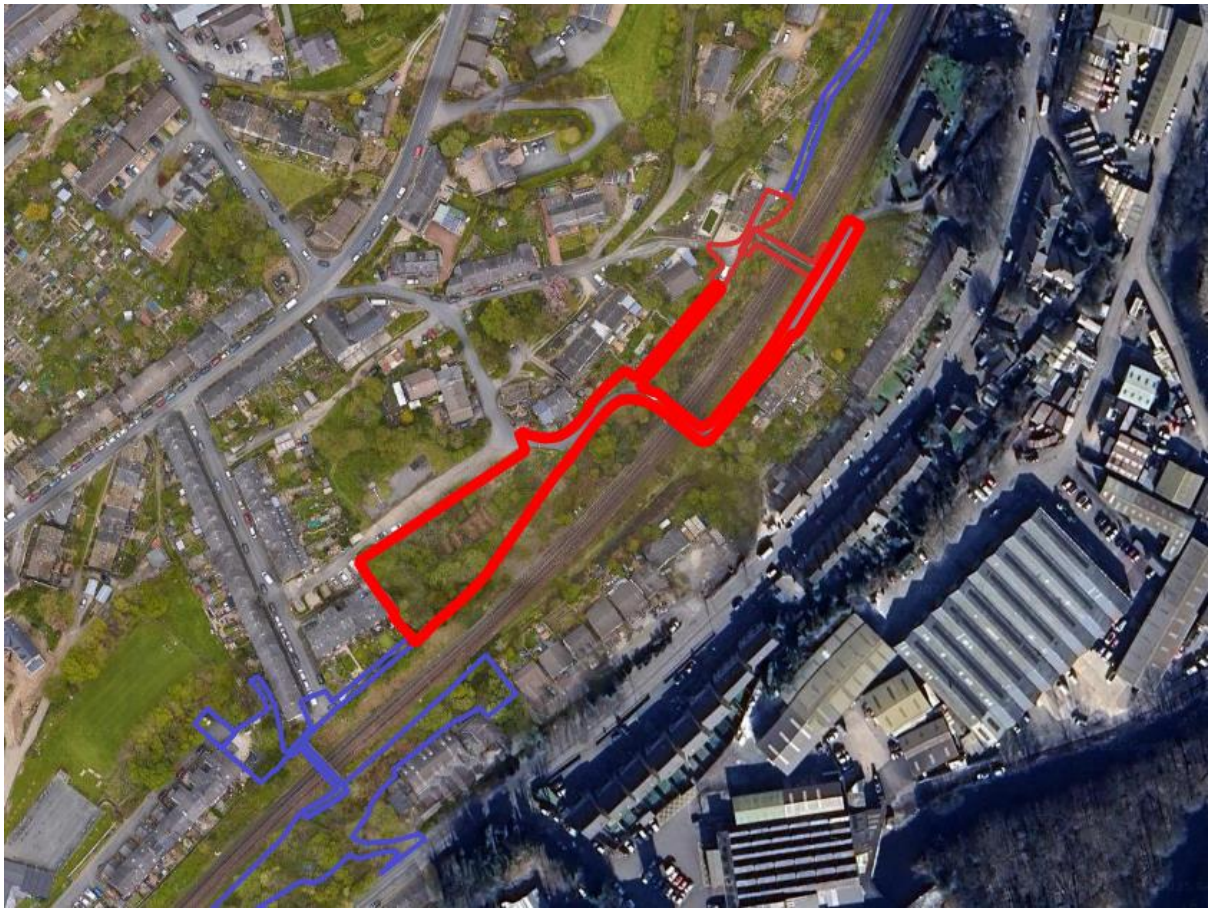
Historic mapping show signal posts west of the railway line, on the steep embankment east of New earth Street (OS map published in 1911). Tanks and a signal post are shown on the map published in 1922. Historic maps indicate that the area to the west was formerly occupied by allotment gardens, noted on maps into the 1950s. Glasshouses and a spring are shown on the plot. To the north of the compound area is Roughtown Green, currently a children’s play area.

Given steepness of the embankment, previous land use for minor railway structures and as an allotment, archaeological potential is assessed as low.

Likely Scheme impacts

Converting the area into a compound would require vegetation clearance and ground levelling.

It is not anticipated that these works would impact upon any significant archaeological or built heritage remains. The grade II listed Roughtown Road Railway Overbridge (MVL3/17) will be protected via construction controls set out in the CoCP. No archaeological mitigation works are anticipated.



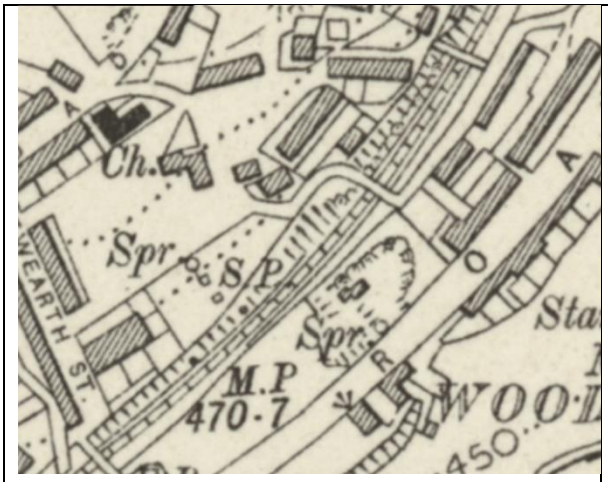
GoogleStreetView of Roughtown Road Overbridge, looking west

GoogleStreetView from Roughtown Road Overbridge, looking north

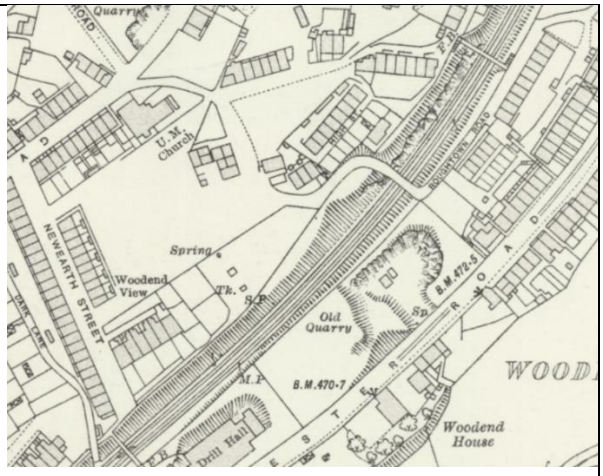
GoogleStreetView from Roughtown Road Overbridge, looking southwest

GoogleStreetView of southwestern extent of compound, looking southwest from Roughtown Road

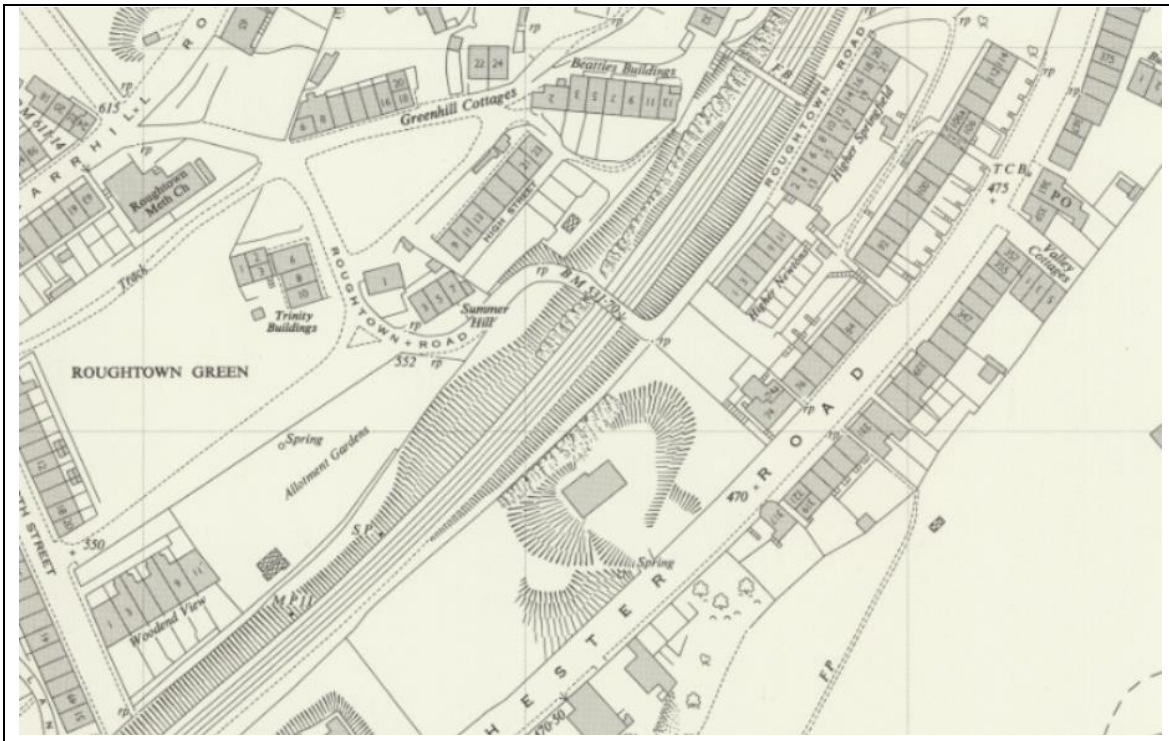
GoogleStreetView of approach to XX overbridge, from Roughtown Road Overbridge, looking northeast



Lancashire Sheet XCVII.SE Revised: 1906, Published: 1910. Source: National Library of Scotland



Lancashire XCVII.16 Revised: 1916, Published: 1922. Source: National Library of Scotland



SD9702NE – A Surveyed: 1954, Published: 1955. Source: National Library of Scotland

B11. HERON LANE COMPOUND

Location: Heron Lane, Mossley

NGR: SD 97877 03547

Land use and proposals

Current use: Pasture land.

Proposals: Site compound with works to Heron Lane to create passing places and a parking area.

Known archaeological remains and potential

There are no known heritage assets recorded within the compound boundary.

On the north western extent, the compound is near Wright's Mill Overbridge (MVL3/20), a grade II listed railway bridge constructed for the Huddersfield & Manchester Railway. There are two online non-designated heritage assets near the compound site, Midge Hall Underbridge (MVL3/19), an altered mid-19th century underbridge, located approximately 10m to the west of the compound boundary, and MVL3/21, a much altered water trough, located approximately 50m to the north of the compound area. The non-designated asset of Wright Mill (6045.1.0) is located approximately 55m to the north-east of the compound boundary. Constructed as a woollen mill in the early 19th century, only the mill building now survives, converted for residential use. Faint traces of ploughed out ridge and furrow were observed in pasture fields to the west of the railway line, indicating historic agricultural use in this area.

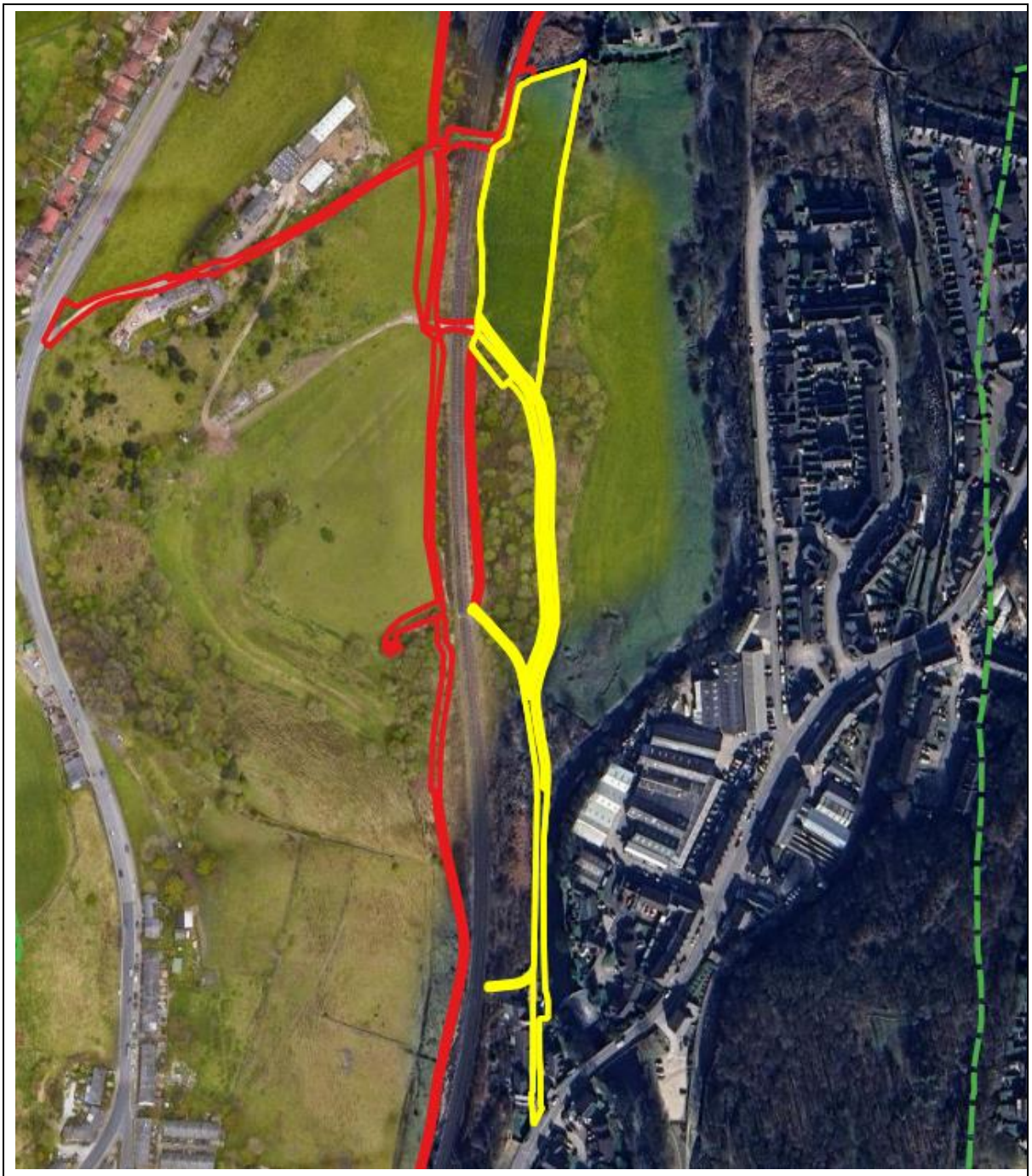
Historic maps show that the area has remained open fields since it was illustrated on the 1st edition 6" Ordnance Survey map of 1854. Local toponym 'Roaches' may derive from ME/OFr *rocher,* a steep rocky bank.

Low potential for presence of significant archaeological remains.

Likely Scheme impacts

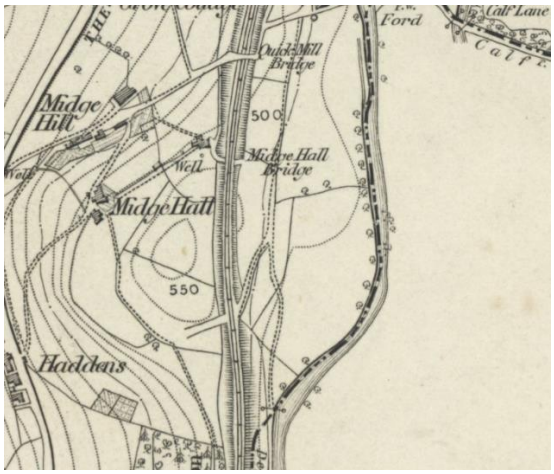
Converting the area into a compound would require vegetation clearance and ground levelling.

It is not anticipated that these works would impact upon any significant archaeological or built heritage remains. No mitigation works.

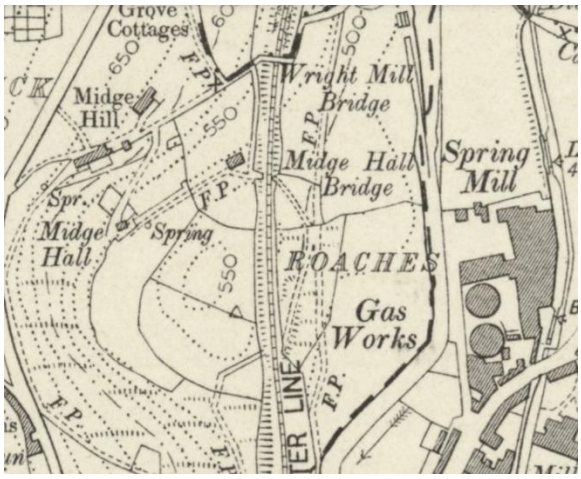


Location of proposed compound. Base Map: GoogleEarth 2025

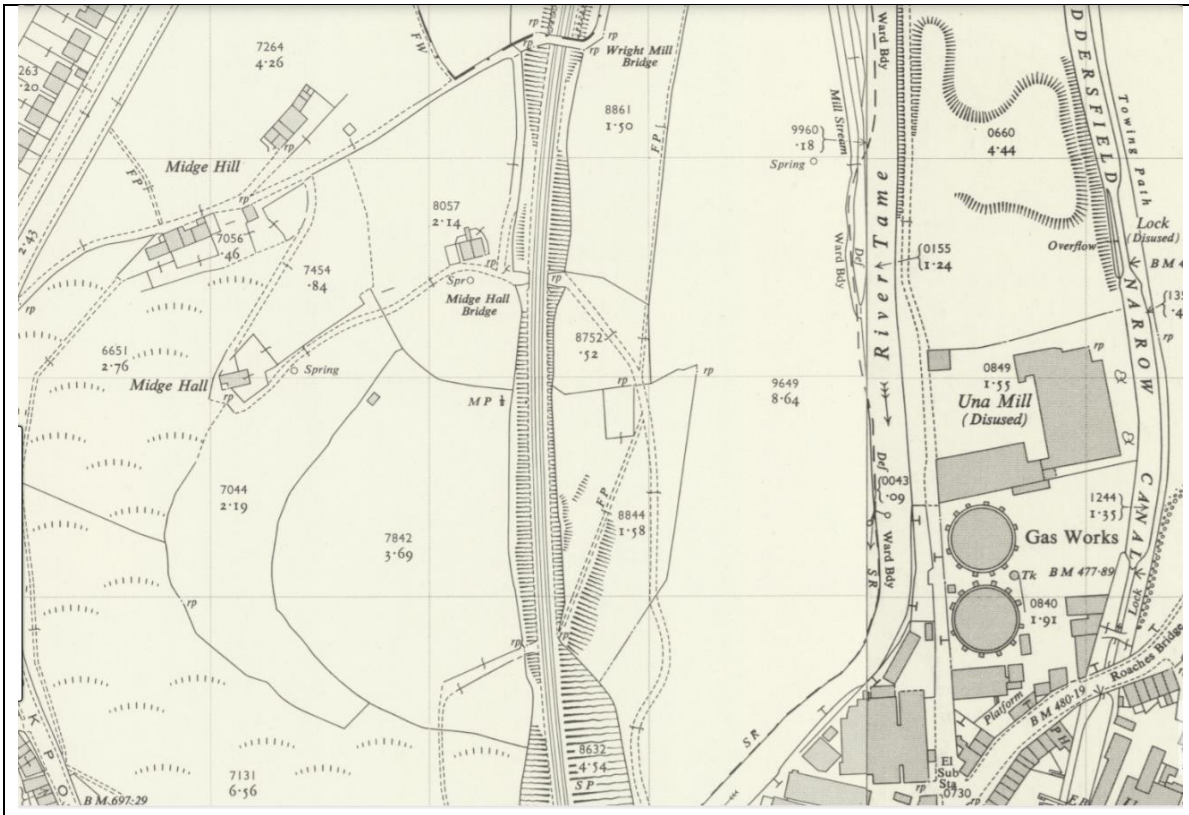
Roaches compound looking north-east. March 2025



OS 6” Yorkshire Sheet 270. Surveyed 1848 to 1850, Published 1854. Source: National Library of Scotland



Lancashire Sheet XCVII.SE Revised: 1906, Published: 1910 Source: National Library of Scotland



SD9703 – A Surveyed: 1954, Published: 1955 Source: National Library of Scotland

B12. ARMIT ROAD COMPOUND

Location Armit Road, Saddleworth, Grasscroft Oldham, Greater Manchester OL3 7LA

NGR SD 98108 03966

Land use and proposals

Current use: Pasture.

Proposals: Site compound and associated earthworks.

Known archaeological remains and potential

There are no heritage assets recorded within the compound boundary.

To the west of the compound are Hobbe Hole Underbridge (MVL3/22) (approximately 90m to the west) and grade II listed Wright's Overbridge (MVL3/23) (NHLE 1452409), located approximately 100m to the north. There is one non-designated asset located approximately 100m to the east which is canal lock 18W on Huddersfield Narrow Canal (19033.1.0).

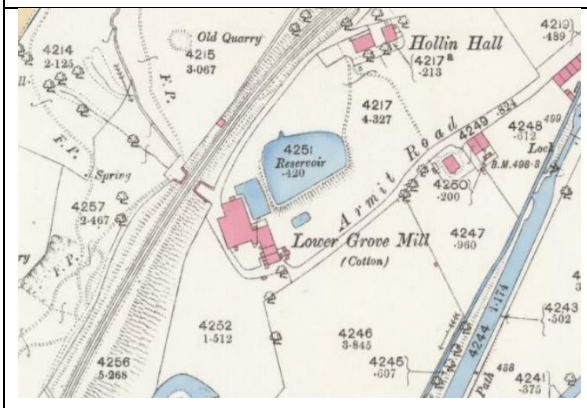
In the 25 inch OS map published in 1894, Lower Grove Cotton Mill is located in a plot to the northwest of the proposed compound site. The mill was removed in the mid to late 20th century, and the area has not been developed subsequently. Map evidence does not indicate that this complex extended to the south of Armit Road and into the area of the compound.

There is low potential for significant buried archaeological remains to be present within this area.

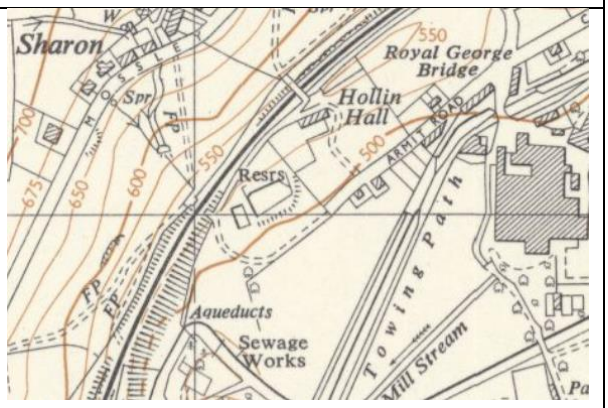
Likely Scheme impacts

It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage remains. No mitigation works.

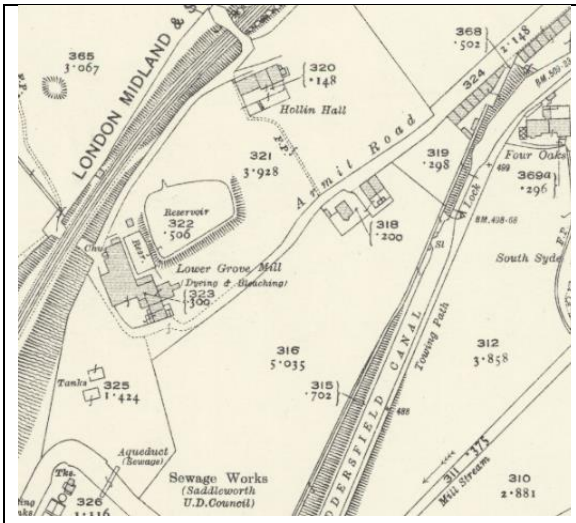
Location of proposed compound. Base Map: GoogleEarth 2025



OS 25" Yorkshire CCLXX.16. Surveyed 1889 to 1891, Published 1894. Source: National Library of Scotland



National Grid Maps SD90SE - A. Surveyed/Revised 1951 to 1955, Published 1956. Source: National Library of Scotland



Lancashire XCVII.12 Revised: 1933, Published: 1935 Source: National Library of Scotland

SD90SE – A Surveyed / Revised: 1951 to 1972, Published: 1973 Source: National Library of Scotland

Google Street view, history 2000

B13. STOCKPORT ROAD LEVEL CROSSING DIVERSION

Location Mossley Road, Grotton, Saddleworth, Grasscroft, Oldham, Greater Manchester, OL5 0RS

NGR SD 97831 03595

Land use and proposals

Current use: Pasture, with fenced trackway adjacent to railway sidings.

Proposals: 10x100m strip - Temporary land take for fencing works

Known archaeological remains and potential

The Historic Environment Record does not record any archaeological remains within this site. To the north-east of the site is the grade II listed Wright's Mill Overbridge (MVL3/20). To the southeast is the non-designated Midge Hall semi-circular arch underbridge (MVL3/19). Both are associated within the Huddersfield & Manchester Railway (1845-9). Up hill to the north-west of the site are the grade II listed 7, 9, 11 AND 11A, Midge Hill (NHLE 1162827), three houses dating to the mid to late 18th century.

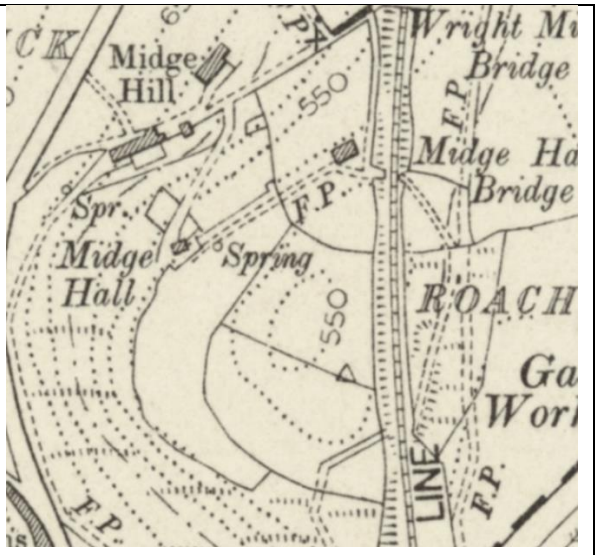
Historic maps depict a structure to the southwest of the compound, indicated on maps from c.1882 until the 1960s. The structure was located close to a well in the field to the south; it is no longer extant, but a rubble spread is visible on satellite images. Satellite imagery appears to show linear earthworks in the field to the south, aligned on a NE/SW axis; these broadly align with former field boundaries shown on historic maps.

Likely Scheme impacts

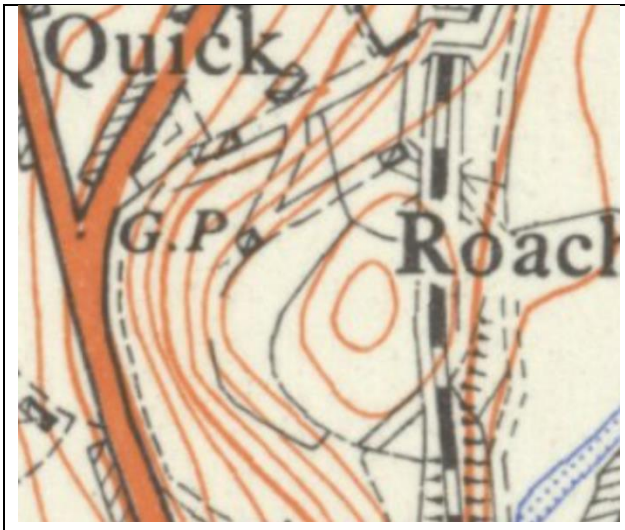
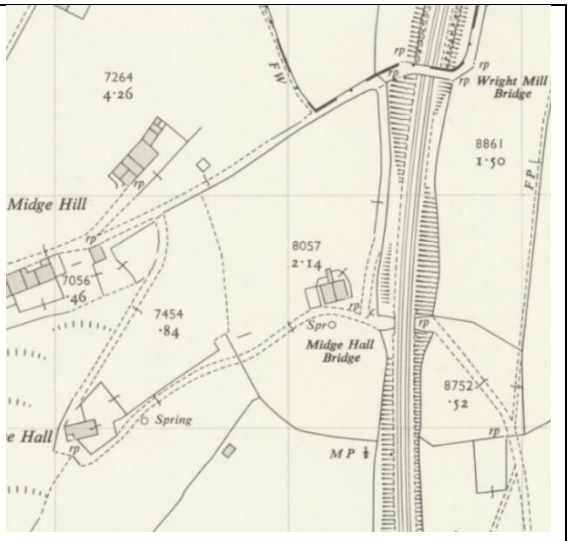
It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage remains within this small area of pasture land immediately west of the railway. No mitigation works.

Location of proposed compound. Base Map: GoogleEarth 2025

Lancashire Sheet XCVII. Surveyed: 1844 to 1863, Published: ca. 1882. Source: National Library of Scotland



Lancashire Sheet XCVII.SE. Revised: 1906, Published: 1910. Source: National Library of Scotland

	
34/90 – C Publication date: Revised: 1904 to 1949, Published: 1951. Source: National Library of Scotland	**SD9803-SD9903 – BA Revised: 1963 to 1964, Published: 1965. Source: National Library of Scotland**

B14. ROYAL GEORGE UNDERBRIDGE (MVL3/25) AND SITE COMPOUND WORKS

Location Oaklands Road, Saddleworth. Grasscroft. Oldham, Greater Manchester OL4 4AE

NGR SD98602 04356

Land use and proposals

Current use: Surfaced car park.

Proposals: Compound and parking to support of the works to Royal George Underbridge (MVL3/25).

Known archaeological remains and potential

There are no recorded heritage assets within the compound boundary.

Three grade II designated heritage assets are located around the proposed compound. These are Royal George Underbridge (MVL3/25) (NHLE 1451848) approximately 30 m to the north, Christ Church Friezland (NHLE 1356701) approximately 100 m to the west, and Huddersfield Narrow Canal Milestone at SD 987 043 (NHLE 1253529). The closest non-designated heritage asset comprises Shaw Hall settlement (6255.1.0) which is of medieval and post medieval origin, and located c.185 m to the north of the proposed compound.

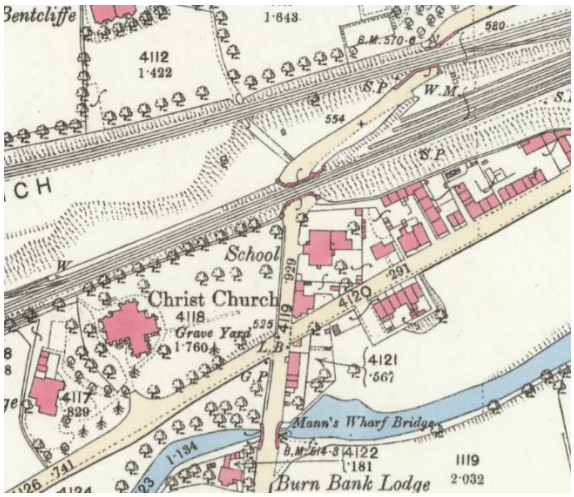
A school is depicted on the 1st edition Ordnance Survey map of 1854 located on the site of the current church hall and extending into the proposed compound. The school is named as Christ Church School on this map, and was associated with the adjacent church. The school was replaced by the mid-20th century by the current single storey church hall. Hard standing is now present to the south of the church hall and the proposed compound is currently used for car parking.

There is potential for archaeological remains of the former school to survive within the compound site, however, any such remains would be of low (local) significance.

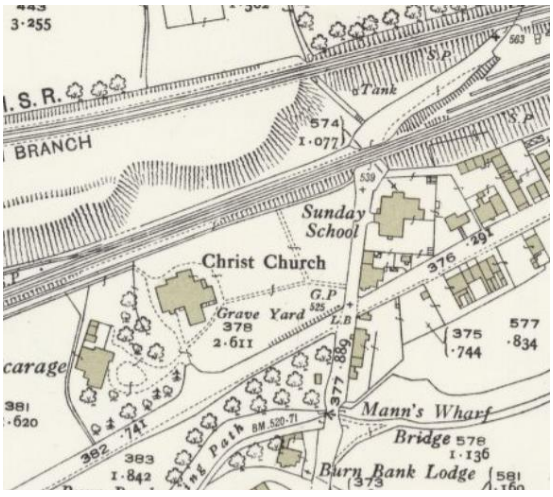
Likely Scheme impacts

It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage remains, as no ground disturbance is involved. No mitigation works.

Location of proposed compound. Base Map: GoogleEarth 2025



OS 25" Lancashire XCVII.12. Surveyed 1890 to 1891, Published 1894. Source: National Library of Scotland



OS 25" Yorkshire CCLXX.12. Revised 1929. Published 1932. Source: National Library of Scotland

B15. OAKLANDS ROAD COMPOUND

Location Oaklands Road, Saddleworth, Grasscroft, Oldham, Greater Manchester OL4 4EQ

NGR SD 98690 04451

Land use and proposals

Current use: Wooded land.

Proposals: Track access and welfare compound.

Known archaeological remains and potential

There are no heritage assets recorded within the compound boundary.

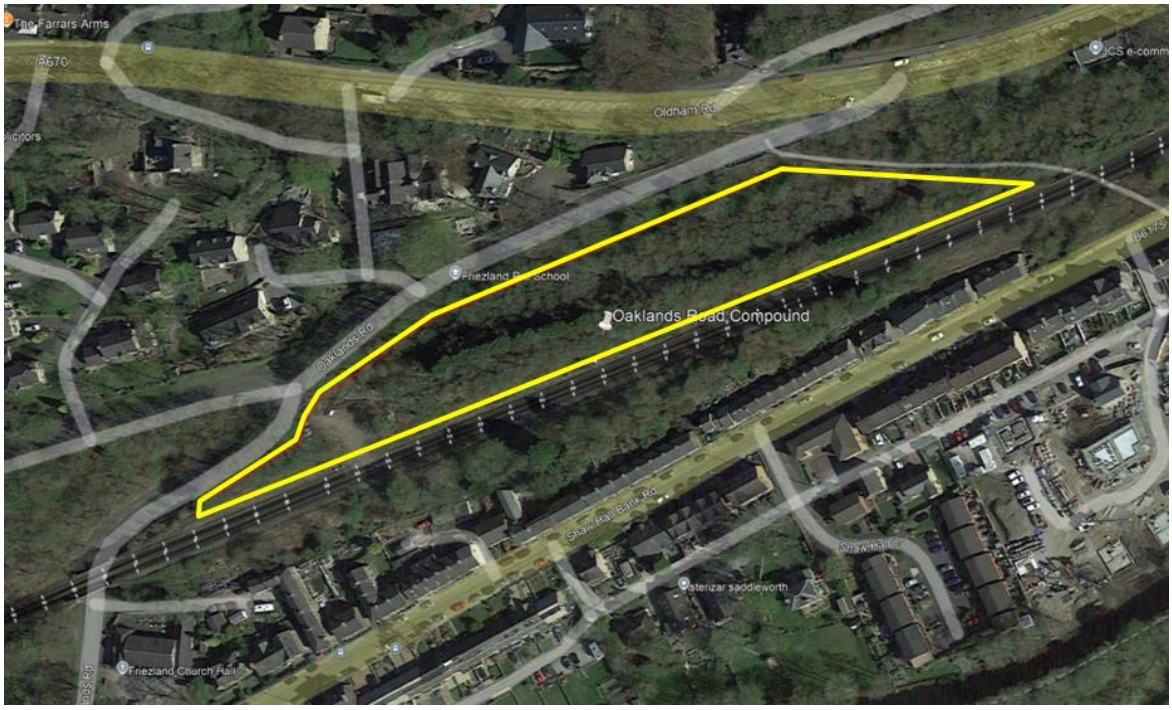
40m to the east of the compound boundary is Shaw Hall Bank Road Footway (MVL3/26) (NHLE 1451852), and to the immediate west is Royal George Underbridge (MVL3/25) (NHLE 1451848). Further to the south-west is Christ Church Friezland (grade II, NHLE 1356701).

The Oldham branch of the LNWR ran east-west across this area, following its opening in 1856, with sidings subsequently laid out between the Oldham branch and the Huddersfield & Manchester Railway. However when the Oldham Branch was disused in the later 20th century, railway equipment is likely to have been removed and the area is now overgrown with vegetation.

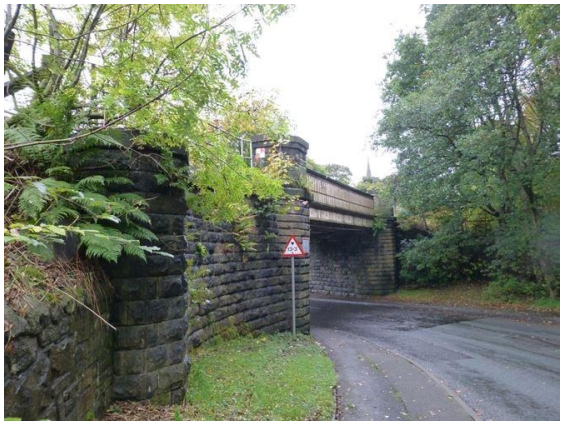
There is a low potential for any ground disturbance to identify archaeological remains associated with these former railway sidings and railway activity.

Likely Scheme impacts

It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage. No mitigation works.

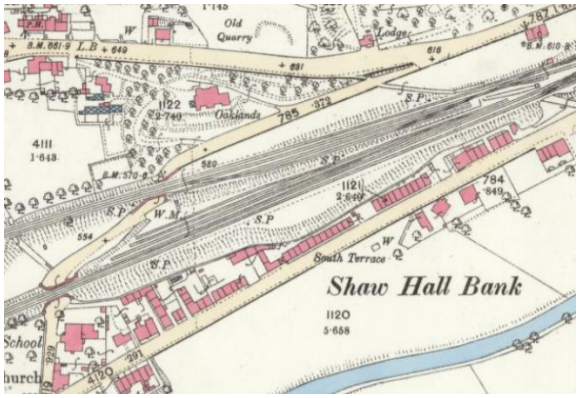


Location of proposed compound. Base Map: GoogleEarth 2025

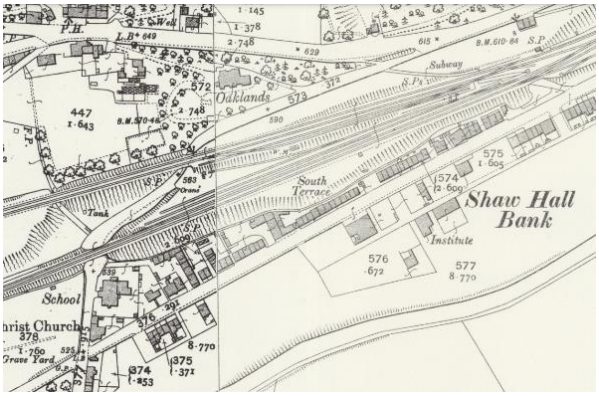


Railway underbridge MVL3/25, Oaklands Road © Historic England

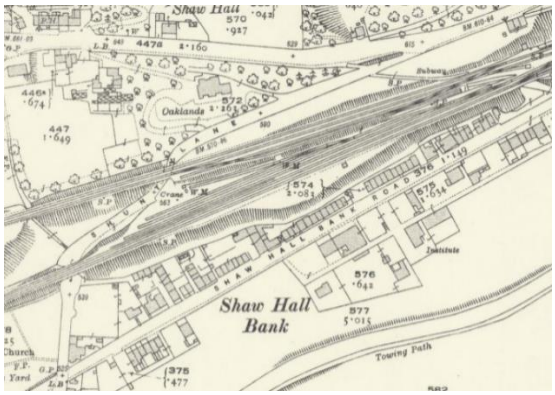
Railway accommodation underbridge MVL3/26, Footway © Historic England



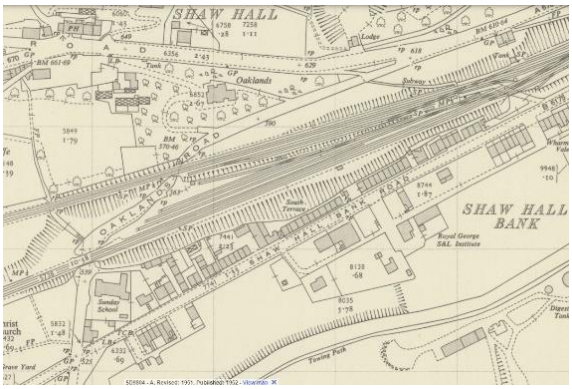
OS 25” Lancashire XCVII.12. Surveyed 1890 to 1891, Published 1894. Source: National Library of Scotland



OS 25” Yorkshire CCLXXI.9 Revised: 1906, Published: ca. 1910 Source: National Library of Scotland



OS 25” Lancashire XCVII.12. Surveyed 1933, Published 1935. Source: National Library of Scotland



OS 1:1250 SD9804 – A Revised: 1951, Published: 1952 Source: National Library of Scotland

B16. GREENFIELD SITE COMPOUND WORKS

LOCATION Greenfield, Oldham Road / Greenfield Station, Oldham Road, Saddleworth, Uppermill, Oldham, Greater Manchester OL3 6LU

NGR SD 99247 04771

Land use and proposals

Current use: Public highway, wooded land.

Proposals: Oldham Road to be closed during works to be used as a site compound. Wooded land to east of Oldham Road is to be used for utilities diversions.

Known archaeological remains and potential

The proposed compound is located to the immediate north-west of Oldham Road Overbridge (MVL3/28, NHLE 1451853), and non-designated assets including Greenfield Station Footbridge (MVL3/27A), and Greenfield Station (174.1.0). This area comprises the public highway of Oldham Road.

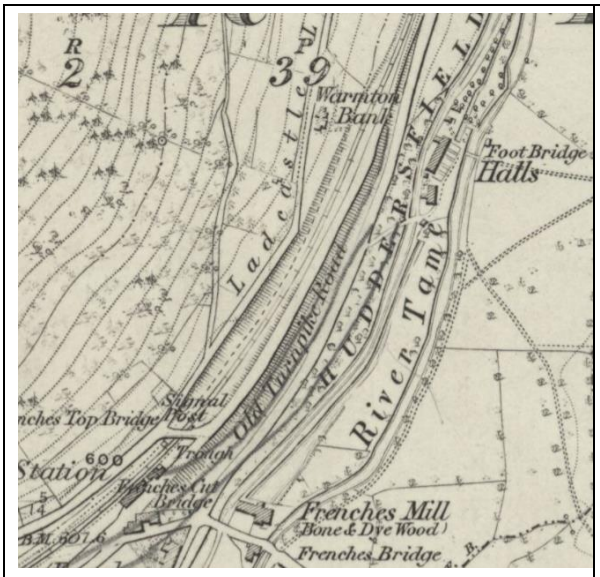
The proposed compound location has historically been enclosed by the Huddersfield and Manchester Railway to the west and the Oldham Road to the east. No development is shown to have been established within the compound boundary on historic maps. Historic maps dating back to 1854 show rough ground to the east of Oldham Road, with woodland between Chapel Road and the Huddersfield Narrow Canal.

There is low potential for buried archaeology to be located within this area.

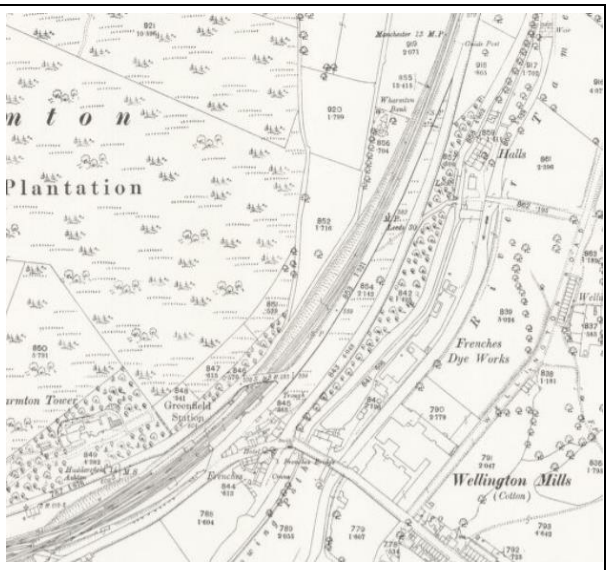
Likely Scheme impacts

Establishment of the compound will not impact upon any significant archaeological or built heritage remains. No mitigation works.

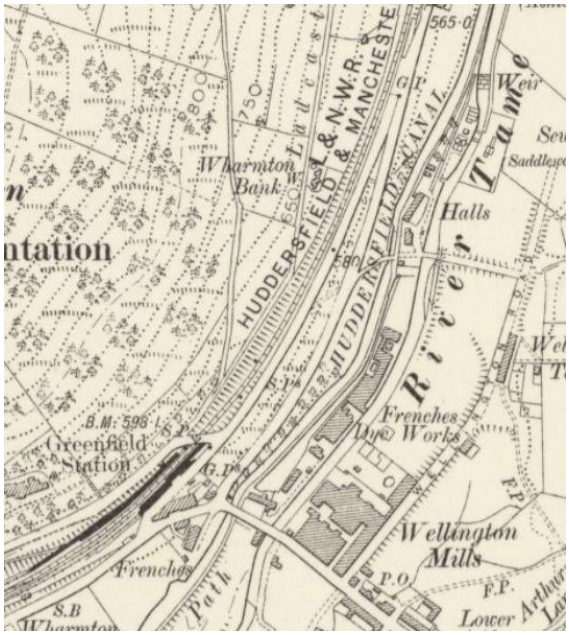
Location of proposed compound. Base Map: GoogleEarth 2025



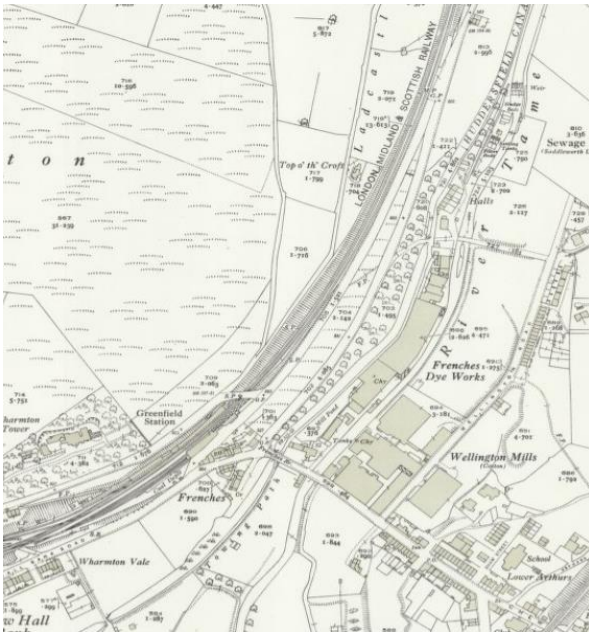
Yorkshire Sheet 271. Surveyed: 1849 to 1851. Published 1854. Source: National Library of Scotland



Yorkshire CCLXXI.9. Surveyed 1889. Published 1893. Source: National Library of Scotland

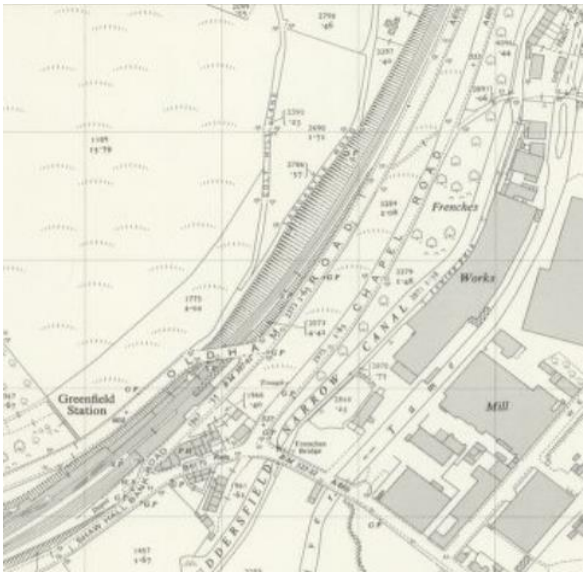


Yorkshire Sheet CCLXXI.SW. Revised: 1904 to 1904. Published 1909. Source National Library of Scotland



Yorkshire CCLXXI.9 Revised 1929. Published 1932. Source: National Library of Scotland

Yorkshire CCLXXI.9 Revised 1938. Published 1945. Source: National Library of Scotland



National Grid Map SD9904-B. Revised 1957. Published 1958. Source: National Library of Scotland

B17. WICKENS UNDERBRIDGE MVL3/29 LAYDOWN AREA & PROW UPGRADE

Location Ladcastle Road, Saddleworth, Uppermill, Oldham, Greater Manchester, OL3 6LU

NGR SD 99264 04769

Land use and proposals

Current use: Pasture, with wooded areas to north. Located west of railway.

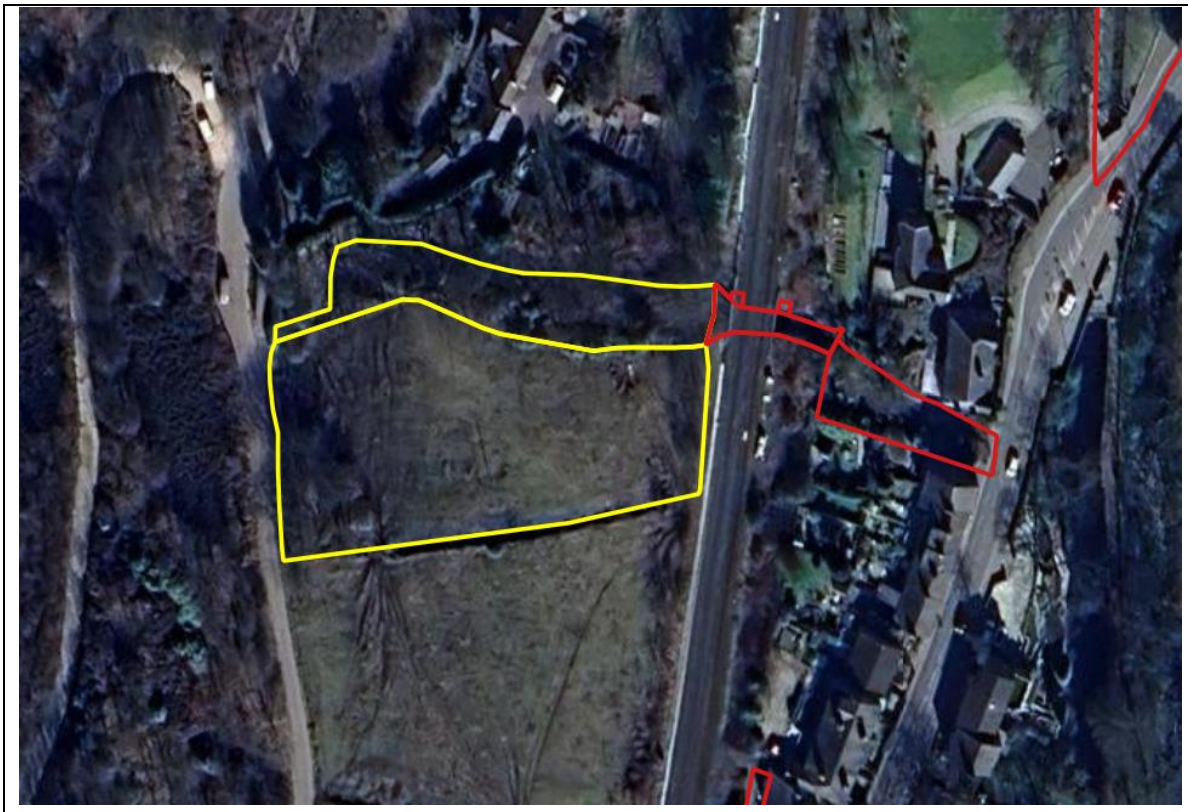
Proposals: Temporary land take for laydown area, superficial ground disturbance for footpath upgrade.

Known archaeological remains and potential

Located west of grade II listed railway accommodation Wickens Underbridge (MVL3/29), (NHLE 1451854), which accommodates a track beneath the railway line. Historic maps indicate quarrying to the north-west at Wickens Quarry, and to the south-west at Top o' th' Croft Quarry. No features are indicated within the compound area.

Likely Scheme impacts

It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage remains. No mitigation works.

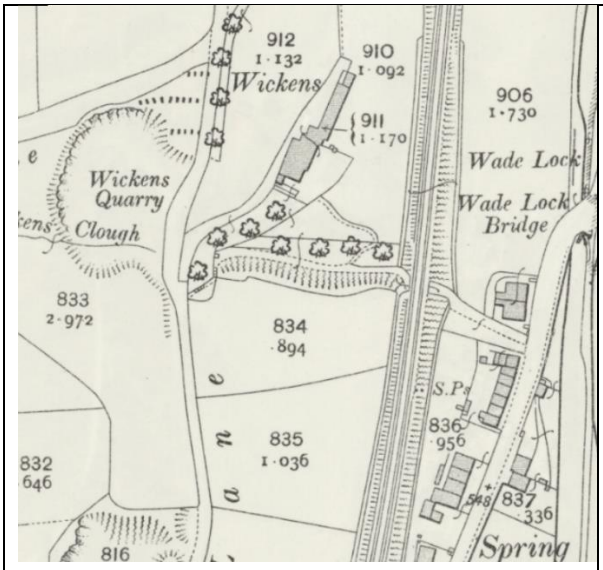


Location of proposed compound. Base Map: GoogleEarth 2025

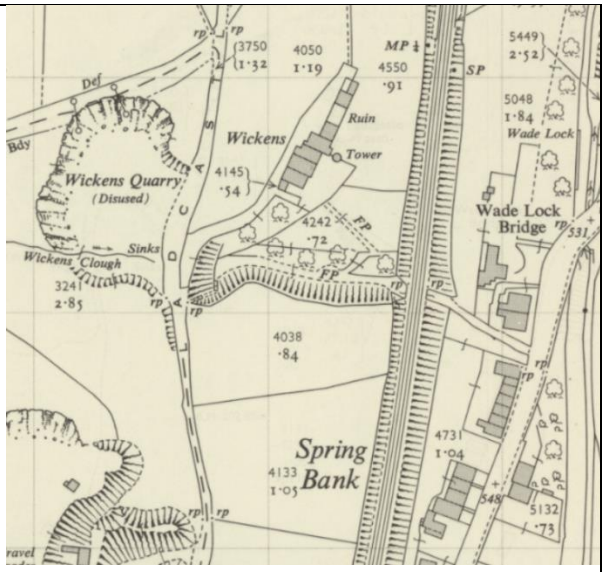
GoogleStreetView, looking east from Ladcastle Road down the slope towards the railway

Yorkshire Sheet 271 Surveyed: 1849 to 1851, Published: 1854. Source: National Library of Scotland

Yorkshire Sheet CCLXXI.SW Revised: 1904 to 1904, Published: 1909. Source: National Library of Scotland



Yorkshire CCLXXI.9 Revised: 1906, Published: ca. 1910. Source: National Library of Scotland



SD9905 – A Revised: 1952, Published: 1953. Source: National Library of Scotland

B18. FORMER SADDLEWORTH STATION COMPOUND

Location Saddleworth Station Compound, Saddleworth, Oldham OL3 5QR

NGR SD 99570 06455

Land use and proposals

Current use: Grass and tree planting adjacent to road.

Proposals: Laydown area for materials to construct fencing. No earthworks required.

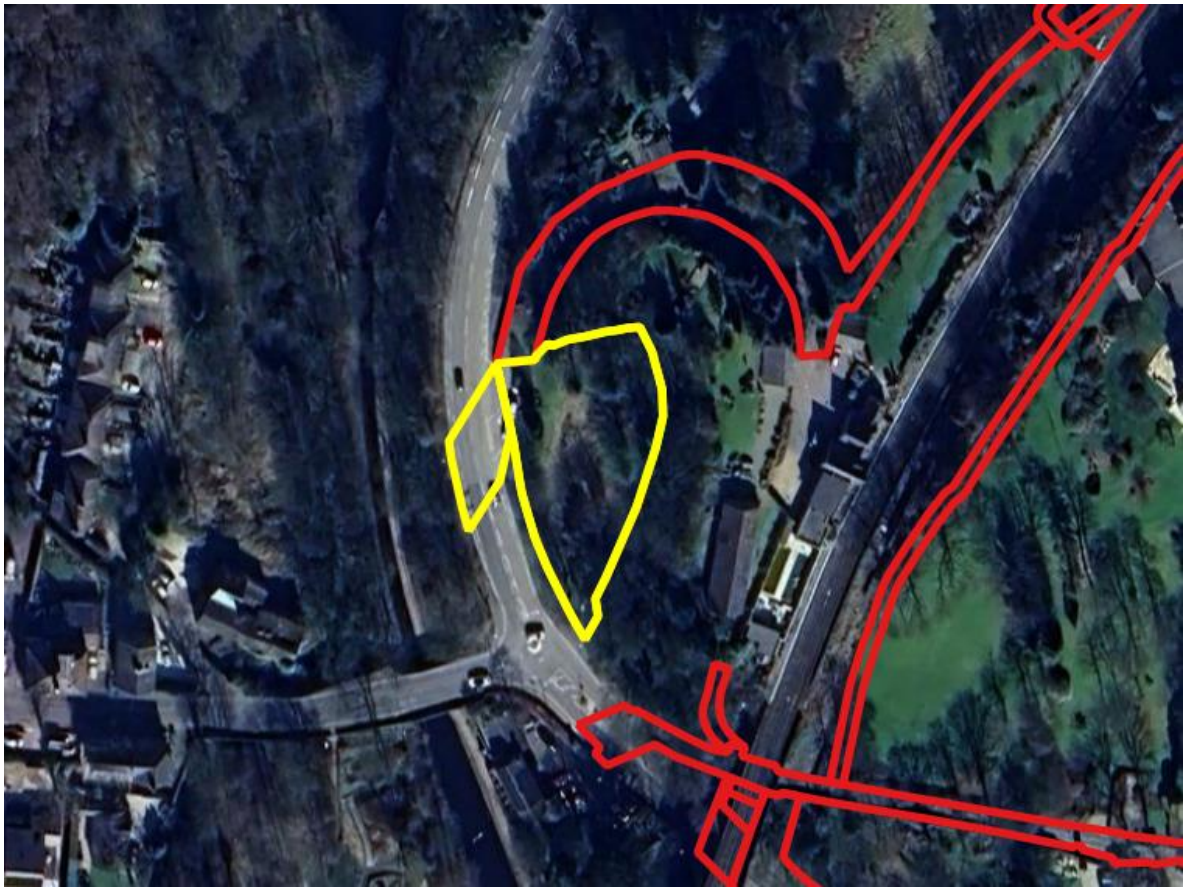
Known archaeological remains and potential

This proposed compound is located immediately west of the former Saddleworth Station (173.1.0) and to the north of the Uppermill Viaduct (MVL3/31) (NHLE 1068120), Lock 23 of the Huddersfield Narrow Canal (NHLE 1356719) and north-east of Brownhill Bridge Mill (NHLE 1309426), all of which are grade II listed. Uppermill Conservation Area is located c.45 m to the south-east.

Historic maps from 1854 to 1952 show that this was the location of Brownhill Quarry (sandstone). Due to its previous use as a quarry, no survival of archaeological remains is anticipated.

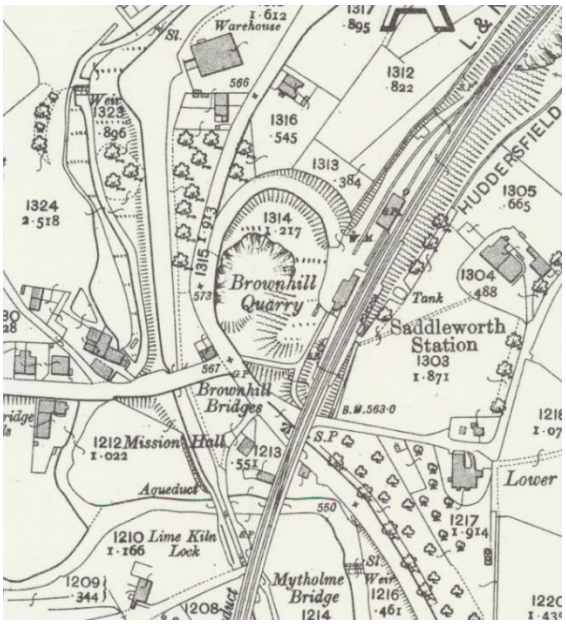
Likely Scheme impacts

It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage remains. No mitigation works.

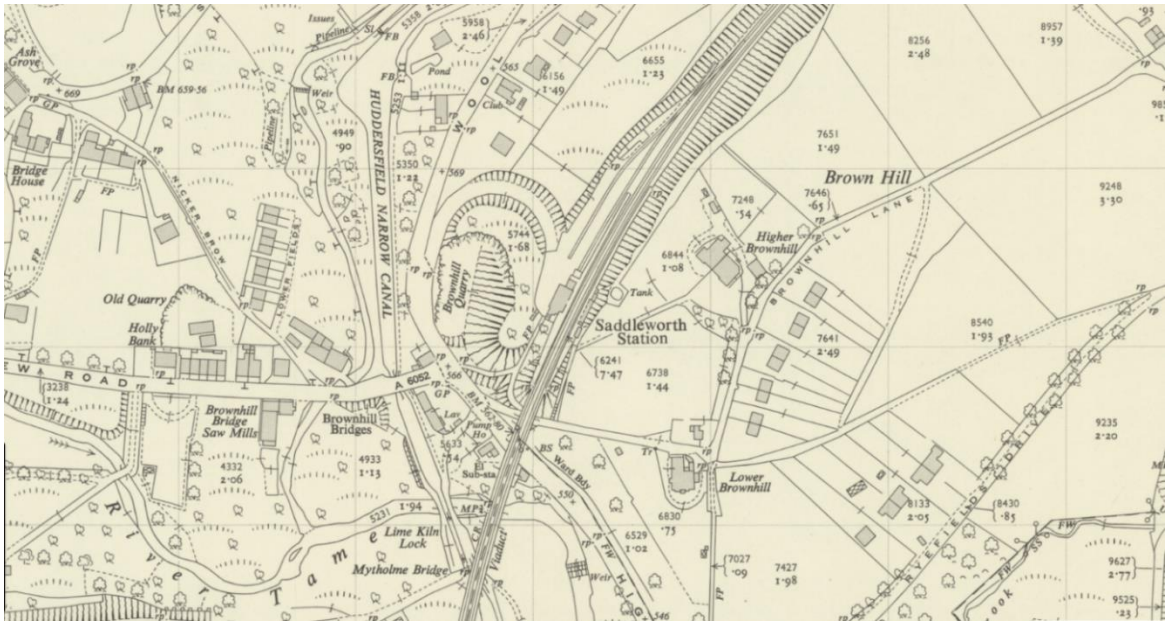


Location of proposed compound. Base Map: GoogleEarth 2025

OS Yorkshire Sheet 271 Surveyed: 1849 to 1851, Published: 1854 Source: National Library of Scotland



Yorkshire CCLXXI.5 Revised: 1904, Published: 1906 Source: National Library of Scotland



SD9906 – A Revised: 1952, Published: 1953 Source: National Library of Scotland

B19. BROWNHILL LANE ACCESS

Location 30, Brownhill Lane, Saddleworth, Uppermill, Oldham OL3 6BZ

NGR SD 99871 06534

Land use and proposals

Current use: Pasture land.

Proposals: Temporary access route.

Known archaeological remains and potential

There are no heritage assets recorded within the access route boundary.

The grade II listed building of Butterhouse Lindum Cottage (NHLE 1067465) is located c.90 m to the east.

A possible barrow (1096.1.0) is recorded on Brown Hill, c.110 m west of the site. It was dug by quarrymen in 1844, and its contents were mostly destroyed. Two urns (found at a depth of 4ft 6” [1.37 m] from the top the barrow) and a broken perforated celt were uncovered at the site. No visible evidence of the barrow was identified in the in the vicinity of Brown Hill during the site visit. The exact location of the barrow is no longer known, and further satellite burials may be present in this vicinity.

Historic maps show that the area was formerly fields, as it is now.

Low to moderate potential for prehistoric archaeological remains of low (local) to medium (regional) significance, depending on the presence / survival of any deposits associated with Bronze Age or later burials and the impact of 19th century quarrying.

Likely Scheme impacts

Whilst proposals for access route establishment are not yet available, it is anticipated that this may require vegetation clearance, ground levelling, and groundworks. These works have the potential to result in the truncation or removal of potential archaeological remains within the access route boundary.

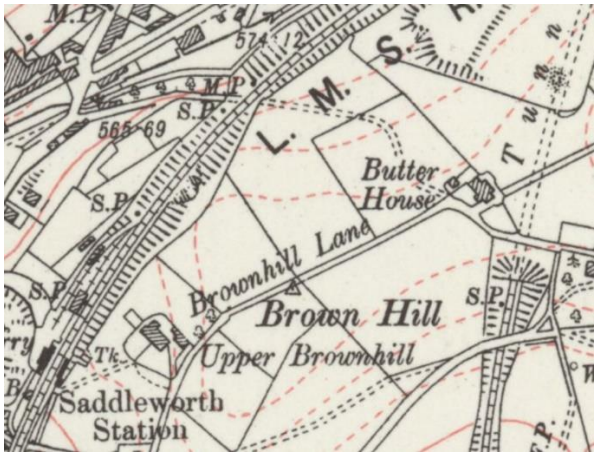
It is likely that a staged programme of archaeological mitigation works may be required in advance of development. Further consultation will be undertaken with GMAAS to determine the scope and nature of such mitigation when further information is available about the compound layout and establishment.

Location of proposed access route. Base Map: GoogleEarth 2025

Fields north of Brownhill Lane Compound, March 2025.

OS 6” Yorkshire Sheet 271. Surveyed 1849 to 1851, Published 1854. Source: National Library of Scotland

Yorkshire Sheet CCLXXI.NW Surveyed: 1889 to 1890, Published: 1894 Source: National Library of Scotland



Yorkshire Sheet CCLXXI.NW Revised: 1929, Published: 1933 Source: National Library of Scotland

OS 6” Yorkshire CCLXXI.NW. Surveyed 1948, Published 1949. Source: National Library of Scotland

B20. OLD RAILWAY TUNNEL COMPOUND

Location Butterhouse Tunnel, Higher Ryefields Lane, Saddleworth, Uppermill, Oldham

NGR SE 00096 06851

Land use and proposals

Current use: Disused former railway line adjacent to Transpennine Route.

Proposals: Site compound for access with temporary RRAP with associated earthworks and tree removal.

Known archaeological remains and potential

The proposed compound is located c.150 m west of Holly Grove conservation area. It is located east of Huddersfield Narrow Canal, its associated Lock 27W and Lock 28 (NHLE 19040.1.0, 19041.1.0). No heritage assets are recorded within the compound boundary.

The compound is located within the cutting for the former Micklehurst Loop railway, constructed by the LNWR between Standedge and Stalybridge which opened in 1886 to aid congestion on the mainline. The route closed in 1966 although a short section at the southern end remained in use until 1972 serving the nearby Hartshead PowerStation. Forming the southern boundary of the compound is the surviving north portal to Butterhouse Tunnel which extends c.300 m to the south. The western approach to Butterhouse has been infilled but the eastern portal remains open. Constructed of blue engineering brick, the portal is now in poor condition, with fallen brickwork and coping stones present within the railway cutting.

Construction of the railway cutting has removed any potential for archaeological remains predating the railway to be present in this area. The compound is assessed to have low potential for unknown archaeological remains.

Likely Scheme impacts

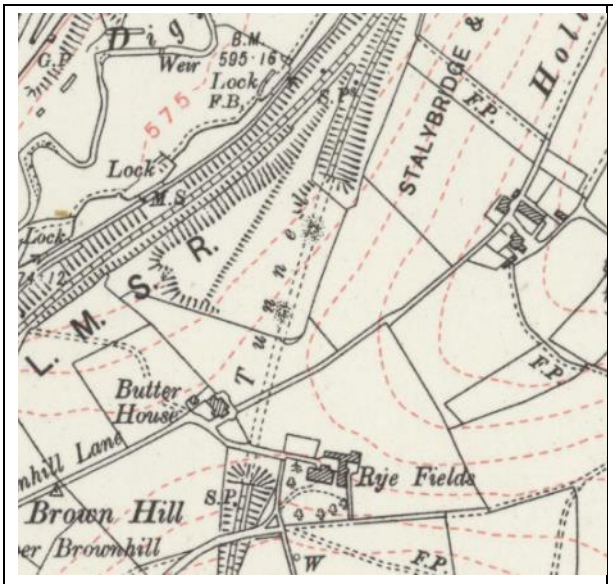
It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage remains. No mitigation works are therefore required.

Location of proposed compound Base Map: Google Earth 2025

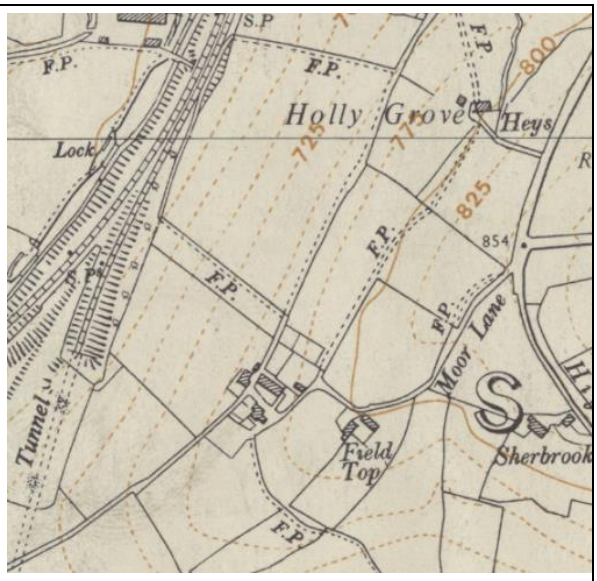
The north entrance to Butterhouse Tunnel. March 2025.

Yorkshire Sheet 271 Surveyed: 1849 to 1851, Published: 1854 Source: National Library of Scotland

Yorkshire Sheet CCLXXI.NW Surveyed: 1889 to 1890, Published: 1894 Source: National Library of Scotland



Yorkshire Sheet CCLXXI.NW Revised: 1929, Published: 1933 Source: National Library of Scotland



SE00NW - A/ Surveyed / Revised: Pre-1930 to 1955, Published: 1956 Source: National Library of Scotland

B21. WARD LANE SATELLITE COMPOUND

Location Compound south of Ward Lane Overbridge (MVL3/36), Diggle Junction, Diggle OL3 5JU

NGR SE 00386 07687

Land use and proposals

Current use: Rough pasture.

Proposals: Site compound with associated access and earthworks.

Known archaeological remains and potential

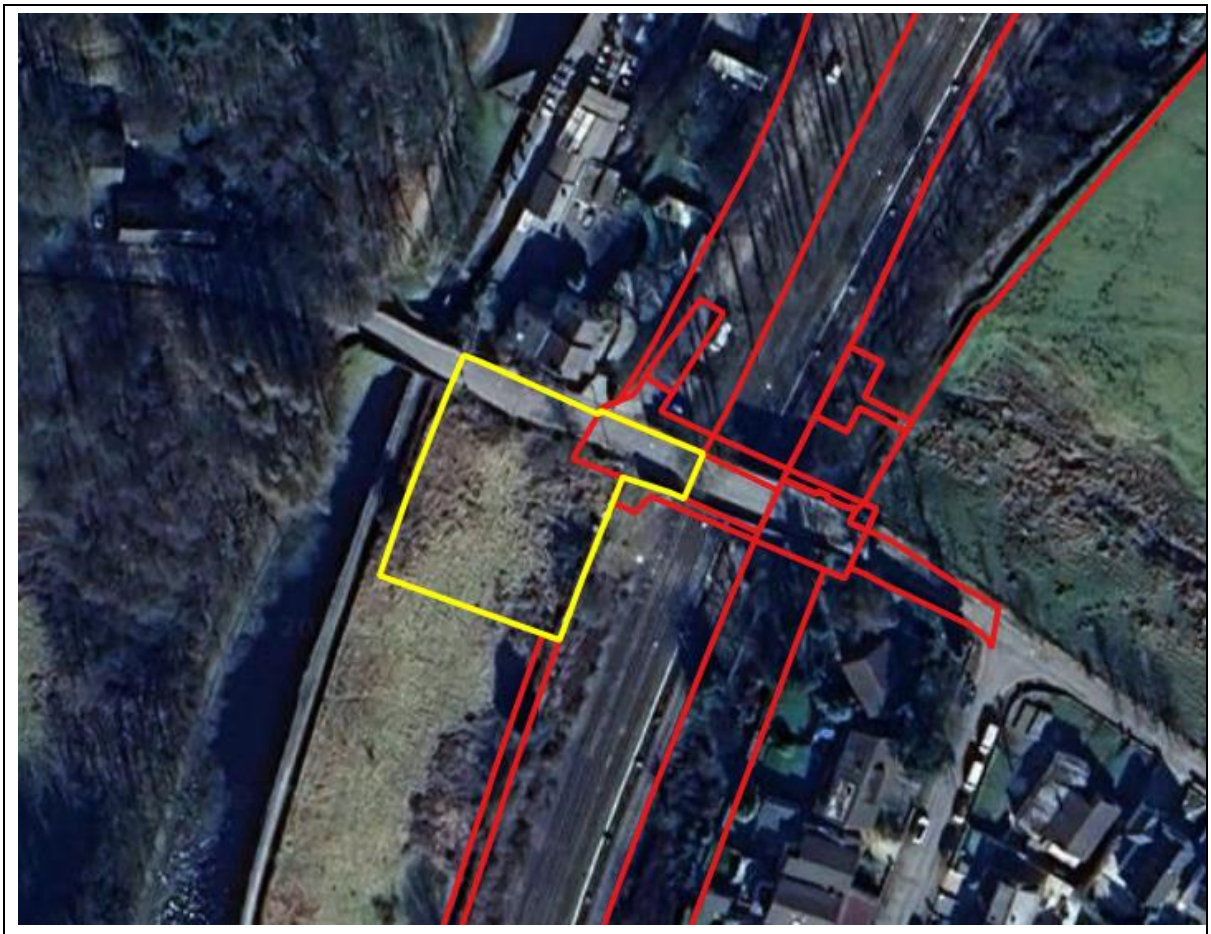
The compound location is located between the Huddersfield Narrow Canal to the west, and Route Section W2B to the east. No heritage assets are recorded within the site.

The Huddersfield Narrow Canal No. 66 Bridge (grade II, NHLE 1067433) is located to the immediate west of the compound location, and Ward Lane Overbridge (MVL3/36) is located to the east over the railway alignment. Further to the north-west (across the canal) is 1 Ward Lane (grade II, NHLE 1164775) and Huddersfield Narrow Canal Lock Adjacent to Ward Road Bridge (grade II, NHLE 1253530).

Historic Ordnance Survey maps show that this compound location has remained undeveloped since at least the mid -19th century. There is a low potential for significant archaeological remains to be present has been identified in this area, which may have been previously impacted by canal and railway construction works.

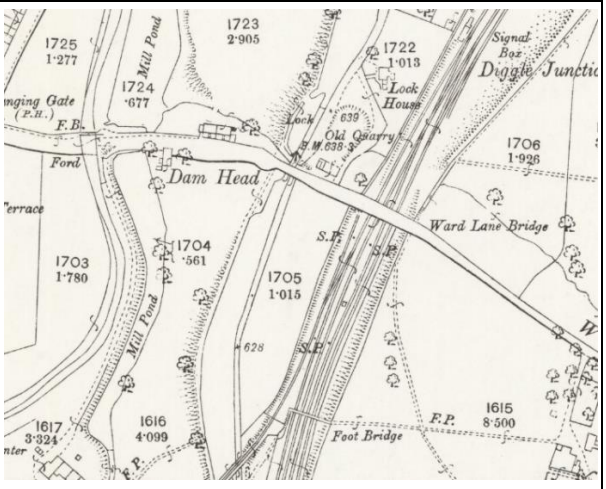
Likely Scheme impacts

It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage. No mitigation works are therefore required.

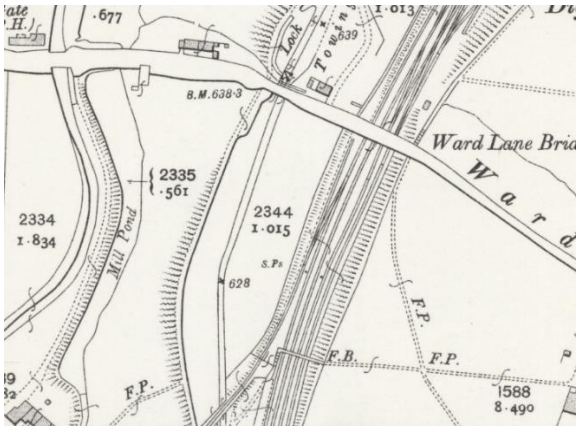


Location of proposed compound Base Map: Google Earth 2025

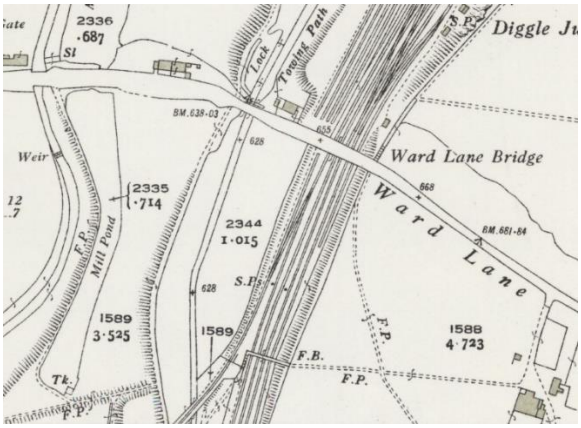
Yorkshire Sheet 271 Surveyed: 1849 to 1851, Published: 1854 Source: National Library of Scotland



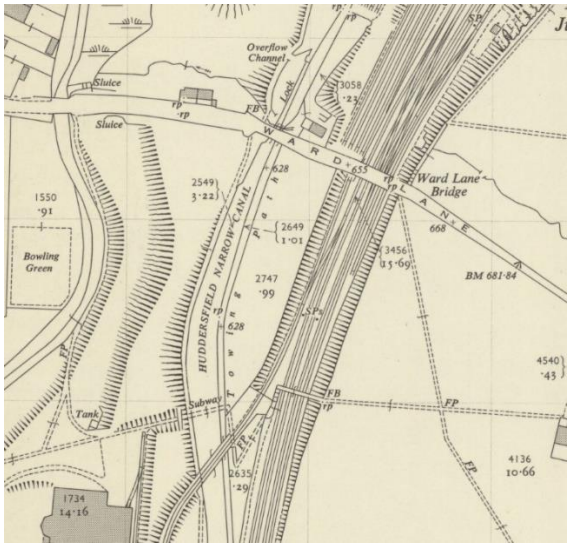
Yorkshire Sheet CCLXXI.1 Surveyed: 1890, Published: 1892 Source: National Library of Scotland



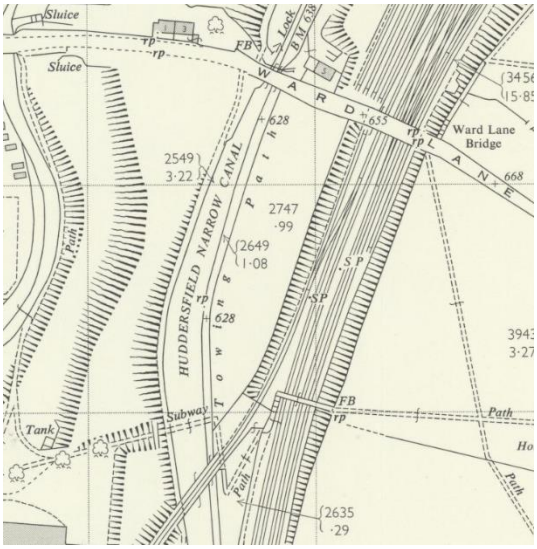
Yorkshire CCLXXI.1 Revised: 1904, Published: 1906 Source: National Library of Scotland



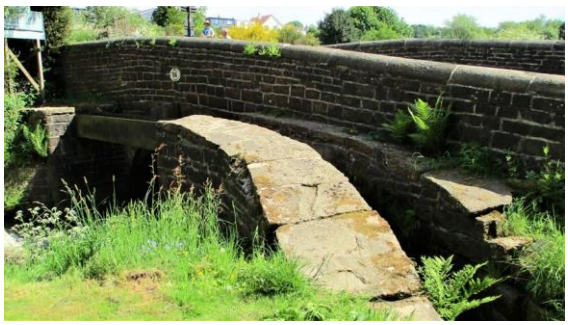
Yorkshire CCLXX.1 Revised: 1929, Published: 1932 Source: National Library of Scotland



SE0007 - A Revised: 1951, Published: 1952 Source: National Library of Scotland



SE0007 – SE0107 - BA Revised: 1963, Published: 1965 Source: National Library of Scotland



Huddersfield Narrow Canal No. 66 Bridge

Huddersfield Narrow Canal No. 66 Bridge

B22. GRANDPA GREEN SITE COMPOUND 1 AND GRANDPA GREENS SITE COMPOUND 2

Location Compound north of Ward Lane Overbridge (MVL3/36), Diggle Junction, Diggle OL3 5JU

NGR SE 00335 07576

Land use and proposals

Current use: Car parking and area of grassland / tree planting.

Proposals: Site compounds with associated access and earthworks.

Known archaeological remains and potential

The compound sites are located between the Huddersfield Narrow Canal and the Transpennine Route, to the north of Ward Lane. No heritage assets are recorded within the proposed compound boundary.

To the west are a group of grade II listed structures: Huddersfield Narrow Canal Lock Adjacent To Ward Road Bridge (NHLE 1253530), Huddersfield Narrow Canal No. 66 Bridge (NHLE 1067433) and 1, Ward Lane (NHLE 1164775), a mid-18th century house.

On the opposite side of the Huddersfield Narrow Canal, c.60 m from the compound are the sites of Warth Mill (or Wharf Mill) (HER 6094.1.0) and Ellis Mill (18088.1.0).

The 1st edition Ordnance Survey 6” map of 1854 shows a pond and small L-plan building to within the southern half of the site. This building is labelled on subsequent editions as Lock House, likely providing accommodation for the lock keeper, and was demolished by the mid-20th century.

Diggle Junction was located to the east of the site. This was the junction between the Huddersfield & Manchester Railway and the Micklehurst Loop, when came into use c.1881. The Diggle Junction Signal Box (HER 18983.1.0) is located directly to the east of the site, within the Network Rail land boundary. Erected in the 1880s, this is a large London & North Western Railway Type 4 signal box, however has been much altered externally with replacement of the timber cladding and windows.

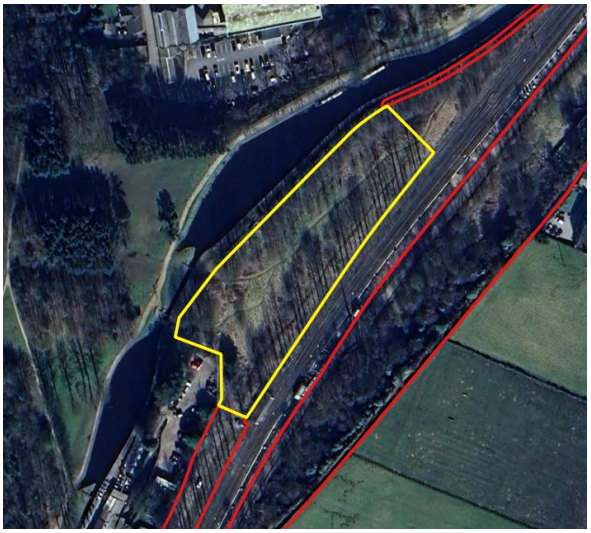
Sidings were established across the northern half of the site in the late 19th century. The 1904 Ordnance Survey map shows railway sidings and buffers between the Huddersfield Canal and Diggle Junction. The map surveyed in 1963 shows the site occupied by two parallel, areas of tracks and sidings, separated by an embankment. Now removed, the former sidings is planted with young trees and in use as car parking. Fragmentary evidence of its past use survives today in the presence of bollards made of reused railway track along the access road from Ward Lane. To the east, within the Network Rail boundary, a cast iron lamp remains, now in poor condition, with the upper portion of the lamp and ladder now detached from the lamp post. To the west of the compound site is a timber lamp post with ladder, located hard against the boundary wall with the canal towpath. Archaeological traces

of trackbed, positions of sleepers and superficial railway infrastructure may survive within the area. Any such remains are likely to be of low significance.

Likely Scheme impacts

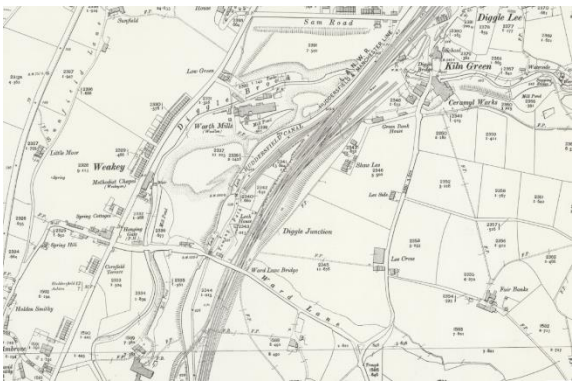
It is not anticipated that the Order Scheme will impact upon any significant archaeological or built heritage remains, or that mitigation works will be required.

Grandpa Green 1 site location plan



Grandpa Green 2 site location plan

Yorkshire Sheet 271 Surveyed: 1849 to 1851, Published: 1854 Source: National Library of Scotland



Yorkshire Sheet CCLXXI.NW Revised: 1904, Published: 1907 Source: National Library of Scotland

Detailed overlay: Yorkshire Sheet CCLXXI.NW Revised: 1904, Published: 1907 Source: National Library of Scotland

Detailed overlay: SE0007-SE0107 – BA Revised: 1963, Published: 1965 Source: National Library of Scotland

General view of Grandpa Green's compound 2.

Reused rails in the car park at Grandpa Green's compound.

Cast iron gas lamp post located within Network Rail land boundary.

Timber lamp post located to the west of the proposed compound.

Diggle Junction Signal Box (LNW, 1885), located outside the compound boundary.

B23. DIGGLE COMPOUND

Location Lee Side, Harrop Dale, Saddleworth, Diggle, Oldham, Greater Manchester OL3 5JZ

NGR SE 00549 07803

Lands use and proposals

Current use: Car park (west of Transpennine Route) and site compound (east of Transpennine Route).

Proposals: Site compound, associated earthworks, and strengthening of Standedge Canal Tunnel (MVL3/39A).

Known archaeological remains and potential

This compound comprises parcels of land to either side of the Transpennine Route in Diggle. No heritage assets are recorded by the greater Manchester HER within these areas.

Located c.90 m north along the Transpennine Route are the grade II listed tunnel portals to the Standedge Tunnel (MVL3/41) (NHLE 1452141). Harrop Green Conservation Area is located c.100 m to the north-west, and includes grade II listed buildings such as 11 Harrop Green (NHLE 1067460), and 7, 8 and 18 Harrop Green (NHLE 1163050). Directly to the north-east of the compound, the hamlet of Diglea is designated as a conservation area, and contains a number of grade II listed buildings including Ivy Cottage (NHLE 1309447), No.7 and Heather Cottage (NHLE 1162882). To the south of the compound, in the Ward Lane area is a group of grade II listed structures comprising Huddersfield Narrow Canal Lock Adjacent To Ward Road Bridge (NHLE 1253530), Huddersfield Narrow Canal No. 66 Bridge (NHLE 1067433) and 1, Ward Lane (NHLE 1164775), a mid-18th century house.

A number of non-designated assets are recorded in proximity to the compound. These include 19th century villas (HER 18982.1.0, 18998.1.0, 18997.1.0), a village school of 18th and 19th century date (HER 19000.1.0), and transport-related structures including Canal Lock 32W on Huddersfield Narrow Canal, Diggle Junction Signal Box (18983.1.0) and non-designated railway bridges (Ward Lane Overbridge (MVL3/36) and Diggle Brook (MVL3/37)).

The proposed compound to the west of the Transpennine Route is formed by a small surfaced car park which lies over the south end of the Standedge Canal Tunnel (MVL3/39A). This portion of the canal tunnel was constructed in the 1890, extending the original canal tunnel to accommodate railway tracks running through the north-west bore of the Standedge Tunnel, which opened in 1894. The tunnel portal is of rock-faced masonry construction with chamfered coping stones and a date stone inscribed 1893. The tunnel entrance is formed by an arch of blue engineering bricks with decorative modern metal gates. Internally the first section of the tunnel is formed by a brick arch supported on stone walls, before transitioning to a reinforced concrete slab supported on stone walls. Dating from c.2000, this section of the tunnel supports the railways above.

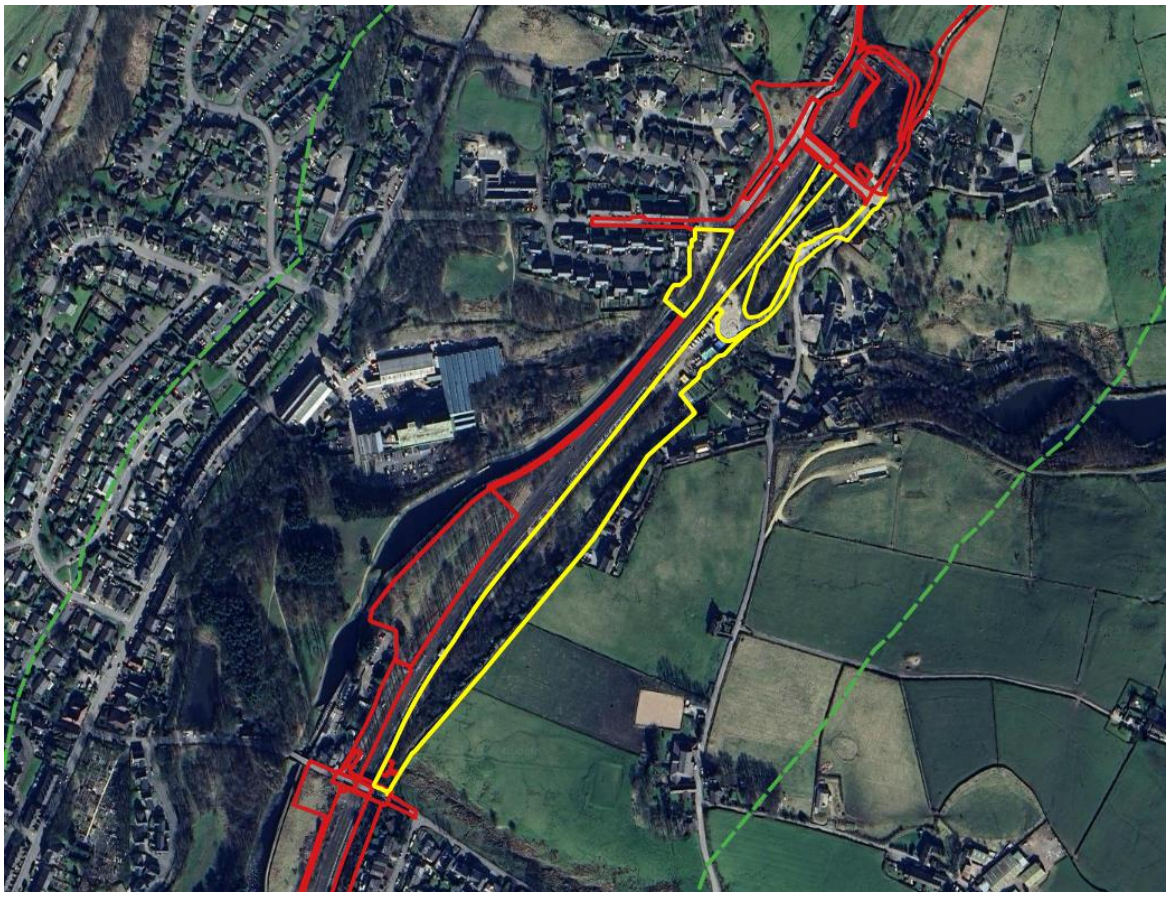
Historic maps indicate that the compound area to the west of the railway line was used as railway sidings at its northern end from the second half of the 19th century. Historic Ordnance Survey mapping depicts the sidings to have included turntables, a weigh bridge and small structures. Further to the south, the compound area contained paired railway lines for the Micklehurst Loop, which continued from Diggle Junction (located to the north of Ward Lane) to run through Butterhouse Tunnel. The Micklehurst Loop was closed in 1966, after which time the lines and sidings were removed. The site was terraced, sloping down from the east to the tracks, removing any potential archaeological remains predating this phase of activity.

It is assessed that the compound area to the west of the Transpennine Route has moderate potential for remains associated with the railway sidings, and low potential for remains of other periods. Any such remains are likely to be of low significance.

Likely Scheme impacts

Reinforcement of the Standedge Canal Tunnel (MVL3/39A) is proposed at its southern end in order to accommodate additional loadings during the construction phase. This would comprise the addition of a concrete saddle over the top of the tunnel arch for a length of 25m. The strengthening works would be set back from the tunnel portal and would not result in any alteration to the fabric of the portal. These works would strengthen the tunnel and, when complete, would not result in any visible change to the tunnel portal, or understanding of its evolution and historic interest. Construction controls set out in the CoCP will be implemented to protect heritage assets during the course of construction works.

It is not anticipated that the establishment of the compound to the east of the Transpennine Route would impact upon any significant archaeological remains or built heritage. No archaeological mitigation works are therefore anticipated.



Location of proposed compound. Base Map: Google Earth 2025

Entrance to Standedge Canal Tunnel (MVL3/39A). March 2025.

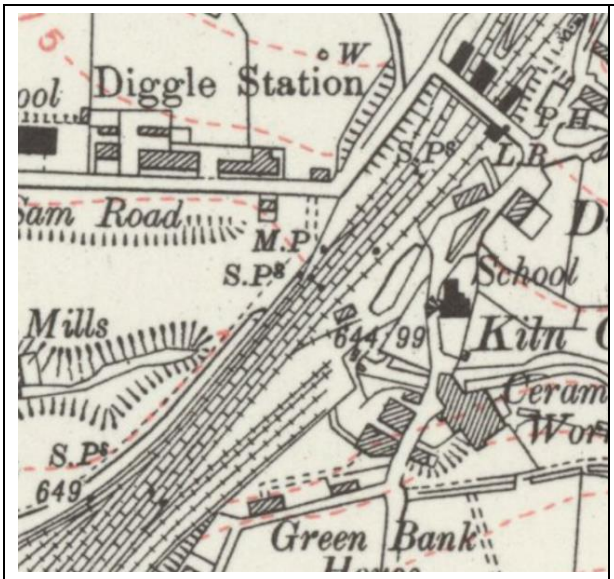
Proposed compound to west of the Transpennine Route. March 2025.

GoogleStreetView of compound location

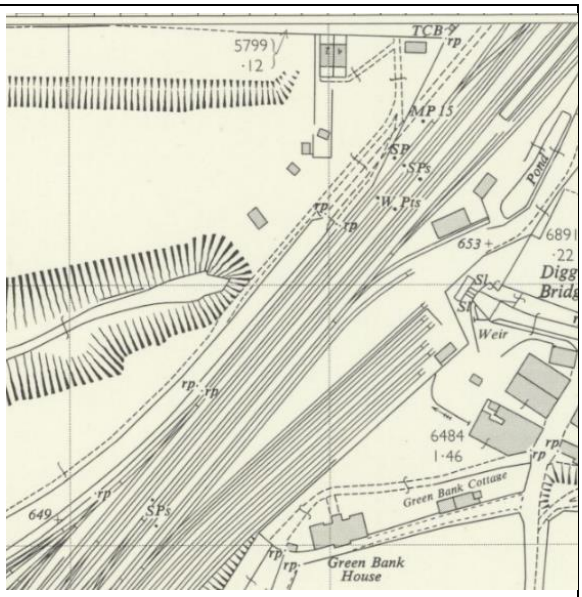
Huddersfield Narrow Canal No. 66 Bridge (NHLE 1067433).

Yorkshire Sheet 271 Surveyed: 1849 to 1851, Published: 1854 Source: National Library of Scotland

Yorkshire Sheet CCLXXI.NW Surveyed: 1889 to 1890, Published: 1894 Source: National Library of Scotland



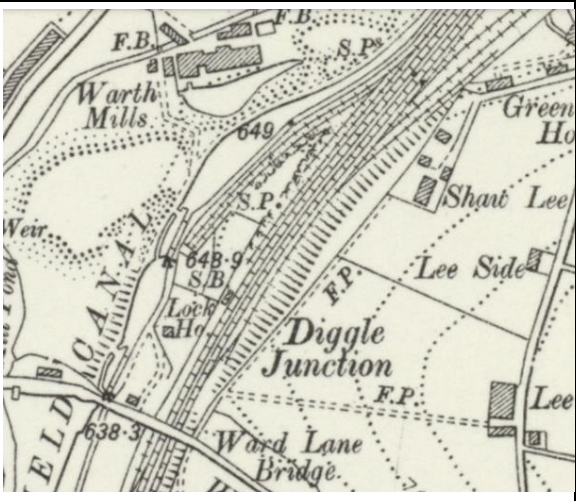
Yorkshire Sheet CCLXXI.NW Revised: 1929, Published: 1933 Source: National Library of Scotland



SE0007-SE0107 – BA Revised: 1963, Published: 1965 Source: National Library of Scotland.

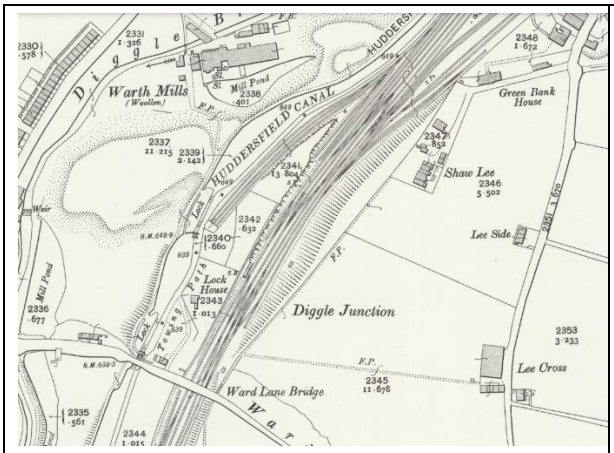
OS 6” Yorkshire Sheet 271

Surveyed: 1849 to 1851, Published: 1854. Source: National Library of Scotland

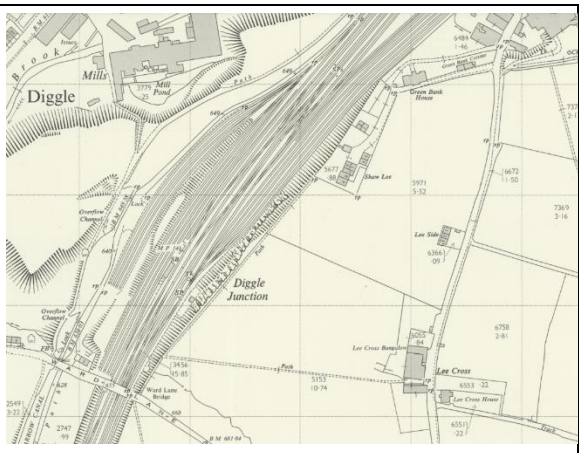


OS 6” Yorkshire Sheet CCLXXI.NW

Revised: 1904, Published: 1907. Source: National Library of Scotland



OS 25” Yorkshire CCLXXI.1 Revised: 1904, Published: 1906. Source: National Library of Scotland



OS 1:2500 SE0007-SE0107 – BA Revised: 1963, Published: 1965. Source: National Library of Scotland

ANNEX C – SITE VISITS UNDERTAKEN FOR ASSESSMENT OF THE ORDER SCHEME

Date of site visit	Site visit purpose	Assets visited	Description
21-23 May 2025	Built Heritage Assessment	MVL3/7 MVL3/8 MVL3/10 MVL3/10 MVL3/17 MVL3/20 MVL3/25 MVL3/26 MVL3/28 MVL3/29 MVL3/31	Site walkover to assess significance, condition and setting of the online designated heritage assets

Date of site visit	Site visit purpose	Assets visited	Description
1 July 2024	Built Heritage and Landscape Assessment	Saddleworth Viaduct	A combined Heritage and landscape survey undertaken at MVL3/31 Saddleworth Viaduct. The Survey involved visual inspections of the Viaduct from a range of viewpoints during the daytime from public rights of way.
27-28 August 2024	Archaeological Potential and Built Heritage	MVL3/7 MVL3/22 MVL3/23 – land take MVL3/23 – Wright's Overbridge Culvert 12.0359 Greenfield Station MVL3/20 MVL3/23 Temporary land take impact on Canal CA MVL3/28 temporary compound MVL3/36 and area Printworks Office Compound	A site visit to the compound sites along Route Section W2B

Date of site visit	Site visit purpose	Assets visited	Description
		Standedge Tunnel Portal and Diglea CA	
3 October 2024	Compound area assessment	COWI – Drainage and Land Access on Manchester Road, Mossley Station COWI – Construction Access and Drainage COWI – Construction Access and Drainage Temp	Site visit to three additional compound areas along Route Section W2B.
21 and 24 March 2025	Compound area assessment	MVL3/2 Stamford Street Printworks Main Compound Printworks office compound – archaeological potential Printworks Office Compound – Toll Bar Cottage (NHLE 1067986), Woodfield Farmhouse & Woodfield House MVL3/7 Stockport Road Level Crossing and MVL3/20	Site visit to additional compound areas along Route Section W2B.

Date of site visit	Site visit purpose	Assets visited	Description
		MVL3/23 and Diversion Land take between bridges MVL3/22, MVL3/23 and parcel to the east MVL3/23 – Wright's Overbridge temporary land take Culvert 12.0359 MVL3/28 temporary compound MVL3/36 reconstruction MVL3/39	
June 2025	Plevins Compound	Former Goods Station Warehouse at Plevins Compound	Site visit to Plevins Compound to assess the extant former Goods Station Warehouse.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT

VOLUME 3 APPENDIX 6A - ECOLOGY TECHNICAL APPENDIX

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CONTENTS

1. INTRODUCTION 1
2. RELEVANT LEGISLATION, POLICY AND GUIDANCE 2
2.1 National and Local Wildlife Legislation 2
2.2 Planning Policy 3
2.3 Relevant Guidelines and Advice 4
3. APPRAISAL OF IMPACTS AND EFFECTS 5
3.1 Appraisal Methods 5
3.2 Baseline Conditions and Evaluation 10
3.3 Summary of Ecological Features 29
3.4 Evaluation of Ecological Features 29
3.5 Future Baseline 63
3.6 Potential Effects 63
4. MITIGATION AND CONSIDERATION OF CONTROL MEASURES 69
4.2 Embedded Mitigation 70
4.3 Additional Mitigation 73
4.4 Mitigation Summary 78
4.5 Biodiversity Compensation and Enhancement 86
5. SUMMARY 88
ANNEX A – ECOLOGY LEGISLATION, PLANNING POLICY AND GUIDANCE 90
ANNEX B – METHODOLOGY AND LIMITATIONS 98
ANNEX C – ECOLOGY SURVEY DATA 116

1. INTRODUCTION

1.1.1 This Ecology Technical Appendix presents an appraisal of the predicted ecology-related impacts and consequential effects of elements of the proposed Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Transport and Works Act Order which require deemed planning and the associated temporary construction compounds and accesses required to deliver those elements (as described in Table 1-1 of Chapter 1 in Volume 1 of the Environmental Report [**NR14**]) (referred to as 'the relevant works elements' of the Order Scheme. Further details on the relevant works elements are included in Chapter 3 in Volume 1 of the Environmental Report [**NR14**] and shown on Figures 1.1.1 to 1.1.6 of the Environmental Report [**NR14**].

1.1.2 The 'Scheme Area' within this Technical Appendix (either generally or in respect of a relevant works elements of the Order Scheme) is defined as the combined footprint of areas where deemed planning permission is sought and areas of land temporarily required.

1.1.3 The appraisal reported within this Technical Appendix identifies impacts and effects which may arise during both the construction phase and during operation. The purpose of this appraisal is to:

- summarise legislation, policy and guidance relevant to ecological features and an appraisal of their value (section 2);
- describe the baseline environment in relation to ecology by identifying the ecological features (i.e. designated sites for nature conservation, priority habitats or protected/ priority species listed under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act) that are both present and might be affected by the relevant works and their relative nature conservation importance (section 3);
- complete an ecological appraisal to identify whether the relevant works would result in any effects on ecological features and assess the likely magnitude of these effects (beneficial or adverse (section 3);
- set out the measures that are incorporated in the design of the relevant works to avoid or reduce any predicted effects on ecological features of nature conservation importance (section 4);
- identify ecological compensation or enhancement measures that are proposed to offset any residual impacts based on the outcome of the desk study, field surveys and the ecological appraisal; to be delivered both through planning conditions and Network Rail commitments (section 4); and

- outline the commitment of Network Rail to deliver 10% biodiversity net gain for the wider TRU works, for which the Order Scheme forms part, through compensation both within and outside the Order Scheme Area (section 4).

1.1.4 The approach applied when undertaking this appraisal has taken account of the good practice guidance provided by the Chartered Institute of Ecology and Environmental Management[1]. It addresses relevant wildlife legislation, policy, and guidance as summarised in this Technical Appendix.

1.1.5 The appraisal is supported by the following Technical Appendices:

- Annex A: Ecology Legislation, Planning Policy and Guidance;
- Annex B: Methodology and Limitations;
- Annex C: Ecology Survey Data
- Volume 3, Appendix 6B: Habitats Regulations Assessment of this Report [**NR14**]
- Volume 3, Appendix 6C: Proposed Tunnel Bat Survey Methodology of this Report [**NR14**]

2. RELEVANT LEGISLATION, POLICY AND GUIDANCE

2.1 National and Local Wildlife Legislation

2.1.1 This section provides a summary of legislation, policy and guidance that is relevant for the identification and appraisal of ecological features and their value. The following legislation has been considered as part of this appraisal:

- Environment Act 2021, Schedule 14;
- The Conservation of Habitats and Species Regulations 2017, No. 1012, Part 3, Regulation 43 (as amended);
- Wildlife and Countryside Act 1981 (as amended);
- Protection of Badgers Act 1992 (as amended);
- The Invasive Alien Species (Enforcement and Permitting) Order 2019. SI 2019/527;
- Natural Environment and Rural Communities Act 2006;
- Countryside and Rights of Way Act 2000 as amended);
- The Hedgerow Regulations 1997;

[1] Chartered Institute of Ecology and Environmental Management (CIEEM) (2022). *Guidelines for Ecological Impact Assessment in the UK and Ireland*. [online] Available at: https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.2-April-22-Compressed.pdf. [Accessed: 14 July 2025]

- Places for Everyone Joint Development Plan document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan 2022 to 2039. (Greater Manchester Combined Authority, 2024);
- Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan 2022 to 2039 Adoption Statement Oldham Metropolitan Borough Council (OMBC) (2024);
- Oldham Local Development Framework: Development Plan Document – Joint Core Strategy and Development Management Policies. (OMBC, 2011);
- Saved Unitary Development Plan policies (OMBC, 2006);
- Places for Everyone Joint Development Plan Document for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan 2022 to 2039 Adoption Statement Tameside Metropolitan Borough Council (TMBC), (2004);
- Tameside Unitary Development plan (TMBC, 2004);
- Greater Manchester Five-Year Environment Plan 2025-2030 (Greater Manchester Combined Authority, 2024);
- All Our Trees: Greater Manchester's Tree and Woodland Strategy (City of Trees; 2024);
- Nature for All, A local nature recovery strategy for Greater Manchester – Draft for consultation. (Greater Manchester Combined Authority2025);
- Greater Manchester Biodiversity Action Plan (Greater Manchester Biodiversity project, 2009).

2.1.2 Compliance with legislation may include the attainment of relevant protected species licences prior to the implementation of the Order Scheme. Further information on the above legislation is provided as Annex A.

2.2 Planning Policy

National Planning Policy

2.2.1 The National Planning Policy Framework (NPPF)[2] details the Government's planning policies for England and how these are expected to be applied.

2.2.2 The NPPF provides guidance to local planning authorities on their local plans, sets out how planning authorities should deal with biodiversity when considering planning applications and encourages net gains for biodiversity

2 Ministry of Housing, Communities and Local Government (2024). National Planning Policy Framework. [online] Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf. [Accessed: 14 July 2025]

to be sought through planning policies and decisions. The relevant guidance of the NPPF has been reviewed and incorporated where appropriate.

Local Planning Policy

2.2.3 A number of local planning policies relate to ecology, biodiversity and nature conservation and these are summarised in Table A-1, These policies have been considered when appraising potential ecological constraints and opportunities identified by the desk study and field survey, and when determining requirements for further survey, design options and ecological mitigation.

Biodiversity Policy

2.2.4 As a result of devolution and new country level and international drivers and requirements, much of the work previously carried out by the UK Biodiversity Action Plan (BAP) is now focused at a country level rather than a UK level. The UK BAP was succeeded by the 'UK Post-2010 Biodiversity Framework'[3]. The UK list of Species and Habitats of Principal Importance, however, remains an important reference source and has been used to help draw up statutory lists of priorities in England, Scotland, Wales and Northern Ireland. In England, the current lists are those under Section 41 (S41) of the Natural Environment and Rural Communities Act (NERC) 2006[4].

2.2.5 The national strategy for biodiversity is delivered at a local level via numerous local BAP (LBAP). Species and habitats of local conservation concern or value are included in the LBAP and an action plan is created for them. The LBAP relevant to the Order Scheme is The Greater Manchester Biodiversity Action plan (GM BAP)[5]. This identifies key habitats and species that may be found within Order Scheme Area and that may require consideration in design and mitigation. The priority habitats and species that have action plans for them under the GM BAP are detailed in Annex A.

2.3 Relevant Guidelines and Advice

2.3.1 The appraisal of the potential impacts of the relevant elements of Order Scheme on ecological features has taken account of the following key ecological guidelines:

- Bat Surveys for Professional Ecologists Good Practice Guidelines 4th Edition (Collins, 2023);

3 JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012) UK Post-2010 Biodiversity Framework. [online] Available at: https://data.jncc.gov.uk/data/587024ff-864f-4d1d-a669-f38cb448abdc/UK-Post2010-Biodiversity-Framework-2012.pdf. [Accessed: 14 July 2025]

4 Natural Environment and Rural Communities Act 2006, c. 16, Part 3, Section 41. [online] Available at: https://www.legislation.gov.uk/ukpga/2006/16/notes/division/6/3/1/2 [Accessed: 14 July 2025]

5 Greater Manchester Biodiversity project (2009). *Greater Manchester Biodiversity Action Plan*. [online] Available at: https://gmlrc.org/projects/gm_bap/. [Accessed: 14 July 2025]

- British Standard 42020:2013 Biodiversity: Code of practice for planning and development;
- Guidelines for Preliminary Ecological Appraisal. 2nd Edition (CIEEM, 2017);
- Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. (CIEEM, 2022); and
- Natural England and Department for Environment, Food and Rural Affairs (DEFRA) Standing Advice: Protected species and development: advice for local planning authorities (Natural England, 2025).

3. APPRAISAL OF IMPACTS AND EFFECTS

3.1 Appraisal Methods

Consultation with Stakeholders

3.1.1 For the relevant elements of Order Scheme as described in Table 1-1 in Volume 1 of the Environmental Report **[NR14]**, consultation responses of relevance to ecology were received from several parties. This appraisal takes into account these responses, and a summary of ecology-specific comments is outlined below. Further details on consultee feedback and responses is provided in the Consultation Report supporting the TWAO [**NR07**].

Oldham Metropolitan Borough Council and Tameside Metropolitan Borough Council

3.1.2 Liaison with the GMEU Ecology Officers, including Oldham and Tameside Councils, has happened throughout development of Order Scheme. The GMEU enquired on the status of Sites of Biological Importance (SBIs) that are located within Order Scheme boundary, notably Grasscroft pasture SBI (Oldham), Cliffs at Mossley SBI (Tameside) and Armit Road Lodge SBI (Tameside). It was agreed that the mitigation hierarchy would be followed and enhancement would happen within the SBI impacted where feasible.

3.1.3 The GMEU were made aware that Network Rail wish to undertake a Biodiversity Net Gain (BNG) assessment using the Natural England Biodiversity Metric 3.0[6]. Metric 3.0 was used to maintain a consistent methodology across TRU and the wider TransPennine Route. BNG is not statutory for TWAOs; therefore, Network Rail are exempt, according to the Department for Environment, Food & Rural Affairs' Biodiversity net gain

6 Department for Environment, Food & Rural Affairs (DEFRA). (2021). Biodiversity Metric 3.0. [online] Available at: https://www.gov.uk/government/news/biodiversity-30-metric-launched-in-new-sustainable-development-toolkit [Accessed 14 July 2025].

exempt developments[7] from using the statutory version and being held accountable to the DEFRA Statutory Metric.

3.1.4 The GMEU stated that the Biodiversity Metric 3.0 could be used to measure impacts and have the objective to achieve a minimum 10% net gain across Order Scheme. Details of the commitment to achieve 10% BNG for the wider TRU works, for which Order Scheme forms part, is provided in section 4.4.

Natural England

3.1.5 Natural England is supportive of Network Rail's commitment to deliver 10% BNG across the TRU project. It requested that the pre and post development value of land within Order Scheme boundary is assessed using the Biodiversity Metric to account for losses within Order Scheme Area. Natural England advised that the mitigation hierarchy should be followed as per the Environment Act 2021 and paragraph 180 of the NPPF with the preference to deliver BNG on-site through habitat retention, enhancement and creation, then seeking off-site locations where this is not possible.

3.1.6 The statutory Biodiversity Metric has been used for habitat condition assessments due to the chance that BNG would become statutory for TWAO prior to submission. The data gathered from the statutory Biodiversity Metric condition assessments is comparable to the Biodiversity Metric 3.0 and can be translated accordingly where required.

3.1.7 Natural England's Discretionary Advice Service (DAS) was consulted on Order Scheme's impact to bats as a result of the works to Stalybridge and Scout Tunnels. Natural England provided a response letter[8] and agreed with the suggested methodology[9] for determining likely presence/ likely absence of roosting bats. Natural England stated the requirement for licencing where applicable, on-site ecological supervision to undertake visual inspections of any potential bat roosting features and sensitive timing to reduce impacts.

Environment Agency

3.1.8 The Environment Agency were consulted in relation to using the DEFRA Biodiversity Metric to account for impacts to watercourses within Order Scheme Area. The Environment Agency specified that River MoRPh assessment[10] should be completed to inform the DEFRA Biodiversity Metric.

Canal and Rivers Trust

7 Department for Environment, Food & Rural Affairs (DEFRA) (2024). Biodiversity net gain: exempt developments. [online] Available at: https://www.gov.uk/guidance/biodiversity-net-gain-exempt-developments. [Accessed 14 July 2025].
8 Natural England (2024) TransPennine Route Upgrade (TRU) Stalybridge to Saddleworth, Document Reference "2024-08-15 483195 DAS TransPennine Route Upgrade W2B".
9 AtkinsRealis (2024) TRU W2B – Proposed Tunnel Bat Survey Methodology – Technical Appendix
10 Gurnell, A. and Shuker, L. eds. (2022). The MoRPh Survey Technical Reference Manual 2022 version. [online] Available at: https://modularriversurvey.org/wp-content/uploads/MoRPh-Manual-ver-14_Oct22.pdf [Accessed 14 July 2025].

3.1.9 The Canal & Rivers Trust were contacted on 27 January 2025 regarding the availability of white-clawed crayfish data on the Huddersfield Canal. The Canal and River's Trust responded on 5 February 2025 with anecdotal evidence.

Methodology and Data Sources

3.1.10 The existing ecological baseline has been established using a range of sources including publicly available websites, data from the local biological records centre and field surveys. The detailed methodologies followed during the appraisal are outlined in Annex B and in summary comprised:

Desk Study

3.1.11 The desk study included a review of online resources and existing technical reports/ documents for the study area. A data request from Greater Manchester Local Record Centre was undertaken on 30 October 2024. The desk study sources and search areas for different ecological features are summarised in Annex B.

Field Surveys

3.1.12 Field surveys were undertaken in line with appropriate best practise guidelines as summarised in Table 3-1.

Table 3-1- Field Surveys

Survey	Description
UK Habitat Classification (UKHab) Surveys	These surveys were completed between May 2024 and June 2025. Habitats and ecological features of interest were recorded following the standard guidance provided in the UK Habitat Classification version 2.0[11]. The standard UKHab survey method was "extended" to record the presence or potential for protected, priority, and any invasive non-native plant species (INNPS) within the habitats present. A buffer of 50 m beyond Order Scheme was applied where access permitted (see Annex B for further details on the ecological features that were assessed).
Habitat Condition Assessments	These surveys were carried out in the field alongside UKHab habitat surveys on habitat parcels to support the BNG calculations, using statutory Biodiversity Metric 3.0 condition assessment sheets.
Preliminary Roost Assessments (PRAs)	These surveys were carried out in the field alongside UKHab habitat surveys to identify potential roost features in structures that could support roosting bats. PRAs were conducted in accordance with best practice guidelines provided by the Bat

[11] UKHAB Ltd (2023). *Habitat Classification v2.0.* [online] Available at: https://ukhab.org/register/.

Survey	Description
	Conservation Trust[12]. A buffer of 50 m beyond Order Scheme was applied where access permitted.
Ground Level Tree Assessments (GLTAs) for bats	Carried out in the field alongside UKHab habitat surveys to identify potential roost features in trees that could support roosting bats. GLTAs were conducted in accordance with best practice guidelines provided by the Bat Conservation Trust[12]
Bat dusk emergency surveys	Surveys were completed between July and September 2024 on the following structures (see Figures 1.1.1 – 1.1.6 of this Report [**NR14**]): Heyrod Hall Bridge (MVL3/07); Spring Bank Lane Footbridge (MVL3/09); Manchester Road Footbridge (MVL3/10); Stamford Road Footbridge (MVL3/13); Mossley Station Footbridge (MVL3/14); New Earth Footbridge (MVL3/16); Midge Hall Overbridge (MVL3/19); Wrights Mill Overbridge (MVL3/20); Charlotte Street Overbridge (MVL3/24); Royal George Underbridge (MVL3/25); Footway Underbridge (MVL3/26); Oldham Road Overbridge (MVL3/28); Den Quarry Underbridge (MVL3/30); Uppermill Viaduct (MVL3/31). Further details on the methodology and results of the bat surveys are provided in Annexes B and C respectively.
Bat automated/ static detector (likely presence/ likely absence)*	Surveys were completed between August 2024 and March 2025 on the following structures: Scout Tunnel; Stalybridge Tunnel. *Survey effort replaced dusk emergence following DAS consultation[8] with Natural England. The GLTA only identified one tree with PRFs which did not require presence/ likely absence surveys. Further details on the agreed methodology following Natural England DAS consultation is provided in Volume 3, Appendix 6D of this Report [**NR14**].
Badger	Camera trap monitoring of a potential badger sett off Spring Bank Lane.

[12] Collins, J. ed., (2023). Bat Surverys for Professional Ecologists Good Practice Guidelines. 4th ed. [online] Bat Conservation Trust. Available at: https://www.nhbs.com/bat-surveys-for-professional-ecologists-book.

Excluded Surveys

3.1.13 Targeted plant surveys (National Vegetation Classification (NVC) surveys) have not been completed as the habitats recorded during the UKHab surveys are generally common and widespread throughout Order Scheme Area and in the local area. More detailed habitat and condition assessment surveys will be completed if required to inform the requirements for compensation of certain habitats.

3.1.14 Due to the absence of suitable habitat within Order Scheme Area or agreed additional mitigation for supporting the following protected species/ species groups, surveys were not completed and they have not been considered further in this appraisal.

- Aquatic invertebrates – no aquatic habitats to be affected by the relevant elements of the Order Scheme;
- Fish – no aquatic habitats to be affected by the relevant elements of the Order Scheme;
- Great crested newt – waterbodies are present within 250 m of the Order Scheme, however, Network Rail wish to proceed under the NatureSpace Organisational Licence;
- Hazel dormouse– lack of suitable habitat present (coppiced hazel woodland) and the Order Scheme Area is outside of their natural range.

3.1.15 Additionally, habitats likely to support terrestrial invertebrates are present throughout the Order Scheme Area, however, they are typical of those found along the railway corridor and are unlikely to support diverse assemblages of invertebrates, or important populations of rare/ priority invertebrates. Localised, small habitat losses/ damage is unlikely to impact upon common invertebrate communities. Measures will be implemented throughout the design and construction phases which will aim to reduce any potential impacts to invertebrate communities by ensuring vegetation is available in areas adjacent to the Order Scheme Area. Terrestrial invertebrates have not been considered further in this appraisal.

3.1.16 Based on a review of desk study information, the suitability of habitats identified during the UKHab habitat surveys, and the confined locations of the Order Scheme Area, targeted surveys were not undertaken for the following protected species/ species groups but they are considered further in this appraisal:

- bats (foraging and commuting);
- birds;
- reptiles; and

- other priority species – brown hare, common toad, and western European hedgehog.

Study Areas and Survey Areas

3.1.17 The ecological 'study area' refers to the areas over which desk-based assessments have been undertaken and these vary for different ecological features (designated sites, habitats, flora and fauna). The study areas for the desk-based study are defined in Annex B.

3.1.18 The ecological 'survey area' is defined as the Order Scheme boundary plus a 50 m buffer where access was possible and considered pertinent to the survey.

3.1.19 The CIEEM guidelines require the establishment of a 'zone of influence' (ZoI) for the relevant elements which is defined in the guidelines as 'the area over which ecological features (habitats and species) may be affected by biophysical changes as a result of the proposed project and associated activities'. For some ecological features the ZoI will extend beyond the Order Scheme Area, for example where there are ecological or hydrological links beyond the boundary. It will also vary for different ecological features depending on their sensitivity to any environmental changes that may result from a scheme.

3.2 Baseline Conditions and Evaluation

3.2.1 The following sections provide a summary of the baseline ecological conditions, which have been identified through desk study and field surveys, for the Order Scheme Area of the relevant elements of the Order Scheme.

Summary of baseline ecological features

3.2.2 Refer to Figure 6.1.1 in Volume 2 of the Environmental Report [**NR14**] for the desk study and survey results for this relevant elements of the Order Scheme.

Designated Sites

3.2.3 Four internationally statutory designated sites for nature conservation were identified within the study area of the Order Scheme, comprising of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) as outlined within Table 3-2 below and shown on Figures 6.1.1 in Volume 2 of the Environmental Report [**NR14**].

Table 3-2 - Internationally important designated sites for nature conservation within the study area of the Order Scheme

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
Peak District Moors (South Pennine Moors Phase 1) SPA	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • Short-eared owl - at least 2.2% of the GB breeding population Count, as at 1990 and 1998; • Merlin - at least 2.3% of the GB breeding population Count as at 1990 and 1998; • European golden plover - [North-western Europe - breeding] at least 1.9% of the GB breeding population Count, as at 1990 and 1998.	780 m east of the Order Scheme.
South Pennine Moors SAC	Annex I habitats that are a primary reason for selection of this site: • European dry heaths; • Blanket bog; • Old sessile oak woods with Ilex and Blechnum in the British Isles; • Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Northern Atlantic wet heaths with cross-leaved heath; • Transition mires and quaking bogs.	780 m east of the Order Scheme.
South Pennine Moors Phase 2 SPA	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports:	980 m north of the Order Scheme.

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
	• Short-eared owl - 0.3% of the GB breeding population Count as at 1990; • Merlin - 2.2% of the GB breeding population Count as at 1995; • European golden plover - [North-western Europe - breeding] 1.3% of the GB breeding population No count period specified. Article 4.2 Qualification (79/409/EEC): an internationally important assemblage of birds	
Rochdale Canal SAC	Annex II species that are a primary reason for selection of this site: • Floating water-plantain.	7.45 km west of the Order Scheme, with hydrological connectivity upstream.

3.2.4 Eight Sites of Special Scientific Interest (SSSI) were identified within the study area of the Order Scheme as outlined within Table 3-3 below and shown on Figure 6.1.1 in Volume 2 of the Environmental Report [**NR14**].

Table 3-3 - Nationally important designated sites for nature conservation within the study area of the Order Scheme

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
Huddersfield Narrow Canal SSSI	• Designated for the best example of flowing eutrophic water in Greater Manchester, also including swamp, tall fen, and other marginal vegetation; • Diverse range of aquatic flora; and • Diverse range of aquatic fauna, including molluscs and fresh-	Within the Order Scheme boundary.

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
	water sponge.	
Dark Peak SSSI	• Designated as primary moorland area of the Peak District with areas of open and continuous moorland; • Nationally important populations of golden plover, dunlin, and very significant populations of meadow pipit; • Significant populations of red grouse, short-eared owl, twite, and peregrine; and • Diverse range of terrestrial invertebrates.	780 m east of the Order Scheme.
South Pennine Moors SSSI	• Designated for containing the largest area of unenclosed moorland within West Yorkshire; • Diverse upland plant communities; • Extensive areas of blanket bog with species rich acidic flushes and mires; and • Supports a nationally important moorland breeding bird assemblage including golden plover and twite.	780 m north of the Order Scheme.
Standedge Road Cutting SSSI	Designated for features of geological interest.	1.27 km north-east of the Order Scheme.
Lowside Brickworks SSSI	Designated for geological features of natural importance.	3.35 km west of the Order Scheme.
Park Clough SSSI	Designated for features of geological interest.	4.35 km north-east of the Order Scheme.
Hollinwood Branch Canal SSSI	• Designated for the best example of a mesotrophic standing water system in Greater Manchester and	4.73 km west of the Order Scheme.

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
	Merseyside; • Habitats include open water, swamp and tall fen; and • Diverse open water plant communities containing several regionally and nationally rare species.	

3.2.5 Additionally, 22 locally important sites comprising twelve Sites of Biological Importance (SBI) and ten Local Nature Reserves (LNRs) were identified within the study area of the Order Scheme as outlined within Table 3-4 below and shown on Figure 6.2.1 in Volume 2 of the Environmental Report [**NR14**].

Table 3-4 - Locally important sites for nature conservation within the study area of the Order Scheme

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
Armit Road Lodge SBI	Ponds and small lodges.	Within the Order Scheme.
Cliffs at Mossley SBI	Semi-natural broadleaved woodland. Semi-natural grassland.	Within the Order Scheme.
Grasscroft Pasture SBI	Semi-natural grassland. General species- solitary bees. General species- fungi.	Within the Order Scheme.
Huddersfield Narrow Canal (North) SBI	Large Areas of Standing Open Water.	Within the Order Scheme.
Huddersfield Narrow Canal (South) SBI	Large Areas of Standing Open Water as per the Greater Manchester SBI Selection Guidelines 2016.	Within the Order Scheme.
Moorgate Quarry SBI	Heathland and Bog. Semi-natural grassland. Habitat mosaics.	17 m east of the Order Scheme.
Hartshead SBI	Semi-natural broadleaved woodland.	23 m east of the Order Scheme.

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
Royal George SBI	Ponds and small Lodges. Large Areas of Standing Open Water.	70 m east of the Order Scheme.
Marshes at Staley Hall SBI	Acid grassland with marsh and ditches.	220 m east of the Order Scheme.
Puddle Clay Pits SBI	Site supports a complex mosaic of habitats including marsh, flush, swamp, dry heath, open water, acid and neutral grassland.	240 m east of the Order Scheme.
Castle Clough SBI	Deciduous woodland.	430 m east of the Order Scheme.
Dacres SBI	Lowland meadow and Lowland dry acid grassland.	380 m east of the Order Scheme.
Brushes Valley LNR	Area of woodland, meadow, and wetlands adjacent to Brushes Reservoir.	640 m south-east of the Order Scheme.
Castle Clough and Cowbury Dale LNR	Area of broadleaved woodland straddling the banks of the Staly Brook watercourse.	0.78 km east of the Order Scheme.
Knot Hill LNR	Historically a reservoir, now a site of upland semi-natural habitat with agricultural grazing presence.	1.15 km west of the Order Scheme.
Cowbury Dale LNR	Meadow habitat surrounded by broadleaved woodland with a small lake present.	1.20 km east of the Order Scheme.
Rocher Vale LNR	Site supports a mosaic of habitats including riverbanks, woodland, and a heath.	2.67 km west of the Order Scheme.
Glodwick Lows LNR	Site supports a mosaic of habitats including grassland, heathland and woodland. Wildlife includes foxes, mining bees and field bindweed.	3.06 km west of the Order Scheme.
Haughton Dale LNR	Oak, ash and alder woodlands supporting bluebells and, in wet areas, golden saxifrage. The woodland is an important habitat for birds, including woodpecker, owl, bullfinch and nuthatch.	4.45 km south-west of the Order Scheme.
Hollinwood Branch Canal LNR	Large Areas of Standing Open Water.	4.53 km west of the Order Scheme.
Hurst Clough LNR	Woodland and wildflower meadows supporting butterfly assemblages.	4.56 km south of the Order Scheme.

Designated site name	Features of Interest	Approximate Distance and direction from Scheme (at closest point)
Werneth Low LNR	Site supports a mosaic of habitats including woodland, dry heath, and wetlands.	4.93 km south of the Order Scheme.

Irreplaceable Habitats

3.2.6 Six ancient or veteran trees were recorded within the study area of the Order Scheme during the desk study as outlined within Table 3-5 below and shown on Figures 6.4.1 to 6.4.22 in Volume 2 of the Environmental Report [**NR14**].

3.2.7 Lowland fen and blanket bog (Table 3-5) were recorded within the study area of the Order Scheme during the desk study.

Table 3-5 - Ancient or veteran trees recorded within the study area of the Order Scheme during the desk study

Ancient and Veteran Tree (reference)	Details of Ancient or Veteran Tree	Approximate Distance and Direction from the Order Scheme
174081	Veteran silver birch.	120 m east of the Order Scheme.
189809	Veteran common hawthorn.	360 m east of the Order Scheme.
189810	Veteran common hawthorn.	360 m east of the Order Scheme.
189811	Veteran goat willow.	400 m east of the Order Scheme.
189812	Ancient common hawthorn.	530 m east of the Order Scheme.
189813	Veteran common hawthorn.	540 m east of the Order Scheme.

Priority Habitats

3.2.8 Several priority habitats, both within the study area during desk study and within the Order Scheme during field surveys, were recorded within the ZoI of the Order Scheme. Of these, deciduous woodland and lowland heathland are present within the Order Scheme as outlined in Table 3-6 below and shown on Figures 6.4.1 to 6.4.22 in Volume 2 of the Environmental Report [**NR14**].

Table 3-6 - Priority and irreplaceable habitats within the study area of the Order Scheme

Habitat Type	Number of areas/ habitat parcels recorded	Approximate Distance and direction from Scheme (to closest parcel)
Deciduous woodland	970 parcels present within the study area, including 40 parcels within the Order Scheme, and parcels of lowland mixed deciduous woodland identified during the field survey.	Within the Order Scheme.
Lowland heathland	48 parcels present within the study area within the study area, including two parcels within the Order Scheme, and parcels of lowland heathland identified during the field survey.	Within the Order Scheme.
Lowland fen (irreplaceable habitat)	103 parcels recorded within the study area.	Directly adjacent to the Order Scheme in multiple locations.
Grass Moorland	140 parcels recorded within the study area.	65 m west of the Order Scheme.
Upland heathland	201 parcels recorded within the study area.	130 m west of the Order Scheme.
Traditional orchard	9 parcels recorded within the study area.	190 m west of the Order Scheme.
Blanket bog (irreplaceable habitat)	301 parcels recorded within the study area.	350 m north-east of the Order Scheme.
Upland hay meadow	5 parcels recorded within the study area.	1.02 km north-west of the Order Scheme.
Upland flushes fen and swamps	47 parcels recorded within the study area.	1.55 km south-east of the Order Scheme.
Fragmented Heath	10 parcels recorded within the study area.	1.56 km north-east of the Order Scheme.
Good quality semi improved grassland	6 parcels recorded within the study area.	3.07 km south-east of the Order Scheme.
Ponds	2 parcels recorded within the study area.	4 km east of the Order Scheme.
Lowland Meadows	1 parcel recorded within the study area.	4.3 km south of the Order Scheme.
Lowland dry acid grassland	1 parcel recorded within the study area.	4.73 km north-east of the Order Scheme.

Habitats within the Order Scheme

3.2.9 There are four priority habitat types listed under Section 41 of the NERC Act (2006) present within the Order Scheme; deciduous woodland, lowland heathland, priority hedgerow, and priority rivers.

3.2.10 The field surveys identified sixteen different area-based and seven linear-based habitat types within the Order Scheme. The results are shown in Table and Table 3-7 respectively.

Table 3-7 - Area-based habitat types present within the Order Scheme

UKHab Category	Area (ha)
c1c Cereal crops	0.97
g1c Bracken	0.83
g1d Other lowland acid grassland	0.49
g3c Other neutral grassland	1.15
g4 Modified grassland	5.06
h1a Lowland heathland	0.06
h3d Bramble scrub	0.10
h3h Mixed scrub	1.68
u1 Built-up areas and gardens	0.28
u1b Developed land; sealed surface	10.83
u1c Artificial unvegetated, unsealed surface	0.45
u1d Suburban mosaic of developed and natural surface	0.16
u1f Sparsely vegetated land	0.10
w1f Lowland mixed deciduous woodland	0.10
w1g Other woodland; broadleaved	7.36
w1h Other woodland; mixed	0.32
Total	29.94

Table 3-8 - Linear-based habitat types present within the Order Scheme

Habitat Type	Habitat Length (km)
h2a Hedgerow (priority habitat)	0.191
h2b Other hedgerow	0.234
r191 Ditch	0.300
r2a Rivers (priority habitat)	0.485
r2b Other rivers and streams	1.063
u1e Built linear features	2.764
w1g6 Line of trees	3.704
Total	8.741

Protected and Priority Species

3.2.11 The results of the appraisal of the actual or potential presence of protected and priority species are summarised in Table 3-9. This includes relevant data and results from the desk study and the field surveys.

Table 3-9 - Summary results of presence or suitability for protected and priority species within the study area of the Order Scheme

Species/ species group	Summary results
Badger	**Desk Study** 26 badger desk study records were returned by GMLRC within the study area, the closest record being a foraging badger located within the Order Scheme with the nearest recorded sett located approximately 7 m north-west of the Order Scheme. **Field Survey** A main badger sett was identified off Printworks Road, approximately 4 m east of the Order Scheme comprising multiple sett entrances and high levels of evidence by digging, fresh latrines and recent spoil excavation. Five sett entrances were classified as active and seven were partially active. The main sett is located immediately adjacent of the Order Scheme. Suitable badger sett creation habitat is available closer to the Order Scheme boundary. The suburban location of the Order Scheme is suitable for badger; however, residential, commercial and industrial built environment regularly buffers and enclose the Order Scheme reducing commuting possibilities for badger in the local area. In addition, roads and watercourses form barriers for badger dispersal across the full length of the Order Scheme. Relatively few suspected mammal burrows were recorded within the study area of the Order Scheme, and all such burrows encountered were disregarded as suitable for badger, either at the time of discovery during habitat surveys (i.e. clearly unsuitable for the species, primarily disregarded as rabbit warrens), or through monitoring by camera trapping. Camera trapping was undertaken on a potential badger sett off Spring Bank Lane. Monitoring confirmed that badger were not using the mammal hole during this period. Survey access limitations have prevented full survey coverage. An incidental report of badger activity has been received by a member of public. At the time of writing, access permissions are being progressed and the results of the survey visit will be addressed via an addendum. Badger may be present within the locality of the Order Scheme in low numbers.
Bats	**Desk Study** A total of 22 records of roosting bats were returned by GMLRC within the study area including

Species/ species group	Summary results
	common pipistrelle, soprano pipistrelle, an unidentified pipistrelle species, Natterer's and unidentified bat species. The closest record is a common pipistrelle day roost within a structure, located approximately 6 m east of the Order Scheme. Defra's Multi-Agency Geographic Information for the Countryside[13] (MAGIC) search identified seven European Protected Species (EPS) licences for bats within 2 km of the Order Scheme. The closest of which was approximately 220 m north of the Order Scheme which was granted from 09/01/2020 to 08/01/2025 for the destruction of a common pipistrelle and soprano pipistrelle bat resting place (reference 2019-44069-EPS-MIT). In total, 244 records of bat activity were returned by GMLRC within the study area from the following species: • Common pipistrelle; • Soprano pipistrelle; • Nathusius' pipistrelle; • Unidentified pipistrelle; • Brown long-eared; • Daubenton's[14]; • Myotis sp.; • Noctule; and • Unidentified bat. The closest bat activity record is located on the Order Scheme boundary and comprises a commuting common pipistrelle.

13 Multi-Agency Geographic Information for the Countryside (MAGIC) (2025) "Interactive Mapping", available at https://magic.defra.gov.uk/home.htm, accessed 20/07/2025
14 Daubenton's bat belongs to the Myotis genus which can not ordinarily be identified to species level based upon sound analysis alone. This record may not necessarily be correct.

Species/ species group	Summary results
	Field Surveys Structures to be impacted by the Order Scheme extent underwent Preliminary Roost Assessment (PRA) in May 2024, from both on-rail and off-rail positions to provide surveyors with all vantage points required. All structures found to be of 'Low', Moderate', or 'High' suitability for roosting bats underwent appropriate dusk emergence presence/ likely absence survey effort to determine presence of bat roosts within these structures. Structures of 'Negligible' suitability were scoped out of such surveys and assumed to be likely absent of bat roosts. Trees to be impacted by the Order Scheme underwent a Ground Level Tree Assessment (GLTA) in May 2024, from both on-rail and off-rail positions. One tree was identified as having 'PRF-I' suitability for roosting bats. the Order Scheme Area was since amended and the tree will now be retained and will not be directly or indirectly impacted by the Order Scheme. All other trees were determined as having 'Negligible' suitability for roosting bats and were scoped out for further assessment. One bat roost was located or assumed to be present within Spring Bank Lane (MVL3/09), a stone arch bridge not included within the Order which has a rail passing underneath a road over the top Common pipistrelle were confirmed to be roosting, comprising of a day/ transitional roost. Traditional dusk emergence surveys were not possible on Stalybridge and Scout Tunnels due to health and safety limitations. Automated/ static monitoring methodology was agreed in place following Natural England DAS consultation[8] to determine likely presence/ likely absence of bat roosts within the tunnels. The following roosts are considered likely present at both Stalybridge and Scout Tunnels: • Brown long-eared day/ transitional roost; • Common pipistrelle day/ transitional roost; and • Common pipistrelle hibernation roost. Various habitats within the Order Scheme extent offer moderate foraging and commuting suitability for bats, likely supporting multiple species of bats in the local area. Woodland, scrub,

Species/ species group	Summary results
	and grassland habitats present would support foraging and commuting, however, suitability for all bat species is reduced throughout the Order Scheme where significant light-spill (i.e. from street lighting) is adjacent to the Order Scheme, and/ or where roads and other built environment features sever habitat connectivity. Survey access limitations have prevented full survey coverage. At the time of writing, access permissions are being progressed and the results of the survey visit will be addressed via an addendum.
Otter	**Desk Study** Five otter desk study records were returned by GMLRC within the study area, the closest record being an individual located approximately 90 m east of the Order Scheme, within Huddersfield Narrow canal. **Field Surveys** Otter suitability was recorded for watercourses within a 50 m buffer of the Order Scheme. Moderate commuting and foraging suitability was recorded, notably at Huddersfield Canal. Low holt creation suitability was recorded and no potential rest sites were identified. Survey access limitations have prevented full survey coverage. At the time of writing, access permissions are being progressed and the results of the survey visit (if applicable) will be addressed via an addendum.
Water Vole	**Desk Study** Two water vole desk study records were returned by GMLRC within the study area, the closest record located approximately 450 m east of the Order Scheme. **Field Surveys** Water vole suitability was recorded for watercourses within a 50 m buffer of the Order Scheme. Low burrow creation, commuting and foraging suitability was recorded. Survey access limitations have prevented full survey coverage. At the time of writing, access permissions are being progressed and the results of the survey visit (if applicable) will be addressed via an addendum.
Birds	**Desk Study**

Species/ species group	Summary results
	A total of 7208 records were returned by GMLRC within the study area including 343 priority records[15] comprising bullfinch (three records within the Order Scheme), cuckoo, curlew, dunnock, grasshopper warbler, grey partridge, house sparrow, lapwing, lesser redpoll, lesser spotted woodpecker, linnet, red grouse, reed bunting, ring ouzel, skylark, song thrush, starling and yellow wagtail. A total of 46 Schedule 1 bird records were returned by GMLRC within the study area including barn owl, common scoter, kingfisher, and peregrine. The closest record is barn owl, located approximately 7 m east of the Order Scheme. **Field Surveys** Scrub and woodland habitats within the Order Scheme extent provide nesting opportunities for common species of birds. Due to the suburban nature of the Order Scheme extent and the presence of other disturbance elements (light-spill; noise disturbance; train movements; disturbance from human activities), only common species habituated to an urban/ suburban environment are likely to be present within the vicinity of the Order Scheme. The Order Scheme extent is unsuitable for significant populations of wintering bird species, due to the lack of suitable habitats. There is potential that some grasslands (in the off-rail environment, to be temporarily or permanently impacted by the Order Scheme) may support low numbers of wintering birds such as foraging geese species on transit.
Great crested newt	**Desk Study** No great crested newt records were returned by GMLRC within the study area. A total of 28 ponds were identified within the study area of the Order Scheme (i.e. within a 500 m buffer of the Order Scheme extent). Of these, 16 ponds were deemed to have no barriers to great crested newt dispersal or significant barriers in habitat connectivity between them and the Order Scheme extent, with 10 of the 16 ponds located within 250 m of the Order Scheme.

[15] Report on the Species and Habitat Review (UK BAP) 2007

Species/ species group	Summary results
	A total of 22 wet ditches were identified within the study area of the Order Scheme (i.e. within a 500 m buffer of the Order Scheme extent). Of these nine wet ditches were deemed to have no barriers to great crested newt dispersal or significant barriers in habitat connectivity between them and the Order Scheme extent, with seven of the nine wet ditches located within 250 m of the Order Scheme. **Field Surveys** Suitable terrestrial habitat for foraging, refuging and hibernating great crested newt is present within the Order Scheme, notably tussocky grassland, earth banks, mixed scrub, woodland and log piles. No presence/ likely absence surveys were undertaken of any aquatic or terrestrial habitats to determine presence or absence of great crested newts. Network Rail intend to proceed with the great crested newt Organisational Licence for mitigation which has been used successfully on the Leeds to Micklefield TWAO at Austhorpe Lane compound.
Reptiles	**Desk Study** One slow worm desk study record was returned by GMLRC within the study area, located approximately 100 m west of the Order Scheme. **Field Surveys** No reptiles were encountered during walkover surveys of the Order Scheme extent and study area and no specific reptile surveys were undertaken. Habitats present have the potential to support populations of widespread reptile species (primarily common lizard, grass snake and slow-worm), especially where cover of scrub and woodland is uninterrupted and features connectivity to other areas of such habitats in the wider locality. Vegetated habitats within the Order Scheme extent that are isolated from other parcels of suitable habitat through presence of urban features are unlikely to support significant populations of reptiles.
White Clawed Crayfish	**Desk Study** Three white-clawed crayfish desk study records were returned by GMLRC within the study area,

Species/ species group	Summary results
	the closest record located approximately 1.7 km west of the Order Scheme within the River Tame which flows through the Order Scheme and leads into the Castleshaw Reservoir. Due to the non-linear nature of the river, the record is in reality 2.9 km from the Order Scheme. Historic records of white-clawed crayfish are present on the Huddersfield Canal, adjacent to the Order Scheme, though most recent records from 2004 are located approximately 7.2 km north-west of the Order Scheme[16]. The Canal & Rivers Trust were contacted and confirmed that the most recent survey was undertaken in 2004 and white-clawed crayfish were identified during a set of lock stoppages between Slaithwaite and Marsden (Lock 27E to Lock 29E). No reports of signal crayfish are identified on the Huddersfield Canal but were reported by the Canal & Rivers Trust to be present on the wider canal network. **Field Surveys** Low suitability for white-clawed crayfish refuging and foraging habitat was identified within the Order Scheme, notably at Diggle Brook. No in-watercourse works are proposed.
Other priority species	**Desk Study** A total of 164 priority mammal species desk study records were returned by GMLRC within the study area, comprising brown hare, mountain hare, polecat, European hedgehog and common toad. The closest record was a European hedgehog, located within the Order Scheme boundary. **Field Surveys** Brown hare, European hedgehog and common toad are likely to be present throughout the Order Scheme extent, mostly notable off the rail corridor within habitat including grasslands, woodlands and scrub. Polecat have the potential to be present, notably within the cropland and hedgerows identified within the Order Scheme. Mountain hare have the potential to be present on the lowland heathland within the Order Scheme.
Other priority species (invertebrates)	**Desk Study**

[16] Email communication with the Canal & Rivers Trust stated that most recent records are from 2004, where white-clawed crayfish were recorded during a set of lock stoppages between Slaithwaite and Marsden (Lock 27E to Lock 29E). The Canal and Rivers Trust Ecologist has had no reports of signal crayfish, however, they are known to be present on the wider canal network.

Species/ species group	Summary results
	A total of 247 priority invertebrate species desk study records were returned by GMLRC within the study area, including blood-vein, cinnabar, latticed heath, shaded broad-bar, small heath, small phoenix and white-letter hairstreak. The closest record was a small heath, located approximately 40 m west of the Order Scheme. **Field Surveys** On-rail habitat within the Order Scheme are unlikely to support large populations of priority invertebrates due to disturbance from trains, notably increased airflow and lack of foraging and roosting habitat. Off-rail habitat within the Order Scheme boundary such as species rich grassland and woodland are likely to be more suitable.
Flora	**Desk Study** No protected or priority species of plant were recorded within the Order Scheme extent. On-rail within the Order Scheme are unlikely to support priority flora due to the urban nature of the rail corridor. Off-rail habitat within the Order Scheme boundary such as species rich grassland and woodland are likely to be more suitable for priority flora. **Field Surveys** No protected or priority species of plant were recorded within the Order Scheme.
Invasive non-native plant	**Field Surveys** The following invasive non-native plant species were recorded: • There is a significant presence of Himalayan balsam throughout the majority of the Order Scheme extent, including within the existing rail corridor and other parcels of the Order Scheme: • Japanese knotweed is present in isolated stands throughout the Order Scheme, typically upon an embankment adjacent to the rail corridor; • Rhododendron is present frequently across the Order Scheme extent, especially on steep embankments adjacent to the rail corridor where scrub and woodland habitats are dominant;

Species/ species group	Summary results
	• Isolated stands of cotoneaster species are also present in these habitats throughout the Order Scheme; • Montbretia is present only at the northernmost extent of the Order Scheme, along the cess and embankment; • Variegated yellow archangel is present in an isolated stand in the northern extent of the Order Scheme, along the cess and embankment; • Japanese rose is present at Printworks Road electricity substation; • Buddleia (not listed under Schedule 9 of the WCA but considered invasive) is present only at the southernmost extent of the Order Scheme, along the cess and embankment; • Cherry laurel (not listed under Schedule 9 of the WCA but considered invasive) is present within Plevins compound.

3.3 Summary of Ecological Features

3.3.1 Based on the data and results of the desk study and field surveys, a summary of the ecological features identified within the study areas of the Order Scheme Area is provided in Table

3.4 Evaluation of Ecological Features

3.4.1 Based on the information collated during the baseline assessment, a summary of the evaluation of ecological features of importance is provided in Table 3-10, as well as confirmation on whether the feature is scoped into the appraisal. Unless stated otherwise, the ZoI is considered the Order Scheme Area. This is extended to 50 m where there is the potential for hydrological links, or disturbance as a result of the Order Scheme.

3.4.2 The level of 'importance' follows the rationale follows the GMEU's SBI selection guidelines[17] whereby certain criteria for sites, habitats or species trigger a particular importance level.

[17] Greater Manchester Ecology Unit (2024) "Greater Manchester Sies of Biological Importance Selection Guidelines (2024), version 2.1, available at https://www.tameside.gov.uk/getmedia/2f0ca1c9-4f43-40fb-9808-bd44459a01e1/guidelines.pdf, accessed 23/07/2025

Table 3-10 - Evaluation of the ecological features within the study area

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Peak District Moors (South Pennine Moors Phase 1) SPA	780 m east of the Order Scheme.	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Short eared owl Merlin European Golden Plover	International	Designated site with internationally important features	Out	No direct habitat loss and no impact pathways identified connecting the SPA and the Order Scheme Area being separated by roads, urban areas and roads at different points along the route. Although there are hydrological connections the Order Scheme lies downstream of the SPA. The proposed works will not cause any disturbance above baseline to birds using the SPA.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						A Habitats Regulations Assessment (HRA) has determined that there are no likely significant effects.
South Pennine Moors SAC	780 m east of the Order Scheme.	Annex I habitats that are a primary reason for selection of this site: • European dry heaths; • Blanket bog; • Old sessile oak woodland. • Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:	International	Designated site with internationally important features	Out	No direct habitat loss and no impact pathways identified connecting the SAC and the Order Scheme Area being separated by roads, urban areas and roads at different points along the route. Although there are hydrological connections the Order Scheme lies downstream of the SAC.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
		• Northern Atlantic wet heaths with Erica tetralix • Transition mires and quaking bogs				A HRA has determined that there are no likely significant effects.
South Pennine Moors Phase 2 SPA	980 m north of the Order Scheme	ARTICLE 4.1 QUALIFICATION (79/409/EEC) Short-eared owl Merlin European Golden Plover ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY Important Assemblage of birds	International	Designated site with internationally important features	Out	No direct habitat loss and no impact pathways identified connecting the SPA and the Order Scheme Area being separated several roads including the A62. Although there are hydrological connections the Order Scheme lies downstream of the SPA. The proposed works will not cause any

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						disturbance above baseline to birds using the SPA. A HRA has determined that there are no likely significant effects.
Rochdale Canal SAC	7.45 km west of the Order Scheme, with hydrological connectivity upstream	Annex II species that are a primary reason for selection of this site: Floating water-plantain (Luronium natans)	International	Designated site with internationally important features	Out	No in-watercourse works are proposed. The SAC is separated from the Order Scheme Area by large urban areas with limited hydrological connectivity.
Huddersfield Narrow Canal SSSI	Within the Order Scheme boundary.	Eutrophic canal including swamp, tall fen, and other marginal vegetation. Diverse range of aquatic flora and fauna; including	National	Designated site with nationally important features	In	No in-watercourse works are proposed, however; the Order Scheme will cross the Canal at existing crossing points at Wool

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
		molluscs and fresh-water sponge.				Road, Mow Halls Lane rail crossing and Egmont Street Bridge. the Order Scheme will be directly adjacent to the Canal at the southern portal of Standedge Tunnel off Sam Road, land off Ward Lane, land east of the railway corridor off Ladcastle Road, land south-east of Saddleworth Rangers and Plevins. Due to the close proximity of the SSSI to the Order Scheme, there is a risk of pollution.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Ladcastle and Den Quarries SSSI	Immediately adjacent to the Order Scheme boundary.	Quarries designated for features of geological interest	National	Designated site with nationally important features	Out	SSSI is designated for geological features that will not be impacted by the Order Scheme.
Dark Peak SSSI	780 m east of the Order Scheme.	Moorland with significant populations of breeding birds and terrestrial invertebrates.	National	Designated site with nationally important features	Out	No direct habitat loss and no impact pathways identified connecting the SSSI and the Order Scheme Area being separated by urban areas and roads at different points along the route. Although there are hydrological connections the Order Scheme lies downstream of the SSSI. The

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						proposed works will not cause any disturbance above baseline to birds and terrestrial invertebrates using the SSSI.
South Pennine Moors SSSI	780 m east of the Order Scheme.	Moorland and blanket bog with diverse upland plant communities and nationally important breeding bird populations	National	Designated site with nationally important features	Out	No direct habitat loss and no impact pathways identified connecting the SSSI and the Order Scheme Area being separated several roads including the A62. Although there are hydrological connections the Order Scheme lies downstream of the SSSI. The proposed works will not cause any

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						disturbance above baseline to birds using the SSSI.
Standedge Road Cutting SSSI	1.27 km north-east of the Order Scheme.	Designated for features of geological interest.	National	Designated site with nationally important features	Out	SSSI is designated for geological features that will not be impacted by the Order Scheme.
Lowside Brickworks SSSI	3.35 km west of the Order Scheme.	Designated for features of geological interest.	National	Designated site with nationally important features	Out	SSSI is designated for geological features that will not be impacted by the Order Scheme.
Park Clough SSSI	4.35 km north-east of the Order Scheme.	Designated for features of geological interest.	National	Designated site with nationally important features	Out	SSSI is designated for geological features that will not be impacted by the Order Scheme.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Hollinwood Branch Canal SSSI	4.73 km west of the Order Scheme.	Eutrophic canal including open water, swamp, and tall fen.	National	Designated site with nationally important features	Out	No in-watercourse works are proposed. The SSSI is separated from the Order Scheme by large urban areas with limited hydrological connectivity.
Armit Road Lodge SBI	Within the Order Scheme.	Ponds and small lodges.	County	Selected by GMEU as a site of County importance	In	The SBI will be used for access on foot only using an existing footpath. Small scale branch trimming for maintenance siding may be required.
Cliffs at Mossley SBI	Within the Order Scheme.	Semi-natural broadleaved woodland. Semi-natural grassland.	County	Selected by GMEU as a site of County importance	In	The SBI will be directly impacted with 0.58 ha of habitat loss within the SBI (approximately

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						11% of the total area of the SBI).
Grasscroft Pasture SBI	Within the Order Scheme.	Semi-natural grassland. General species-solitary bees. General species-fungi.	County	Selected by GMEU as a site of County importance	In	The SBI will be directly impacted with 0.47 ha of habitat loss within the SBI (approximately 1% of the total area of the SBI).
Huddersfield Narrow Canal (North) SBI	Within the Order Scheme.	Large Areas of Standing Open Water.	County	Selected by GMEU as a site of County importance	In	No in-watercourse works are proposed however works will be within 10 m from and directly cross the SBI at multiple locations (see Huddersfield Canal SSSI).

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Huddersfield Narrow Canal (South) SBI	Within the Order Scheme.	Large Areas of Standing Open Water as per the Greater Manchester SBI Selection Guidelines 2016.	County	Selected by GMEU as a site of County importance	In	No in-watercourse works are proposed however works will be within 10 m from and directly cross the SBI at multiple locations (see Huddersfield Canal SSSI).
Moorgate Quarry SBI	15 m east of the Order Scheme.	Heathland and Bog. Semi-natural grassland. Habitat mosaics.	County	Selected by GMEU as a site of County importance	Out	No direct habitat loss or hydrological links and the adjacent works comprise of access using an existing road. The Nuisance Management Plan within Part B of the Code of Construction Practice (CoCP) includes further mitigation measures

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						including dust prevention. Therefore, the SBI will not be impacted by the Order Scheme.
Hartshead SBI	25 m east of the Order Scheme.	Semi-natural broadleaved woodland.	County	Selected by GMEU as a site of County importance	Out	No direct habitat loss or hydrological links and the SBI is separated from the Order Scheme by the A62, River Tame and associated riparian vegetation. The Nuisance Management Plan within the CoCP Part B includes further mitigation measures including dust prevention. Therefore, the SBI

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						will not be impacted by the Order Scheme.
Royal George SBI	70 m east of the Order Scheme.	Ponds and small Lodges. Large Areas of Standing Open Water.	County	Selected by GMEU as a site of County importance	Out	No direct habitat loss and the SBI is separated from the Order Scheme by the Huddersfield Narrow Canal, residential housing and commercial premises and therefore will not be impacted by the Order Scheme.
Marshes at Staley Hall SBI	220 m east of the Order Scheme	Acid grassland with marsh and ditches.	County	Selected by GMEU as a site of County importance	Out	No direct habitat loss and the SBI is separated from the Order Scheme by the Huddersfield Narrow Canal,

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						residential housing and commercial premises and therefore will not be impacted by the Order Scheme.
Puddle Clay Pits SBI	240 m east of the Order Scheme.	Site supports a complex mosaic of habitats including marsh, flush, swamp, dry heath, open water, acid and neutral grassland.	County	Selected by GMEU as a site of County importance	Out	No direct habitat loss and the SBI is separated from the Order Scheme by the Huddersfield Narrow Canal, residential housing and commercial premises and therefore will not be impacted by the Order Scheme.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Castle Clough SBI	430 m km east of the Order Scheme.	Deciduous woodland.	County	Selected by GMEU as a site of County importance	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Dacres SBI	380 m km east of the Order Scheme.	Lowland meadow and Lowland dry acid grassland.	County	Selected by GMEU as a site of County importance	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Brushes Valley LNR	640 m south-east of the Order Scheme.	Area of woodland, meadow, and wetlands adjacent to Brushes Reservoir.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Castle Clough and Cowbury Dale LNR	780 m east of the Order Scheme.	Area of broadleaved woodland straddling the banks of the Staly Brook watercourse.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						connecting the feature and the Order Scheme.
Knot Hill LNR	1.15 km west of the Order Scheme.	Historically a reservoir, now a site of upland semi-natural habitat with agricultural grazing presence.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Cowbury Dale LNR	1.20 km east of the Order Scheme.	Meadow habitat surrounded by broadleaved woodland with a small lake present.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Rocher Vale LNR	2.67 km west of the Order Scheme.	Site supports a mosaic of habitats including riverbanks, woodland, and a heath.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Glodwick Lows LNR	3.06 km west of the Order Scheme.	Site supports a mosaic of habitats including grassland, heathland and woodland. Wildlife includes foxes, mining bees and field bindweed.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Haughton Dale LNR	4.45 km south-west of the Order Scheme.	Oak, ash and alder woodlands supporting bluebells and, in wet areas, golden saxifrage. The woodland is an important habitat for birds, including woodpecker, owl, bullfinch and nuthatch.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Hollinwood Branch Canal LNR	4.53 km west of the Order Scheme.	Large Areas of Standing Open Water.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Hurst Clough LNR	4.56 km south of the Order Scheme.	Woodland and wildflower meadows supporting butterfly assemblages.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Werneth Low LNR	4.93 km south of the Order Scheme.	Site supports a mosaic of habitats including woodland, dry heath, and wetlands.	Local	Local-level conservation priority	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Ancient/ veteran trees	0.12 km east of the Order Scheme.	No ancient/veteran trees are located within the Order Scheme	District	Irreplaceable habitat with few records within the district.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Deciduous woodland	Within the Order Scheme	40 parcels located within the Order Scheme	Local	National priority habitat. The habitat is widespread in	In	0.043 ha will be impacted as part of the Order Scheme through

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
				Greater Manchester, but likely of local importance.		tree removal and crown reduction.
Lowland heathland	Within the Order Scheme.	2 parcels located within the Order Scheme	Local	Parcels surrounded by Himalayan balsam and Japanese knotweed. Lack of higher quality heathland species.	In	One area of 0.03 ha may be affected through use of an access track used to cross over Standedge tunnel western portal. 0.056 ha of lowland heathland will be lost during planned works at the entrance of Butterhouse Tunnel (planned parking and laydown area construction).
Lowland fen (irreplaceable habitat)	Directly adjacent to the Order Scheme in multiple	No parcels are located within the Order Scheme. One parcel is located directly	District	Generally encompassed within SBIs. Parcels are	Out	No direct habitat loss and no impact pathways identified

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
	locations.	adjacent to the Order Scheme.		fragmented.		connecting the feature to the Order Scheme. No in-watercourse works are proposed and no hydrological impacts are expected to surrounding watercourses.
Priority Hedgerow	Within the Order Scheme	Runs along the edge of the Order Scheme at Brownhill Lane.	Local	Supplementary attribute to other high quality habitat. Hedgerows generally widespread in Greater Manchester but likely of local value.	In	Potential for habitat loss if the priority hedgerow is removed as part of the works on Brownhill Lane for a new pedestrian diversion.
Priority River	5 m west of the Order Scheme	A section of the Huddersfield Narrow canal where the Order Scheme connects to	District	Mesotrophic waterbody over 1 ha. Likely of district level	In	No in-watercourse works are proposed however works will be

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
		the towpath.		importance.		within 5 m from the watercourse (see Huddersfield Canal SSSI and Huddersfield Narrow Canal (North) SBI).
Grass Moorland	65 m west of the Order Scheme.	No parcels are located within the Order Scheme.	Local	Fragmented parcel adjacent to golf course. Likely of local importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Upland heathland	130 m west of the Order Scheme.	No parcels are located within the Order Scheme.	Local	Fragmented parcel below 300 m above sea level, adjacent to urban area. Likely of local importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Traditional orchard	190 m west of the Order Scheme.	No parcels are located within the Order Scheme.	Local	Not considered for SBI selection criteria. Likely of local importance.	Out	No direct habitat loss and no impact pathways identified connecting the

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						feature and the Order Scheme.
Blanket bog (irreplaceable habitat)	350 m north-east of the Order Scheme.	No parcels are located within the Order Scheme.	County	Irreplaceable habitat that is uncommon in Greater Manchester. Likely of county importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Upland hay meadow	1.02 km north-west of the Order Scheme.	No parcels are located within the Order Scheme.	County	Grassland habitat that is uncommon in Greater Manchester. Likely of county importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Upland flushes fen and swamps	1.55 km south-east of the Order Scheme.	No parcels are located within the Order Scheme.	County	Habitat that is uncommon in Greater Manchester. Likely of county importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Fragmented Heath	1.56 km north-east of the Order Scheme.	No parcels are located within the Order Scheme.	County	Habitat that is uncommon in Greater Manchester. Likely of county importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Ponds	4 km east of the Order Scheme.	No ponds are located within the Order Scheme.	Local	Priority habitat in Greater Manchester. Widespread but likely of local importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Lowland Meadows	4.3 km south of the Order Scheme.	No parcels are located within the Order Scheme.	County	Grassland habitat that is uncommon in Greater Manchester. Likely of county importance.	Out	No direct habitat loss and no impact pathways identified connecting the feature and the Order Scheme.
Lowland dry acid grassland	4.73 km north-east of the Order Scheme.	No parcels are located within the Order Scheme.	County	Grassland habitat that is uncommon in Greater Manchester.	Out	No direct habitat loss and no impact pathways identified

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
				Likely of county importance.		connecting the feature and the Order Scheme.
Semi-natural habitats (Other neutral grassland, other lowland acid grassland, modified scrub, hedgerows, and line of trees).	Within the Order Scheme Area	Some Scheme elements contain habitats which do not meet the criteria to be priority habitats but are otherwise beneficial as habitats for protected species or are of higher ecological value than others in the locality.	Local	Generally widespread and common habitats which aren't priority habitats within Greater Manchester. Collectively, and due to the linear nature of the habitats, the habitats are likely of local value.	In (Other neutral grassland, other lowland acid grassland, modified scrub, hedgerows, line of trees).	Potential for loss or degradation of habitats of higher ecological value than those commonly found within the wider rail network.
Badger	Within and adjacent to the Order Scheme Area	A main badger sett is present immediately adjacent to the Order Scheme, located off Printworks Road. Scrub embankments and grassland on and adjacent to the rail	Local	Foraging areas are restricted by existing roads and railway. However, due to the present of a main sett, and linear nature of the Order	In	Potential for badgers to be present in and within close proximity to the Order Scheme Area due to the habitats present.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
		adjacent to some of the Order Scheme elements have potential for badger sett creation foraging and commuting.		Scheme, the wider population is considered of local value.		Temporary works are occurring within 20 m of the badger sett.
Bats - Roosting	Within and adjacent to the Order Scheme	One structure (Spring Bank Lane (MVL3/09) with a confirmed common pipistrelle day/transitional roost, however this is outside the Order Scheme. Likely roosting identified at Stalybridge and Scout Tunnels both with common pipistrelle day/ transitional roost and brown long-eared day/night transitional roost. This may be impacted by the cumulative impacts of the Order Scheme and wider Scheme Works.	Local	Low conservation status roosts supporting low numbers of two species of widespread bats within Greater Manchester.	In (structures only)	Confirmed bat roost in the existing bridge Spring Bank Lane (MVL3/09) has the potential to be directly and indirectly impacted by the Order Scheme, notably structural works and track lowering which includes temporary propping of abutments and associated temporary increase of disturbance.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
		One tree was identified with bat roost suitability.				Evidence of likely roosting within Stalybridge and Scout Tunnels. Disturbance to roosting bats through increased vibration, light-spill and noise during the construction period. All structures within the Order Scheme are considered to offer negligible suitability for maternity. The structures are subject to regular increases in noise, artificial lighting, vibration and air-flow from passing trains including during

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						the key maternity period. Whilst bats can become acclimatised to regular sources of potential disturbance, bats are usually very sensitive during the maternity season and may abandon their young if they are disturbed12. Additionally, internal tunnel temperatures are expected to be low year-round and maternity roosts require relatively high mean temperatures[18].

18 Shepherd, B., Stroud, J. (2009) Mitigation for roosts in buildings workshop national bat conference. Available at: https://www.bsg-ecology.com/wp-content/uploads/2017/05/Mitigation-for-roosts-in-buildings-ps-, final.pdf Accessed 13/08/2024.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						Though PRFs with suitable depth or extension may be present, conditions are deemed sub-optimal. Maternity roosts are scoped out for further assessment. One tree was identified with bat roost suitability, determined as 'PRF-I'. The tree will be retained and will not be directly or indirectly impacted by the Order Scheme therefore is scoped out for further assessment.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
Bats – Roosting (Hibernation)	Within and adjacent to the Order Scheme	Likely common pipistrelle hibernation roost identified at both Stalybridge and Scout Tunnels. This may be impacted by the cumulative impacts of the Order Scheme and wider Scheme Works.	Local	Hibernation site is likely used by less than five individuals as a low number of calls were recorded over the hibernation period. Roost does not satisfy the SBI criteria, so unlikely to be of county value. Due to being a small hibernation roost, considered to be of local importance.	In	Evidence of likely common pipistrelle roosting within Stalybridge and Scout Tunnels. Disturbance to roosting bats through increased vibration, light-spill and noise during the construction period.
Bats - Foraging/ Commuting	Within and adjacent to the Order Scheme	Habitats including watercourses, grassland, scrub, hedgerows, woodland and treelines within and adjacent to Scheme elements.	Local	Low suitability of potential flight paths and foraging habitats over the Order Scheme. Due to the linear nature of the Order	In	Suitable habitat for bat foraging and commuting, including watercourses, grassland, scrub, hedgerows and woodland are

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
				Scheme, likely to be of at least local value.		present within and adjacent to the Order Scheme Area. Loss or degradation of these habitats could result in fragmentation, and indirect effects from increased lighting and disturbance may impact on bat behaviour.
Birds	Within and adjacent to the Order Scheme	Habitats including scrub, hedgerows, woodland and individual trees used by breeding birds within and adjacent to the Order Scheme.	Local	Low value breeding habitat within areas of relatively high baseline disturbance. Due to the linear nature of the Order Scheme, likely to be of at least local value.	In (breeding only)	De-vegetation works may result in damage or destruction of nests. Small areas of suitable habitat for wintering birds is present within the Order Scheme such as grasslands in the

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
						off-rail environment. The wider region outside of the Order Scheme boundary has higher suitability for wintering birds, notably due to lower baseline levels away from the live rail, and closer proximity to South Pennine Moors Phase SPA. Wintering birds are scoped out for further assessment.
Great crested newt	Within and adjacent to the Order Scheme	Suitable breeding, foraging and refuging habitat. No hibernacula was identified.	Local	Unlikely to support a good population of great crested newt considering habitat fragmentation	Out	Network Rail wish to proceed under a NatureSpace great crested newt mitigation licence.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
				from the railway and roads.		
Reptiles	Within and adjacent to the Order Scheme	Suitable commuting, foraging and refuging habitat present. No hibernacula was identified.	Local	Unlikely to regularly support a population of adder, slow worm, grass snake or common lizard. Due to the linear nature of the Order Scheme, likely to be local value.	In	Suitable habitat for reptile commuting, foraging, refuging and basking within the Order Scheme and as such there is a low risk of killing/ injury during construction.
Other priority species	Within and adjacent to the Order Scheme	Suitable habitat present for brown hare, common toad and/or hedgehog within the majority of the Order Scheme.	Local	Sparse distribution across the immediate area, restricted to particular sites or widespread but not considered for SBI selection criteria. Due to the linear nature of the Order	In	Habitat including grassland, scrub and woodland is suitable for brown hare, common toad and/or hedgehog and as such there is a low risk of killing/ injury during construction.

Ecological feature	Approximate Distance from Scheme Area	Description	Importance	Importance rationale	Scoped in/ out	Reason for scoping in/ out
				Scheme, likely to be local value.		
Priority Flora	Within and adjacent to the Order Scheme	No protected or priority species of plant were recorded within the Order Scheme.	Local	Unlikely to support a significant proportion of the Grater Manchester population of the species.	In	Flora may have been missed due to the time of year the habitat was surveyed. Some areas of the Order Scheme were inaccessible and have the potential to contain priority flora.

3.5 Future Baseline

3.5.1 Assuming continuation of existing land ownership and management regimes, the habitats within the Order Scheme are unlikely to change in type or ecological value and would remain as the current baseline.

3.5.2 The future baseline scenario within and adjacent to the Order Scheme shall include other elements of the wider TRU development works that will be delivered under permitted development rights. Such works would be primarily limited to the existing railway corridor, which is largely of negligible or low habitat value (modified grassland, other neutral grassland, scattered scrub and unsealed urban surface). It is therefore anticipated that such TRU development works would not result in any notable changes to the baseline ecological conditions reported within the proposed period of the implementation of the Order Scheme.

3.5.3 In addition, potentially relevant protected species which are transient in nature such as badgers and roosting bats could establish in new locations where they would impose new working constraints, due to a need to ensure compliance with the legislation protecting these species. Changes to watercourses or waterbodies are unlikely to occur in the proposed period of the construction of the Order Scheme unless management is to substantially enhance the watercourse.

3.6 Potential Effects

3.6.1 The appraisal of potential effects is based on the Order Scheme Area shown on Figures 1.1.1 to 1.1.6 in Volume 2 of the Environmental Report [**NR14**], which shows the approximate extent and layout of the Order Scheme for each relevant elements of the Order Scheme and by inference allows identification of which habitats would be retained and which would be affected.

3.6.2 The extent of the Order Scheme for all relevant elements that require planning permission is approximately 31.025 ha. The current assumption is that all non-operational land owned outside of Network Rail's landownership within the Order Scheme would be returned to the landowner and restored to its former condition.

3.6.3 Table 3-7 and Table show the area of each habitat type present within the deemed planning boundary for each relevant elements of the Order Scheme.

3.6.4 Impacts on the ecological features identified in Table 3-9 could result during the construction phase and during operation; a summary of the activities which could have an impact is provided below.

Construction Phase

3.6.5 Construction activities that have the potential to impact on the identified ecological features may include:

- Temporary and permanent vegetation clearance within the Order Scheme (loss, fragmentation and degradation);
- Earthworks and movement;
- Works to structures including demolition, dismantling and reconstruction;
- Creation of temporary compounds, working areas and access routes;
- Installation of new railway infrastructure and assets; and
- Changes in lighting, noise, and vibration.

Operational Phase

3.6.6 Operational activities that have the potential to impact on ecological features may include:

- Direct or indirect impacts from the presence of new or changes to existing infrastructure and assets and changes in the operation of the railway including lighting, noise, vibration or visual effects;
- Changes to the foraging, commuting and shelter behaviour of protected or priority species while habitats are restored to their previous type and condition.

Decommissioning Phase

3.6.7 Decommissioning activities that have the potential to impact on the identified ecological features may include:

- Earthworks and movement from the removal of temporary compounds and associated works areas;
- Works to temporary structures including demolition and dismantling; and
- Changes in lighting, noise and vibration.

3.6.8 The HRA (Volume 3, Appendix 6B of this Report [**NR14**]) does not assess the potential effects of decommissioning. It is assumed that any Likely Significant Effects will be screened out. However, sufficient

decommissioning detail is not yet available to draw this conclusion and it is recommended that the HRA is re-visited once final decommissioning design is known.

3.6.9 Table summarises the potential effects that could affect the ecological features identified in Table 3-11 without the implementation of appropriate mitigation measures.

3.6.10 Cumulative impacts for the Order Scheme are addressed within Chapter 4 of the Environmental Report.

Table 3-11 - Summary of the potential effects on ecological features

Ecological features	Potential effects
Construction	
Designated sites	
Huddersfield Narrow Canal SSSI Huddersfield Narrow Canal (North) SBI Huddersfield Narrow Canal (South) SBI Armit Road Lodge SBI Cliffs at Mossley SBI Grasscroft Pasture SBI	Loss and degradation of designated sites: <u>Huddersfield Narrow Canal SSSI/ SBI</u> Accidental pollution events at Huddersfield Narrow Canal SSSI, North & South SBI: spills from machinery or construction materials. <u>Armit Road Lodge SBI</u> The SBI will be used for access on foot only using an existing footpath. Small scale branch trimming for maintenance siding may be required. Vegetation loss would be temporary and branches will be cut in a way to allow re-growth. <u>Cliffs at Mossley SBI</u> The SBI will be directly impacted with 0.58 ha of habitat loss within the SBI out of 5.39 total ha (approximately 11% of the total area of the SBI). The vegetation loss will be temporary and is concentrated on the eastern side of the SBI and therefore will not fragment the wider SBI. <u>Grasscroft Pasture SBI</u> The SBI will be directly impacted with 0.22 ha of habitat loss within the SBI out of 4.05 total ha (approximately 5% of the total area of the SBI). The vegetation loss will be temporary and is concentrated on the eastern side of the SBI and therefore will not fragment the wider SBI.

Ecological features	Potential effects
Priority Habitat	
Deciduous woodland Lowland heathland	0.056 ha of lowland heathland and 0.043 ha of deciduous woodland will be removed, contributing to loss and degradation of priority habitat.
Habitats	
Local value semi-natural habitats	Loss, fragmentation and degradation of local value semi-natural habitat.
Protected/priority species	
Badgers Bats (commuting and foraging) Birds (breeding) Reptiles Other priority species Priority flora	Killing and injury during vegetation clearance and construction activities. Damage/destruction of active bird nests. Temporary behaviour changes of animals affecting foraging, commuting and sheltering due to increased disturbance (human activity, noise, vibration and light-spill) and changes to the local area. Loss, fragmentation and degradation of habitat.
Bats (roosting)	Temporary or permanent loss of roost at Spring Bank Lane (MVL3/09) and likely present roosts within Stalybridge and Scout Tunnels when considering cumulative effects of the Order Scheme with the wider Scheme works subject to PD. Temporary disturbance of likely roost through deployment of artificial lighting and increase noise and vibration
Operation	
Designated sites	
Huddersfield Narrow Canal SSSI Huddersfield Narrow Canal (North) SBI Huddersfield Narrow Canal (South) SBI Armit Road Lodge SBI Cliffs at Mossley SBI Grasscroft Pasture SBI	De-vegetation will expose interior habitat to different environmental conditions such as increased wind and light. Disturbed ground near the Order Scheme may be colonized by undesirable species or INNPS. Management activities such as vegetation clearance for visibility would be more frequent. Pollution runoff from the Order Scheme

Ecological features	Potential effects
	contaminates adjacent habitats.
Priority Habitat	
Deciduous woodland Lowland heathland	De-vegetation will expose interior habitat to different environmental conditions such as increased wind and light. Disturbed ground near the Order Scheme may be colonized by undesirable species or INNPS. Management activities such as vegetation clearance for visibility would be more frequent. Pollution runoff from the Order Scheme contaminates adjacent habitats.
Habitats	
Local value semi-natural habitats	Increased footfall from the creation of a new public right of way causing increased disturbance and pollution through littering. De-vegetation will expose interior habitat to different environmental conditions such as increased wind and light. Disturbed ground near the Order Scheme may be colonized by undesirable species or INNPS. Management activities such as vegetation clearance for visibility would be more frequent. Pollution runoff from the Order Scheme contaminates adjacent habitats.
Protected/ priority species	
Badger Bats (commuting and foraging) Birds (breeding) Reptiles Other priority species	Behaviour changes on breeding, foraging and commuting animals due to new infrastructure and changes in lighting, noise, vibration or visual effects.
Bats (roosting)	Reduction in the availability and suitability of features for roosting bats due modifications to bridge structures and tunnels. Increased disturbance to roosts through noise, vibration and artificial lighting.
Priority flora	Loss of priority flora through de-vegetation

Ecological features	Potential effects
	and vehicle movement.
Decommissioning	
Designated sites	
Huddersfield Narrow Canal SSSI Huddersfield Narrow Canal (North) SBI Huddersfield Narrow Canal (South) SBI Armit Road Lodge SBI Cliffs at Mossley SBI Grasscroft Pasture SBI	Disturbed ground near the Order Scheme may be colonized by undesirable species or INNPS. Pollution runoff from the Order Scheme contaminates adjacent habitats.
Priority Habitat	
Deciduous woodland Lowland heathland	Disturbed ground near the Order Scheme may be colonized by undesirable species or INNPS. Pollution runoff from the Order Scheme contaminates adjacent habitats.
Habitats	
Local value semi-natural habitats	Disturbed ground near the Order Scheme may be colonized by undesirable species or INNPS. Pollution runoff from the Order Scheme contaminates adjacent habitats.
Protected/ priority species	
Badger Bats (commuting and foraging) Birds (breeding) Reptiles Other priority species	Increased mortality from increased traffic movements. Loss of secondary habitat such as refugia within laydown areas or compounds. Behaviour changes on breeding, foraging and commuting animals due to new infrastructure and changes in lighting, noise, vibration or visual effects.
Bats (roosting)	Increased disturbance to roosts through noise, vibration and artificial lighting. Removal of temporary structures.
Priority flora	Loss of priority flora through de-vegetation and vehicle movement.

4. MITIGATION AND CONSIDERATION OF CONTROL MEASURES

4.1.1 This section describes the mitigation measures that will be included to avoid or reduce any adverse effects on the identified ecological features.

4.1.2 The relevant works will be undertaken in accordance with legal requirements and good practice, and this is considered when assessing the effects of the potential impacts. The standard measures are summarised below and further detail on this is provided below:

- Implementation of good practice mitigation measures to reduce the risk of water pollution, noise, vibration, dust and light-spill. These are outlined in the Code of Construction Practice (CoCP) Part A [**NR16**] and through Network Rail's Environment and Social Minimum Requirements for Projects (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]);
- Implementation of root protection areas of retained woodland, trees and hedgerows, in accordance with British Standards[19], through an Arboricultural Method Statement – see Chapter 9 in Volume 1 of the Environmental Report [**NR14**] for further details;
- Implementation of biosecurity mitigation measures to prevent the spread of INNPS. As described in section 4.4 of the CoCP Part A [**NR17**] these will be outlined in a Landscape and Ecological Management Plan (LEMP) for the relevant works elements of the Order Scheme that require planning permission. The relevant Network Rail guidance notes will be complied with in removing any invasive or injurious species as applicable, whether as part of the LEMP or in connection to works undertaken using Permitted Development Rights for associated temporary land use work areas;
- Timing works to avoid the most sensitive periods for ecological features wherever possible, e.g. removing vegetation outside the nesting bird season and avoiding disturbance of potential shelter refugia during winter (reptiles and hedgehog);
- Updating baseline data and the impact appraisal if conditions change or if ecological features not previously identified and assessed are discovered once works commence.

4.1.3 The principles of the mitigation hierarchy (see Annex B) have been implemented whereby the relevant elements of the Order Scheme have been designed to use areas of hardstanding, existing access roads and low value habitats (i.e. avoid an impact) where these are available.

19 British Standard BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' (British Standards Institution, 2012)

4.1.4 Mitigation measures will be:

- incorporated into the design (embedded mitigation);
- implemented through consenting or licensing required to ensure compliance with legislation;
- integrated into the construction management programmes or method statements (i.e. the CoCP);
- secured through a planning condition for a LEMP included with the Order application for the relevant elements of the Order Scheme that require planning permission; or
- managed via CoCP Part A and Network Rail commitments (as set out within NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]), included with the Order application for associated temporary land use areas.

4.2 Embedded Mitigation

4.2.1 Where reasonably practicable, environmental effects have been avoided through the development and adoption of a range of mitigation measures. Each mitigation measure for ecology is outlined below, with a reference number provided - for example EM1. Those reference numbers relate to Volume 1, Chapter 14 of the Environmental Report [**NR14**], which contains details of all proposed mitigation measures for the Order Scheme

Layout Design (EM1)

4.2.2 Where practical the layouts of the relevant elements of the Order Scheme have been designed to make use of habitats of low ecological value, rather than habitats of high value. Significant adverse effects on the integrity and connectivity of the habitats within the Order Scheme have been avoided due to maximising the retention of habitat along the railway embankments and compound locations.

4.2.3 Specific examples of avoidance of higher value habitats include:

- Plevins Compound: Retention of overhanging trees where feasible, specifically on the western edge where the trees maintain a 10 m plus buffer to Huddersfield Canal SSSI;
- Butterhouse Tunnel: the Order Scheme design was amended from being directly adjacent to Butterhouse Tunnel to agreement of a 30 m buffer area, as it was identified as having high suitability for roosting bats, including swarming, maternity and hibernation suitability. Mitigation to minimise potential disturbance to bats will be included within Scheme design;

- Printworks Office Compound[20]: boundary trees in the north-west and east of the Order Scheme to be retained;
- Egmont Street: Trees to be retained at the boundary of the parking area, including the area adjacent Huddersfield Canal;
- Heron Lane Compound: In-channel works were proposed to widen access route which would have directly impacted the River Tame and could have impacted flora and fauna in and adjacent to the Order Scheme. This portion of the Order Scheme was removed and access works are limited to minor de-vegetation;
- Royal George Underbridge Compound: Trees at border of compound can be retained; and
- Sam Road Compound: De-vegetation will be minimised to avoid tree removal adjacent to Huddersfield Canal and residential buildings.
- A badger sett is located approximately 4 m east of the Order Scheme at Printworks Road. The following measures will be implemented to reduce the likelihood of direct or indirect impacts to badgers:
    - Where feasible, a 20 m exclusion zone will be demarked around any active badger sett entrances;
    - Works will comprise of temporary minor de-vegetation only and restricted to hand tools.
    - No groundworks or machinery will be used;
    - Works will be constrained to day-time only; and
    - An Ecological Clerk of Works will provide support during de-vegetation, comprising pre-works checks and ensuring no mammal paths or sett entrances are obscured.

Lighting Measures (EM2)

4.2.4 A CoCP Part B - Nuisance Management Plan, secured through planning condition, will be prepared for the relevant elements of the Order Scheme that require planning permission that will include best-practice measures for any additional lighting that is required to safely facilitate construction and future operational use, as described in section 3.4 of the CoCP Part A [**NR16**]. Measures regarding the lighting for associated temporary land use will be implemented through CoCP Part A and Network Rail commitments as set out in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]).

4.2.5 Any requirements for temporary construction and compound lighting will be designed to be directional and avoid illumination of adjacent natural habitats. This will be to minimise indirect disturbance effects to nocturnal wildlife such

20 To be consented as part of the wider Printworks Compound Works

as bats and certain bird species that could use habitats for foraging and commuting. Residual light spill is considered unlikely to have an adverse effect on the use of habitats in the Order Scheme by bats, as these are already subject to a level of light disturbance from the existing lighting and these habitats are most likely to be used by bat species that are more tolerant of light disturbance, such as pipistrelles.

Noise Reduction (EM3)

4.2.6 A CoCP Part B - Noise and Vibration Management Plan will be prepared for the relevant elements of the Order Scheme that require planning permission that will include mitigation measures for reducing impacts from noise during construction, as described in in the CoCP. Measures regarding the noise for associated temporary land use will be implemented through CoCP Part A [**NR16**] and Network Rail commitments as set out in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]). These will help to minimise disturbance from noise to wildlife such as bats and birds that may be present. The Order Scheme currently experiences noise disturbance from existing railway operations and the largely urban areas present, so a notable increase in noise levels is not expected. Residual noise is considered unlikely to have an adverse effect on the use of habitats around the Order Scheme Areas by bats and birds, as these are already subject to a level of disturbance from the existing railway operations and will be habituated to that.

Surface Water Drainage and Pollution Prevention (EM4)

4.2.7 A Pollution Prevention and Incident Control Plan (PPICP) will be prepared for the relevant elements of the Order Scheme that require planning permission as part of the CoCP Part B, to be approved by the local planning authority as required by a planning condition, and will include mitigation measures for preventing pollution incidents during construction of the Order Scheme, including to control the generation of dust during construction activities. Pollution control measures will be implemented to avoid and minimise adverse effects of pollution and runoff on the adjacent water environment, as described in section 7 of the CoCP Part A [**NR16**].

4.2.8 The PPICP will describe measures that will be in place to deal with pollution incidents efficiently when and if they occur. The PPICP will require that in order to avoid potential pollution effects, all refuelling and servicing of vehicles will be carried out within a designated area with an impermeable base. To prevent spillages, refuelling will be carried out by pumping through a trigger delivery nozzle.

4.2.9 Fuel, oil and other potential contaminants will be stored within bunded tanks having capacity of 110% of the volume stored and only the minimum quantity required will be stored within the Order Scheme. The designated area will be maintained in a secure and clean manner. An adequate quantity of oil

absorbent material will be available and spillages cleared up immediately. All construction equipment will be maintained in good working order and checked regularly for spillages/ leaks. Measures for associated temporary land use will be implemented through CoCP Part A and Network Rail commitments as set out in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]).

Biosecurity Measures (EM5)

4.2.10 As described in section 4.4 of the CoCP Part A [**NR16**] the LEMP will include a section that identifies the presence of any invasive or injurious species and how they will be dealt with for the relevant elements of the Order Scheme that require planning permission. The presence of INNPS (Himalayan balsam, Japanese knotweed, rhododendron, buddleia (not on Schedule 9 of the WCA but considered invasive), montbretia and variegated yellow archangel) will need to be addressed prior to construction to ensure they are not spready beyond their current extent. Each INNPS will require targeted and specific management as they are present in areas where construction will occur so there is a risk that INNPS plant material could be transmitted off-site via staff, plant and materials, which is illegal under Schedule 9 of the WCA.

4.2.11 Relevant Network Rail guidance notes will be complied with in removing any invasive or injurious species as applicable. Mitigation measures for INNPS will be outlined and contractors will be responsible for implementing biosecurity measures and adherence to the INNPS Management Plan. The INNPS Management Plan will be produced including measures to be implemented during the proposed works which will cover such things as the demarcation of affected areas, the management of impacted soils through the use of track matting over affected areas, wearing of protective clothing, and removal and storage of arisings (e.g. stockpiling in an agreed location) prior to and during development. The cleaning/ disinfection of clothes and equipment prior to travel to another site will prevent plant materials from being transferred and propagating in other areas.

4.3 Additional Mitigation

SBI – Armit Road Lodge, Grasscroft pasture, Cliffs at Mossley and Huddersfield Canal (AM1)

4.3.1 The layouts of the relevant elements Order Scheme has been designed to follow the mitigation hierarchy and avoid SBIs where feasible. Where this is not possible, the Order Scheme aims to minimise impacts:

- Armit Road Lodge SBI: the Order Scheme design was refined to make use of an existing footpath through the SBI. The use of hand tools are specified to minimise the requirement for de-vegetation, notably scrub

removal for the diversion of an existing footpath and minimise disturbance which will be temporary in nature;

- Grasscroft Pastures SBI: Design of the new footpath to retain a buffer to the adjacent trees where feasible. De-vegetation is limited to a 4 m wide footpath;
- Cliffs at Mossley SBI: Proposed drainage micro-sited to reduce de-vegetation footprint; and
- Huddersfield Canal SBI: Pollution control measures will be implemented to avoid and minimise adverse effects of pollution and runoff on the adjacent water environment, as described in section 7 of the CoCP Part A [**NR16**] with detailed protection to follow in the PPICP Part B condition to be approved by the local authority.

4.3.2 Where areas of temporary de-vegetation have taken place within an SBI, habitat will be reinstated and enhanced where practical. Other enhancement measures will be targeted within the wider SBI in conjunction with habitat creation.

Priority Habitat – Deciduous Woodland and Lowland Heathland (AM2)

4.3.3 The layouts of the relevant elements of the Order Scheme have been designed to follow the mitigation hierarchy and avoid priority habitats where feasible. Network Rail's commitment to deliver 10% BNG will result in a habitat enhancement following the temporary loss.

Bat Mitigation (AM3)

Mitigation Strategy for Bat Roosts

4.3.4 A detailed mitigation strategy will be developed as part of the tunnels licence application as outlined in section 4.3.9, which will include (but not be restricted to) the following key principles:

- Pre-construction bat survey (between May and September for day/ transitional roosting and November – March for hibernation roosting within year prior to construction) to be undertaken in accordance with current survey guidelines to reaffirm species and classify the bat roosting status as well as exact location of roost site;
- Using the information from the pre-construction surveys, a mitigation strategy will be developed and the licence application and method statement will be prepared and submitted to Natural England;
- All roosts are currently assessed as a low conservation value roost of a common and widespread species;

- During licensable works, a licensed bat ecologist would be present during the initial stages of the works in the vicinity of the roost location so that any PRF can be inspected using a torch and/ or endoscope prior to works commencing to confirm bats are absent. The supervising licensed ecologist would be present to remove and relocate any opportunistic bats present;
- If exclusion measures are required, these would be undertaken by a licensed ecologist in accordance with licence method statement during appropriate times of the year during suitable weather conditions;
- A Bat Toolbox Talk would be delivered to staff;
- A replacement, alternative roost site will be provided either as an integrated box within the new structure or mounted on the new structure, or a bat box on a nearby mature tree or standalone rocket bat box. This will be installed prior to exclusion and removal of the known roost to act as a receptor location for excluded bats. The number of replacement bat roost features (e.g. day/ transitional and hibernation bat boxes) exceed the baseline provision, delivering enhancements and ensuring compliance with any identified licensing requirements;
- Any newly installed lighting will not directly illuminate replacement roosting features.

4.3.5 It is a legal requirement to obtain a licence before commencement of any work that has potential to directly impact a bat roost or cause harm to bats.

4.3.6 As part of the consideration of the cumulative impacts of the Order scheme and other works associated with the Scheme as noted in Table 1-2 of Volume 1, Chapter 1 of this report, and in accordance with, NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]), a EPSM may also be required for the works subject to permitted development if they directly impact the common pipistrelle day/ transitional confirmed roost at Spring Bank Lane (MVL3/9) and the likely roosts identified within Stalybridge and Scout Tunnels. In this event, the Natural England pre-screening service will contacted and Natural England will have the opportunity to review the licence prior to submission. If a WCA disturbance offence is likely but only in relation to low level disturbance impacts, a disturbance notification will be applied for an obtained from Natural England. If no offence is likely as only negligible disturbance is predicted, a Precautionary Method of Working (PMW) is deemed sufficient mitigation.

4.3.7 No other bat roosts have been confirmed in the Order Scheme Areas. The above approach and principles will be followed for any subsequent bat roosts identified during pre- construction surveys of structures and trees, adapting as necessary to the individual conditions of roost type and species of bat.

Habitat Demarcation for Trees and Hedgerows (AM4)

4.3.8 Protection of retained trees and hedgerows will be implemented to prevent accidental damage, through suitable tree protection in accordance with British Standard 5837:2012[21]. This may include fencing or other appropriate demarcation measures. The measures will be in accordance with those outlined in the Arboriculture Chapter (Chapter 8 in Volume 1 of the Environmental Report [**NR14**] and Figure 8.1.1 - Tree Protection Plan in Volume 2 of the Environmental Report [**NR14**]) and contained in the LEMP for relevant elements of the Order Scheme that require planning permission. The aims and objectives of the LEMP will be secured through the planning condition process. Protection of trees within associated temporary land use will be implemented through the CoCP Part A and Network Rail commitments set out within NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]).

Scheme Clearance and Preparation (AM5)

4.3.9 During vegetation clearance and preparation works, a watching brief will be undertaken by an appropriately trained ecologist during vegetation removal and disturbance of natural and artificial refugia materials that could provide shelter habitat for breeding birds, common reptile species, hedgehog, common toad, and brown hare to reduce the risk of killing and injury. Any strimming will be undertaken using a phased approach to reduce habitat to a low level so it can be checked by appropriately trained personnel for sheltering animals prior to full removal. Natural and man-made refugia items will be relocated where possible so there is no net loss of shelter habitat available. Requirements for watching brief activities will be outlined in the LEMP.

4.3.10 Removal of vegetation and refugia materials suitable for shelter by amphibians, reptiles and hedgehog will avoid periods of frost or temperatures below 5^{o}C where practical because this could disturb hibernating animals. If unavoidable, a pre-works check would be undertaken and any common amphibian species, reptiles or hedgehog discovered will be moved to an area of suitable habitat outside the Order Scheme Area.

4.3.11 Pre-construction surveys will be completed prior to construction as follows to reaffirm conditions remain the same and that there are no changes required to the mitigation proposed:

- Badger surveys within Scheme Area, notably at Printworks Road and Blackrock Kennels to reaffirm the presence of main setts and to reaffirm the absence of setts;

21 British Standards Institution (2012) Trees in relation to design, demolition and construction – Recommendations, British Standard 5837:2012

- Dusk emergence surveys to be completed on the existing structures to reaffirm the status of roosting bats closer to works commencing and inform any requirements for licensing and mitigation:
    - Heyrod Hall Bridge (MVL3/07);
    - Spring Bank Lane Footbridge (MVL3/09)[22];
    - Manchester Road Footbridge (MVL3/10)[24];
    - Stamford Road Footbridge (MVL3/13);
    - Mossley Station Footbridge (MVL3/14);
    - New Earth Footbridge (MVL3/16);
    - Midge Hall Overbridge (MVL3/19);
    - Wrights Mill Overbridge (MVL3/20);
    - Charlotte Street Overbridge (MVL3/24);
    - Royal George Underbridge (MVL3/25);
    - Footway Underbridge (MVL3/26);
    - Oldham Road Overbridge (MVL3/28);
    - Den Quarry Underbridge (MVL3/30);
    - Uppermill Viaduct (MVL3/31).

4.3.12 The pre-construction bat surveys will be undertaken in the year prior to construction to allow for timescales for removal under licence, were a bat roost site to be identified. Where a roost site is identified, mitigation measures in principle i.e. under Natural England licence as set out in AM1 will then be followed.

Breeding Bird Mitigation (AM6)

4.3.13 Mitigation is required to meet legal requirements for breeding birds during construction clearance within Scheme Areas. All birds are protected while nest building and when nesting under the Wildlife and Countryside Act 1981 (as amended) (WCA), and it is an offence to destroy or damage an occupied bird nest. The following mitigation will be implemented:

- Where possible vegetation removal will be undertaken outside the core nesting season (i.e. avoiding 01 March to the 31 August). Checks for nesting bird species will also be undertaken during Scheme Area clearance and preparation works undertaken in the bird breeding season. Network Rail guidance recommends that checks for nesting

[22] Now subject to separate planning permission

birds must be made at all times of the year when clearing vegetation due to the fact that certain species can nest all year round. A breeding bird and nest check form will be completed prior to removal of vegetation (Network Rail, 2019 and 2020a);

- If this is not possible then the works will be subject to supervision by appropriately trained personnel prior to removal who will check for bird nests and advise on any mitigation requirements to ensure legal compliance;
- A stand-off area (the size of which will vary depending on the bird species concerned and level of legal protection) will be maintained around any active bird nests found, to protect against potential impacts during works until young have fledged. If this cannot be achieved, then relevant works will need to be delayed until nesting activity is completed (as confirmed by the ecologist).

Ecology Tool Box Talks (AM7)

4.3.14 As part of the Order Scheme induction for staff, relevant information on the ecological features identified will be provided. This will encourage staff to be considerate to wildlife that may be using habitats adjacent to the Order Scheme Areas and to report any discoveries or incidents involving wildlife. In particular, staff will be informed of the potential to encounter wildlife during construction activities and will be requested to have due care and consideration when driving within the Order Scheme Area and completing construction activities. Environmental information will be displayed at welfare compounds that will remind staff about the key environmental issues.

4.4 Mitigation Summary

4.4.1 A summary of the potential effects and the incorporated mitigation measures are provided in Table 4-1, in addition to the confirmation of any notable residual effects.

4.4.2 The relevant elements of the Order Scheme have been sensitively designed and positioned with reference to the existing baseline conditions and potential pathways for impact (e.g. avoiding habitats of higher ecological value where possible). As a consequence of the implementation of measures outlined in sections 4.1 and 4.2, no notable adverse residual construction or operational effects are anticipated as a result of the relevant works.

Table 4-1 -Summary of potential effects, incorporated mitigation measures and likely residual effects at each relevant works elements of the Order Scheme

Ecological features	Potential effects	Mitigation measures	Likely residual effects
Construction			
Huddersfield Narrow Canal SSSI Huddersfield Narrow Canal (North) SBI Huddersfield Narrow Canal (South) SBI Armit Road Lodge SBI Cliffs at Mossley SBI Grasscroft Pasture SBI	Loss, fragmentation and degradation of habitats.	EM1 - Retention of habitats and minimising loss through design. EM2 - Minimising lighting and use of directional lighting. EM4 - Implementing pollution prevention measures. AM1 - SBI protection and enhancement AM4 - Habitat Demarcation for Trees and Hedgerows	None
Deciduous woodland Lowland heathland Priority Hedgerow Priority River	Loss, fragmentation and degradation of habitats.	EM1 - Retention of habitats and minimising loss through design. EM2 - Minimising lighting and use of directional lighting. EM4 - Implementing pollution prevention measures. AM2 – Priority habitat protection and enhancement AM4 - Habitat Demarcation for Trees and Hedgerows	None

Ecological features	Potential effects	Mitigation measures	Likely residual effects
Local value semi-natural habitats	Loss, fragmentation and degradation of Local value habitats.	EM1 - Retention of habitats and minimising loss through design. EM2 - Minimising lighting and use of directional lighting. EM4 - Implementing pollution prevention measures. AM4 - Habitat Demarcation for Trees and Hedgerows	None
Badger Bats (Foraging & Commuting Birds (breeding) Reptiles Other priority species	Killing and injury of protected/ priority species during vegetation clearance and construction activities. Temporary behavior changes of animals affecting foraging, commuting and sheltering due to increased disturbance (human activity)	EM1 - Retention of habitats and minimising loss through design. EM2 - Minimising lighting and use of directional lighting. EM3 - Noise reduction measures to be implemented. AM5 - Scheme Clearance and Preparation AM6 - Breeding Bird Mitigation AM7 - Ecology Tool Box Talk	None
Bats (Roosting)	Killing and injury of protected/ priority species (bats) during vegetation clearance and construction activities. Temporary behavior changes of animals affecting foraging, commuting and sheltering due to increased disturbance (human activity)	EM1 - Retention of habitats and minimising loss through design. EM2 - Minimising lighting and use of directional lighting. EM3 - Noise reduction measures to be implemented. AM3 - Bat Mitigation AM5 - Scheme clearance and preparation	None

Ecological features	Potential effects	Mitigation measures	Likely residual effects
Priority flora	Loss of priority flora during construction.	EM1 - Retention of habitats and minimising loss through design. EM4 - Implementing pollution prevention measures. AM1 – SBI protection and enhancement AM2 – Priority habitat protection and enhancement AM4 - Habitat Demarcation for Trees and Hedgerows	None
INNPS	Spread of INNPS during construction.	EM5 – biosecurity measures	None
Operation			
Huddersfield Narrow Canal SSSI Huddersfield Narrow Canal (North) SBI Huddersfield Narrow Canal (South) SBI Armit Road Lodge SBI Cliffs at Mossley SBI Grasscroft Pasture SBI	Loss, fragmentation and degradation of Local value habitats.	EM2 - Minimising lighting and use of directional lighting. EM4 - Implementing pollution prevention measures.	None
Deciduous woodland Lowland heathland	Loss, fragmentation and degradation of Local value habitats.	EM2 - Minimising lighting and use of directional lighting. EM4 - Implementing pollution prevention measures.	None
Local value semi-natural habitats	Loss, fragmentation and degradation of Local value	EM2 - Minimising lighting and use of directional lighting.	None

Ecological features	Potential effects	Mitigation measures	Likely residual effects
	habitats.	EM4 - Implementing pollution prevention measures	
Badger Bats (Foraging & Commuting Birds (breeding) Reptiles Other priority species	Killing and injury of protected/ priority species during operation.	EM2 - Minimising lighting and use of directional lighting. EM3 - Noise reduction measures to be implemented. AM6 - Breeding Bird Mitigation AM7 - Ecology Tool Box Talks	None
Bats (Roosting)	Reduction in the availability and suitability of features for roosting bats due modifications to bridge structures and tunnels. Increased disturbance to roosts through noise, vibration and artificial lighting.	EM2 - Minimising lighting and use of directional lighting. EM3 - Noise reduction measures to be implemented.	None
Priority flora	Loss of priority flora during operation.	EM1 - Retention of habitats and minimising loss through design. EM4 - Implementing pollution prevention measures. SM4 - Habitat Demarcation for Trees and Hedgerows	None
INNPS	Spread of INNPS during operation.	EM5 – Biosecurity measures	None
Decommissioning			
Huddersfield Narrow Canal	Loss, fragmentation and/or	EM2 - Minimising lighting and use of directional	None

Ecological features	Potential effects	Mitigation measures	Likely residual effects
SSSI Huddersfield Narrow Canal (North) SBI Huddersfield Narrow Canal (South) SBI Armit Road Lodge SBI Cliffs at Mossley SBI Grasscroft Pasture SBI	degradation of priority woodland habitat.	lighting. EM4 - Implementing pollution prevention measures.	
Deciduous woodland Lowland heathland	Loss, fragmentation and/or degradation of priority woodland habitat.	EM2 - Minimising lighting and use of directional lighting. EM4 - Implementing pollution prevention measures.	None
Local value semi-natural habitats	Loss, fragmentation and/or degradation of priority woodland habitat.	EM2 - Minimising lighting and use of directional lighting. EM4 - Implementing pollution prevention measures.	None
Badger Bats (Foraging & Commuting) Birds (breeding) Reptiles Other priority species	Increased mortality from increased traffic movements. Loss of secondary habitat such as refugia within laydown areas or compounds. Behaviour changes on breeding, foraging and commuting animals due to new infrastructure and changes in lighting, noise,	EM2 - Minimising lighting and use of directional lighting. EM3 - Noise reduction measures to be implemented. EM4 - Implementing pollution prevention measures.	None

Ecological features	Potential effects	Mitigation measures	Likely residual effects
	vibration or visual effects.		
Bats (Roosting)	Increased disturbance to roosts through noise, vibration and artificial lighting. Removal of temporary structures.	EM2 - Minimising lighting and use of directional lighting. EM3 - Noise reduction measures to be implemented. EM4 - Implementing pollution prevention measures.	None
Priority flora	Loss of priority flora during decommissioning	EM4 - Implementing pollution prevention measures. AM4 - Habitat Demarcation for Trees and Hedgerows	None
INNPS	Spread of INNPS during decommissioning	EM5 – Biosecurity measures	None

4.5 Biodiversity Compensation and Enhancement

Habitat Reinstatement

4.5.1 Where practicable, the relevant elements of the Order Scheme are using habitats of lower ecological value which are widely available in the wider landscape, rather than those of higher value. The area of permanent land acquisition required overall is relatively small and the temporary land use areas will be reinstated to their pre-works condition as far as possible, therefore any reduction in biodiversity within the Order Scheme will be minimal.

Habitat Compensation

4.5.2 Network Rail is committed to deliver 10% BNG for the overall TRU works, through compensation both within and outside the Order Scheme footprint. The commitment to achieving 10% gain in biodiversity units is outlined in the TRU Net Positive Biodiversity Strategy[23].

4.5.3 A Biodiversity Strategy and LEMP will be produced to cover elements that require planning permission that will set out the biodiversity enhancement proposals and the habitat management and monitoring proposed to deliver these. The aims and objectives of the Biodiversity Strategy and LEMP will be secured through a planning condition as described in the Order application document 'Request for deemed planning permission and statement of proposed conditions' [**NR11**].

4.5.4 Where planning permission is not required for associated temporary land use and works are being completed under permitted development rights, upon completion of the use of all land used temporarily, it will be restored to its pre-works activity condition as far as possible in accordance with the Outline Draft Mitigation Land Restoration Proposals (Figures 7.3.1 to 7.3.20 of Volume 2 of this Report [**NR14**]). Liaison with the relevant local authority and landowners will take place prior to the restoration proposals being implemented and each restoration proposal will be secured through a letter of environmental commitment.

4.5.5 In line with national and local planning policy, a summary of the key ecological enhancement measures proposed are as follows:

- Provide new native species planting typical of the surrounding local species and structure and implement an appropriate management regime;

[23] Network Rail (2020 Biodiversity Action Plan, available at https://www.networkrail.co.uk/wp-content/uploads/2020/12/Network-Rail-Biodiversity-Action-Plan.pdf, accessed 01/08/2025

- Reinforce connectivity between existing habitat features of value, for example gapping up existing hedgerows and new planting to connect hedgerows and woodland blocks;
- Increase biodiversity value of the grassland habitats by planting flower-rich native grassland mixes that will be managed appropriately;
- Provide bat roosting, foraging and commuting habitat through the planting of native scrub and woodland habitats;
- Provide bird nesting, shelter and foraging habitat through the planting of native scrub and woodland habitats;
- Provision of wildlife boxes to provide shelter, nesting and roosting opportunities;
- Control the spread of INNPS through removal of known stands of Himalayan balsam and Japanese knotweed and treatment to prevent reoccurrence.

SBI Enhancement

4.5.6 The GMEU have stated during consultation that de-vegetation within SBIs should be compensated for within the same SBI as far as practical. This approach follows the Greater Manchester Sites of Biological Importance Selection Guidelines[24] in order to encourage the:

- Maintenance of the local integrity of the SBI;
- Preservation of local biodiversity by ensuring habitat functions are not displaced to ecologically dissimilar areas; and
- Supporting landscape connectivity and avoid fragmentation of habitats.

Enhancement though Licencing

4.5.7 As part of the consideration of the cumulative impacts of the Order scheme and other works associated with the Scheme as noted in Table 1-2 of Volume 1, Chapter 1 of this report, and in accordance with, NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]), a EPSM may also be required for the works subject to permitted development if they directly impact the common pipistrelle day/ transitional confirmed roost at Spring Bank Lane (MVL3/9) and the likely roosts identified within Stalybridge and Scout Tunnels. In this event, the Natural England pre-screening service will contacted and Natural England will have the opportunity to review the licence prior to submission. If a WCA disturbance offence is likely but only in relation to low level disturbance impacts, a disturbance notification will be applied for an obtained from Natural England. If no offence is likely as only negligible

[24] Greater Manchester Ecology Unit (2016) version 2, "Greater Manchester Sites of Biological Importance Selection Guidelines", available at https://www.tameside.gov.uk/ecologyunit/sbi/guidelines.pdf, accessed 19/07/2025

disturbance is predicted, a Precautionary Method of Working (PMW) is deemed sufficient mitigation.

4.5.8 It is estimated that there would be an overall benefit to biodiversity following implementation of the habitat compensation and enhancement measures; proposed habitats will be more diverse and species-rich and connectivity between habitat features will be improved

5. SUMMARY

5.1.1 An appraisal of potential effects on the ecological features identified in the Order Scheme has been undertaken using desk study data and field survey results.

5.1.2 The Order Scheme has been sensitively designed and positioned with reference to the existing baseline conditions and potential pathways for impact (e.g. avoiding habitats of higher ecological value where possible). With the implementation of the embedded and additional mitigation measures outlined in section 4 - the 'Mitigation and Consideration of Control Measures' section, no significant adverse residual construction, operational, or decommission effects are anticipated as a result of the Order Scheme.

5.1.3 Proposals suitable to achieve benefits for biodiversity as a direct consequence of the elements will be described and demonstrated either within the LEMP that will be submitted to the relevant local authority for approval under a planning condition or through Network Rail's biodiversity commitments. Biodiversity enhancement measures are proposed that are reasonable and proportionate to the impacts, and that will enhance the existing ecology of the local area.

5.1.4 A summary of the mitigation measures to be implemented is provided in Table 4-1. Habitat enhancement measures will be detailed in the LEMP for elements of the Order Scheme that require planning permission. Where deemed planning is not required and upon completion of the use of any land temporarily used, it will be restored to its pre-works activity condition in consultation with the landowner. Liaison with each local authority and landowners will take place prior to the restoration proposals being implemented and the restoration proposals will be secured through a letter of environmental commitment.

ANNEX A – ECOLOGY LEGISLATION, PLANNING POLICY AND GUIDANCE

Legislation

Environment Act, 2021

The Environment Act was granted Royal Assent in November 2021 and was introduced to support the Government's overarching vision for leaving the environment in a better state for the next generation, including transposing elements of the UK Government's 25 Year Environment Plan into statute and confirming the UK's approach to environmental governance post-Brexit. Key provisions of what is now the Environment Act 2021 include: the creation of a new post-Brexit environmental watchdog (the Office for Environmental Protection); establishing an over-arching scrutiny framework for the environment and the setting of air quality targets including for fine particulate matter. BNG is now mandatory for most developments in England from 12 February 2024, under Schedule 14 of the Act, with all relevant developments required to achieve a minimum 10% gain in biodiversity units. However, statutory BNG is currently exempt for TWAO.

Network Rail still honour the commitment to achieving 10% gain in biodiversity units as outlined in the TRU Net Positive Biodiversity Strategy[25], and will be secured by a planning condition. The TRU BNG assessment will be carried out to meet the objectives as stated in that Strategy.

The Conservation of Habitats & Species Regulations 2017 (as amended)

The Habitats Regulations consolidate all the various amendments made to the Conservation (Natural Habitats, c.) Regulations 1994 (as amended) in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.

Recent changes to the legislation have been made to reflect the UK leaving the European Union (EU). The Secretary of State for the Environment, Food and Rural Affairs and Welsh Ministers have made changes to parts of the 2017 Regulations so that they operate effectively. Most of these changes involved transferring functions from the European Commission to the appropriate authorities in England and Wales. All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The Regulations place a duty on the Secretary of State to propose a list of sites that are important for either habitats or species (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)). The amended Regulations have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes existing and new SAC and SPA designated under these Regulations.

SAC and SPA in the UK no longer form part of the EU's Natura 2000 ecological network. Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new national site network.

Natural Environment and Rural Communities (NERC) Act 2006

Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England; the list was drawn up in consultation with Natural England.

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Fifty-six habitats and 943 species of principal importance are included on the S41 list. These are the habitats and species in England that were identified as requiring action in the (now withdrawn) UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework and Biodiversity 2020 Strategy.

Countryside and Rights of Way (CRoW) Act 2000

The Countryside and Rights of Way Act 2000 applies to England and Wales only. Part III of the Act deals specifically with wildlife protection and nature conservation.

The Act places a duty on Government Departments and the National Assembly for Wales to have regard for the conservation of biodiversity and maintain lists of species and habitats for which conservation steps should be taken or promoted, in accordance with the Convention on Biological Diversity.

Schedule 9 of the Act amends the SSSI provisions of the Wildlife and Countryside Act 1981, including increased powers for their protection and management of SSSI. Schedule 12 of the Act amends the species provisions of the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species.

The Hedgerow Regulations 1997

The intention of the Act is to protect important countryside hedges from destruction or damage. The Act does not apply where planning permission has been granted. If a scheme is not exempt or subject to a current planning permission then the landowner must serve a Hedgerow Removal Notice in writing on their local planning authority. The authority then determines whether or not the hedge is considered 'important' under the regulations, and if so, whether or not to issue a Hedgerow Retention Notice.

Protection of Badgers Act 1992

Badgers and their setts (burrows) are protected under the Badgers Act 1992. This makes it an offence to kill or take a badger, to cruelly ill-treat a badger, or to interfere with a badger sett, including disturbing a badger while it is occupying a sett.

Licences to permit otherwise prohibited actions can be granted under Section 10 of the Act for various purposes. This includes licences to interfere with a badger sett for the purpose of development.

Licences may be granted in order to close down setts, or parts of setts, prior to development or to permit activities close to a badger sett that might result in disturbance. A licence will be required if a sett is likely to be damaged or destroyed in the course of development or if the badger(s) occupying the sett will be disturbed.

Licences can be applied for at any time, but a licence for development will not normally be issued unless full planning permission has been granted. The licensed closure of setts is normally only permitted during July to November, inclusive.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act, 1981 (as amended) is the major domestic legislation for wildlife protection in the UK. The act contains four parts and 17 schedules, which cover:

- Part 1: Wildlife (includes protection of birds, animals and plants; and measures to prevent the establishment of non-native species which may be detrimental to native wildlife).
- Part 2: Nature conservation, the countryside and National Parks (including the designation of protected areas).
- Part 3: Public rights of way.
- Part 4: Miscellaneous provisions of the act.

Wild Birds

In summary, the Act makes it an offence to intentionally:

- kill, injure, or take any wild bird,
- take, damage or destroy the nest of any wild bird while that nest is in use or being built, or
- take or destroy an egg of any wild bird.

Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The Act also

prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

Other Animals

The WCA makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Flora, Fungi and Lichens

The Act makes it an offence (subject to exceptions) to intentionally pick, uproot or destroy:

- any wild plant listed in Schedule 8, or
- unless an authorised person, to intentionally uproot any wild plant not included in Schedule 8,
- to sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Non-Native Species

The Act contains measures for preventing the establishment and spread of non- native species that may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales

Planning policy and guidance

National Planning Policy 2024

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how they should be applied by local planning authorities. Chapter 15: Conserving and Enhancing the Natural Environment outlines the requirement for planning decisions to contribute to and enhance the natural and local environment. This includes:

- Protecting and enhancing biodiversity and geodiversity;
- Minimising impacts on and providing net gains for biodiversity;
- Promoting the conservation, restoration, and enhancement of priority habitats and ecological networks; and
- Protecting sites of biodiversity importance, including statutory designated sites and irreplaceable habitats.

Local Planning Policy

The local planning policies relevant to biodiversity and the natural environment in Greater Manchester are set out in the Greater Manchester Five-Year Environment Plan 2025–2030.

The Environment Plan outlines the city-region's strategic approach to achieving carbon neutrality by 2038 and addressing the biodiversity emergency declared in 2022. It establishes a framework for integrating nature recovery, climate resilience, and sustainable development into all planning and decision-making processes.

Key priorities include:

- Halting and reversing biodiversity loss by 2030, through habitat creation, restoration, and protection;
- Supporting the delivery of Local Nature Recovery Strategies across the region;
- Promoting nature-based solutions and green infrastructure in both urban and rural settings; and
- Ensuring that new development contributes to Biodiversity Net Gain and aligns with the region's clean growth and climate adaptation goals.

The Environment Plan supports the implementation of NPPF at the local level, encouraging collaboration between local authorities, developers, and communities to deliver a nature-rich, low-carbon Greater Manchester. A summary of relevant local ecology related policy is provided in Table A-1.Table

Table A-1 - Relevant Local Policy Summary

Document	Purpose
Greater Manchester Local Nature Recovery Strategy (2025–2035)[25]	Sets out a statutory, evidence-based plan to halt and reverse biodiversity loss across the city-region. The strategy aims to create a resilient nature network by protecting, enhancing, and connecting habitats, improving access to nature, and embedding biodiversity into planning and development. Targets include increasing protected land from 11% to 15%, restoring 1,800 ha of wildlife-rich land, and expanding tree canopy cover from 16.5% to 18.5%.
Greater Manchester Biodiversity Net Gain (BNG) Guidance for Planners and Applicants (2024)	Provides a consistent framework for delivering mandatory 10% BNG under the Environment Act 2021. It outlines the role of the Greater Manchester Ecology Unit (GMEU), and how BNG aligns with local and national planning policy. Emphasizes meaningful ecological outcomes, not just metric compliance.
Our Plan for Nature – GMCA	A public-facing strategy that supports the Local Nature Recovery Strategy. It promotes collaborative action across communities, developers, and local authorities to create a greener Greater Manchester. It highlights the importance of access to nature, climate resilience, and the role of nature in health and wellbeing.

[25] Greater Manchester Combined Authority (2025) Greater Manchester's Local Nature Recovery Strategy: Our Plan for Nature Recovery [DRAFT]. Available at: Our plan for nature recovery - Greater Manchester Combined Authority. [Accessed: 14/07/2025].

Local Biodiversity Action Plan

The Greater Manchester Biodiversity Action plan[26] (GM BAP) aims to provide an over-arching document across all ten districts in Greater Manchester. The Greater Manchester audit identified those species and habitats that are of local conservation importance and require action in order to conserve and protect them. Those habitats and species selected for the GM BAP were included for the following reasons:

- They are priority habitat or species within the UK BAP and occur in the Greater Manchester area;
- They are considered to be of conservation concern locally within Greater Manchester.

Action plans have been produced for habitats and as listed below.

Habitat action plans:

- Grasslands;
- Hedgerows;
- Lowland mosslands;
- Reedbeds and bittern;
- Ponds and lodges;
- Canals;
- Native woodlands;
- Uplands; and
- Urban managed greenspace.

Species action plans:

- Bats;
- Black redstart;
- Farmland Birds: currently no action plan available to download;
- Great crested newts;
- Hares;
- Native Black Popular;
- Twite;

[26] Greater Manchester Biodiversity Project (2009) "Greater Manchester Biodiversity Action Plan", available at https://gmlrc.org/resources/downloads/gm_bap/introduction_gm_biodiversity_action_plan_2009.pdf, accessed 16/07/2025

- Water Vole;
- Willow tit.

Isolated parts of the Order Scheme are located within the GMEU Greater Manchester Nature Network which comprises of:

- Core local nature sites: sites that are already protected to some degree but are fragmented, isolated and poorly connected. Improvements in the condition and management of these sites will be prioritised; and
- Nature recovery opportunity areas: areas where there are opportunities to expand and better connect core local nature sites. The creation and restoration of habitat will be prioritised alongside other land uses.
- The Nature Network is underpinned by the draft Local Nature Recovery Strategy for Greater Manchester which provides an overview and description of the natural environment and current trends in the local wildlife and environment. The Nature Network does not provide any additional designations or protection to the land. The Nature Network aims to have a positive influence on the growth and development of the city-region helping planners and developers to understand and contribute towards nature recovery.

ANNEX B – METHODOLOGY AND LIMITATIONS

Desk based study

The scope of the desk study is to collate existing information available in the public domain on protected/ priority species, habitats and designated sites for nature conservation to provide contextual information for the scope of field surveys, to aid the evaluation of field survey results, and to provide supplementary information where complete field survey coverage may not be possible.

A desk-top study was undertaken in October 2024; this included a review of online resources and existing technical reports/ documents, and a data request from the Greater Manchester Local Record Centre (GMLRC). The desk study sources and search areas where relevant are summarised in Table B-1. The extent of a study area is dependent upon the nature, timing and scale of a scheme, as well as the site location and the surrounding landscape. These variables all contribute to what is referred to as the Zone of Influence (ZoI), which is the area over which ecological features (designated sites, habitat and species) may be affected by biophysical changes because of the proposed works and associated activities.

Only data records dated between 2014 and 2024 (inclusive) are considered in the baseline; older records are considered to offer limited value in determining current species presence and distribution.

Table B-1 - Summary of desk study data sources and study areas

Data source	Data requested/ reviewed	Study Area from Scheme Area
MAGIC	Statutory designated sites for nature conservation Site of Special Scientific Interest (SSSI) Impact Risk Zones (Natural England, 2021)	5 km or sites with hydrological connectivity.
	Granted EPSM licences. Great crested newt class survey licence returns	2 km
	Irreplaceable and priority habitats	5 km or sites with hydrological connectivity.
Greater Manchester Local Record Centre (GMLRC)	Protected and priority species records dated between 2015 to 2025 (inclusive).	2 km
	Non-statutory designated sites for nature conservation	2 km
Greater Manchester Combined Authority (GMCA)	Greater Manchester Five-Year Environment Plan 2025–2030 (2024)	N/A
	All Our Trees – Greater Manchester's Tree And Woodland Strategy (2021)	N/A
	Nature for All - A Local Nature Recovery	N/A

Data source	Data requested/ reviewed	Study Area from Scheme Area
	Strategy for Greater Manchester (2025)	
Existing Ecology Reports available for the Study Area	TransPennine Route Upgrade Work Package 2 – Stalybridge to Huddersfield Ecological Constraints Report Reference No: 151667-TSA-00-TRU-REP-W-EN-000924	N/A

For the purpose of this appraisal, the following definitions are used for protected/ priority species and habitats:

- **Protected species**: includes those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended) and Schedules 2 and 5 of The Conservation of Habitats, Species Regulations 2017 (as amended) and the Protection of Badgers Act 1992.
- **Priority species/ habitats**: As set out in Box 1 on page 4 of the CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester, priority habitats and species include those listed as a national priority for conservation (i.e. a Habitat of Principle Importance or Species of Principle Importance in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (as amended); and/or local priority for conservation (e.g. in the local Biodiversity Action Plan (BAP)), International Union for the Conservation of Nature (IUCN) Red List or Amber List, Nationally Rare or Nationally Scarce, or endemic to a country or geographic location.

Field surveys

UK Habitat Classification (UKHab)

These surveys were completed between May 2024 and June 2025 by surveyors deemed competent per CIEEM's Competency Framework[27]. Habitats and ecological features of interest were recorded following the standard guidance provided in the UK Habitat Classification version 2.0. The standard UKHab survey method was "extended" to record the presence or potential for protected priority and any invasive non-native plant species (INNPS) within the habitats present.

Habitat Condition Assessments were also carried out for each discrete habitat parcel identified within the Order Scheme Area plus 50 m buffer using the Biodiversity Metric 3.0 condition assessment sheets, which are used for BNG calculations. A list of criteria

[27] CIEEM *2019) Competency Framework, available at https://cieem.net/wp-content/uploads/2019/02/Competency-Framework-2024-V7-Web.pdf, accessed 24/07/2025

were checked and a pass/ fail assigned to each criteria for each habitat parcel with justifications.

During the survey, the following protected or priority species were considered:

Badger Surveys

Involves searching for signs of badger activity including setts, tracks, snuffle holes and latrines, following the methodology detailed in Surveying for Badgers: Good Practise Guidelines[28] and Surveying Badgers[29]. Active setts are those which display signs indicating current use, as defined by Natural England, (2009)[30].

Camera trap monitoring was conducted on mammal hole that was identified as a potential badger sett during the extended UKHab walkover field survey. Monitoring was undertaken by two separate trail cameras between the period of 25 November – 19 December 2024.

Bat Surveys

Preliminary Roost Assessments

All structures to be impacted by the Order Scheme extent underwent a Preliminary Roost Assessment (PRA) in May 2024 – June 2025, from both on-rail and off-rail positions to provide surveyors with all vantage points required. All PRAs were carried out by a licensed member of staff using torches, binoculars and a recording form to inform what further surveys would be required.

Ground Level Tree Assessment

All trees to be impacted by the Order Scheme underwent a Ground Level Tree Assessment (GLTA) which is a detailed inspection of the exterior of the tree from the ground level to look for features that bats could use for roosting (PRFs). The aim of this survey is to determine the available roosting resource and the need for further survey and/or mitigation.

All PRAs and GLTAs were carried out by a qualified member of staff using torches, binoculars and a recording form to inform what further surveys would be required.

Bat surveys (*inspections using endoscopes and torches*)

Saddleworth viaduct (MVL3/31a) was inspected by an ecologist carrying a Natural England Class 2 survey licence using an endoscope to view inside a PRF.

Bat dusk emergence surveys

[28] Scottish Badgers (2018). *Surveying for Badgers: Good Practice Guidelines*. Version 1.
[29] Harris, S. Cresswell, P. and Jefferies, D. (1989). *Surveying Badgers*.
[30] Natural England (2009). *Guidance on 'Current Use' in the definition of a Badger Sett.*

Dusk emergence surveys have been completed between May and September 2024 on the following structures:

- Heyrod Hall Bridge (MVL3/07);
- Spring Bank Lane Footbridge (MVL3/09);
- Manchester Road Footbridge (MVL3/10);
- Stamford Road Footbridge (MVL3/13);
- Mossley Station Footbridge (MVL3/14);
- New Earth Footbridge (MVL3/16);
- Midge Hall Overbridge (MVL3/19);
- Wrights Mill Overbridge (MVL3/20);
- Charlotte Street Overbridge (MVL3/24);
- Royal George Underbridge (MVL3/25);
- Footway Underbridge (MVL3/26);
- Oldham Road Overbridge (MVL3/28);
- Den Quarry Underbridge (MVL3/30);
- Uppermill Viaduct (MVL3/31).

The bat roost suitability category of the feature (which are assigned High, Moderate, Low, or Negligible/ None suitability to support a bat roost) determines the number of further required surveys to determine likely absence of bats. This is in line with best practice guidelines (Collins, 2023) and outlined below:

- **High:** three survey visits May – September with at least two of the surveys between May and August;
- **Moderate:** two survey visits May – September with at least one of the surveys between May and August;
- **Low:** one survey visit May – August; and
- **Negligible/None:** No further survey required.

The surveys on High, Moderate and Low features comprised dusk emergence surveys where access and safety conditions allowed.

Dusk emergence surveys commenced approximately 15 minutes before sunset and continued for a further 90 minutes after sunset. Dawn re-entry surveys commenced 90 minutes to two hours before sunrise and ended until sunrise or until bats were no longer active.

Surveys were completed during suitable weather conditions, i.e. dry, minimal wind with sunset temperatures of 10°C or above and followed guidance on the start times and survey duration where access and safety conditions allowed.

The time, location, number, species and direction of flight were recorded for each bat pass (either echolocation heard or activity seen) encountered during each survey visit.

Data was collected during the surveys using Batloggers and Anabats (portable bat detectors) and was analysed using sound analysis software (Analook/ Kaleidoscope) to confirm the bat species recorded where this could not be confirmed in the field. Infra-red cameras were used during all surveys to aid in identifying emergences.

Bat surveys were planned and overseen by an Ecologist holding a Natural England Level 2 Bat Survey Licence.

Automated/ Static Surveys of Stalybridge and Scout Tunnel

The rationale for the automated static detector surveys was set out in the TRU W2B – Proposed Tunnel Bat Survey Methodology[31]. Five static bat detectors were deployed at Scout tunnel and Stalybridge tunnel between July 2024 and March 2025. This comprised a static detector that was deployed at each portal of Scout and Stalybridge tunnels for the entire survey duration and an additional detector that was added to the air shaft within Stalybridge tunnel in November 2024 for the remaining duration.

The full spectrum automated static detectors used were Wildlife Acoustics Song Meter© (SM)4. From July 2024 to October 2024 the automated static bat detectors were set to commence recording at least 30 minutes before sunset and cease recording 30 minutes after sunrise, the period when bats are considered active during this time period. From November 2024 to March 2025 the static bat detectors were set to constantly record for the bat hibernation period.

Analysis of the sound files collected was undertaken using Analook and Kaleidoscope pro software. Automatic Identification was used as the first stage of analysis and then bat calls were subsequently subject to manual identification. Further analysis was then undertaken as set out in the TRU W2B – Proposed Tunnel Bat Survey Methodology[9] where bat species scoped into assessment due to geographic range and roosting preferences were analysed by emergence range for the bat active period (July to October 2024). All occurrences of the selected species were analysed for the hibernation period (November 2024 to March 2025).

During the static deployment period, monthly visits were conducted over night under possession to maintain the statics, switching out batteries and SD cards and ensuring sound data was being collected. During these visits a Batlogger M2 was carried throughout the tunnels to record any bat activity and during the hibernation period (November 2024 to March 2025) temperature and humidity readings were taken at intervals within both tunnels at intervals.

[31]Technical Note - TRU W2B – Proposed Tunnel Bat Survey Methodology

Analysis of the static data has been undertaken in terms of bat 'passes'. A pass is defined here as a distinct bat call with >2 seconds between the next call of the same species. If multiple species were recorded in a single recording, there would be one bat pass for each species recorded. The number of bat passes encountered cannot be used to determine numbers of individuals present, as there is no way to identify if several recordings could come from a single bat flying back and forth past the detector (e.g. repeated foraging passes) or several individual bats each flying past the detector once. Therefore, the number of bat passes by species is looked at to standardise the approach and determine the frequency a species is recorded at a location.

Social calls were not identified to species level when recorded in isolation and are therefore not included within the results. These comprised a very small proportion of the sound files identified as bats with the vast majority being assigned a species or genus.

Birds

A bird assessment undertaken during the extended UKHab walkover determined the potential of habitats within the survey area to support breeding, wintering or migrating birds, either individually priority species or assemblages of both common and rarer species. Birds can use a variety of different habitat types at different times of the year including woodland, scrub, scattered trees, grassland and arable therefore the survey area was assessed as to whether it provides habitats favoured by priority species or which may otherwise have value to birds.

Invertebrates

An invertebrate assessment undertaken during the extended UKHab walkover determined the potential of habitats within the survey area to support priority species of invertebrates. Features that were considered included the presence of uncommon habitats, certain plant food species and presence of deadwood.

Otter

An otter assessment involves identifying any suitable aquatic habitat and assessing the potential of watercourses and water bodies, and adjacent terrestrial habitat within the survey area to support otter and recording any field signs, following current guidance[32]. A range of factors are considered such as the availability of potential shelter, resting and breeding sites (e.g. suitable areas to create holts and suitable cover habitat) and foraging habitat (e.g. fish and amphibians).

Reptiles

A reptile assessment involves assessing the suitability of habitats and habitat features that may provide valuable foraging, breeding, basking and shelter for the four widespread species of reptile (adder, grass snake, common lizard and slow worm).

[32] Chanin, P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough.

Water Vole

A water vole assessment involves identifying any suitable aquatic habitat and assessing the potential of watercourses and water bodies within the survey area to support water vole and recording any field signs, following The Mammal Society guidance (Dean et al, 2016). A range of factors are considered such as the availability of potential shelter, resting and breeding sites (e.g. suitable areas to dig burrows and suitable cover habitat) and foraging habitat (e.g. herbaceous vegetation).

Other priority species

An assessment for other priority species undertaken during the extended UKHab walkover involves determining the potential of habitat within the survey area to support these species listed under Section 41 of the NERC Act (2006), such as hedgehog, brown hare or common toad.

Priority Flora

A priority flora assessment undertaken during the extended UKHab walkover involves recording protected or priority plant species within the survey area.

Invasive Non-Native Plant Species (INNPS)

An INNPS assessment involves recording evidence of the presence of invasive plants listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and subject to strict legal control.

Ecological Appraisal Approach

This ecological appraisal has been produced to identify the potential impacts of the Order Scheme on ecological features. This appraisal takes into consideration guidance published by CIEEM ‘Guidelines for Ecological Impact Assessment in the UK and Ireland’ (CIEEM, 2022).

It is not necessary in an assessment to address all habitats and species with potential to occur, and instead the focus should be on those that are ‘relevant’, referred to as ecological features. CIEEM guidance makes it clear that there is no need to ‘carry out detailed assessment of [ecological] features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable’. This does not mean that efforts should not be made to safeguard wider biodiversity and requirements for this have been considered. National policy documents emphasise the need to achieve no net loss of biodiversity and enhancement of biodiversity.

Ecological features are usually designated sites, habitats, species assemblages/ communities or populations or groups of protected or priority species. Features that are of no particular ecological importance in their own right, but that perform an ecological function relevant to the assessment of other receptors, may also need to

be considered e.g. habitats that provide buffers against adverse effects or that are of functional importance for the maintenance of species populations.

To support a focussed appraisal, there is a need to determine the scale at which the relevant ecological features identified through the desk studies and field surveys undertaken for the Order Scheme are of value. The value of each ecological feature has been defined with reference to the geographical level at which it matters. The frames of reference used for this appraisal and examples, based on CIEEM guidance are:

- International (generally this is within a European context, reflecting the general availability of good data to allow cross-comparison);
- National (Great Britain, but considering the potential for certain ecological features to be more priority (of higher value) in an England context relative to Great Britain as a whole);
- Regional: Greater Manchester Combined Authority;
- County: Greater Manchester;
- District: Oldham Metropolitan Borough Council and Tameside Metropolitan Borough Council;
- Local (ecological features that do not meet criteria for valuation at a District or higher level, but that have sufficient value to merit retention or mitigation); and
- Negligible (common and widespread features that have very low value at the site level and that do not require retention or mitigation at the relevant location to otherwise maintain a favourable nature conservation status, or to deliver wider relevant biodiversity objectives).

All ecological features of Local value and above have been taken forward to impact appraisal, where there is potential for direct or indirect impacts on those features. These are the ‘relevant ecological features’ for the purposes of this appraisal. Certain features with Negligible value may also be included in the appraisal where there is a risk of contravening legislation if mitigation is not implemented (e.g. in relation to nesting birds).

In line with the CIEEM guidelines, the terminology used within the appraisal draws a clear distinction between the terms ‘impact’ and ‘effect’. These terms are defined as follows:

- Impact – actions resulting in a change or perturbation that, for the context of this appraisal, has the potential to affect an ecological feature; for example, tree felling activities leading to the removal of a tree used by roosting bats; and
- Effect – the outcome or consequence resulting from an impact, acting upon the conservation status or structure and function of an ecological feature;

for example, killing/ injury of bats and reducing the availability of breeding/ resting habitat as a result of the loss of a bat roost may lead to an adverse effect on the conservation status of the population concerned.

Where environmental effects that are significant are identified, measures to mitigate these effects would be proposed (where feasible) and the remaining residual effects would be identified.

Application of the mitigation hierarchy

The identification and specification of mitigation proposals in this appraisal has been undertaken with regard to the principles of the mitigation hierarchy as follows:

- Avoid ecological features where possible;
- Reduce (minimise) the magnitude of the potential impact e.g. through iterative design and/ or advance commitment to sensitive methods or timing of working (sometimes termed as embedded mitigation or mitigation by design);
- Mitigate the potential effect through the application of additional proven measures, such that the residual effect realised is reduced in magnitude (non- embedded mitigation); and
- Compensate for notable residual adverse effects, e.g. by providing suitable habitats elsewhere. Proposals should achieve appropriate compensation in a reasonable timeframe and be legally enforceable.

This hierarchy requires the highest level to be applied. Only where this cannot reasonably be adopted should lower levels be considered. Where it is reasonably practicable to do so then attempts have been made to avoid potential impacts. Where impacts cannot be avoided then efforts have been made to limit the magnitude of the potential impact and to mitigate the resultant effects through the provision of appropriate measures. Where effects cannot be mitigated to a level where they are not adverse then compensatory measures have been employed to (as far as is reasonably possible) offset any remaining adverse effects.

Limitations and assumptions

Desk Study

The aim of a desk study is to help characterise the baseline context of a scheme and provide valuable background information that may not be captured by field surveys alone. Information obtained through desk study is dependent upon records being submitted for the area of interest. As such, a lack of records does not necessarily mean that the species/ group of species does not occur in the study area. Likewise, the presence of records does not automatically mean that the species/ group of species still occurs within the area of interest or are relevant in the context of a scheme. This was addressed using a precautionary approach within the assessment.

UKHab surveys - Land access

Approximately 43% of the Order Scheme boundary could not be accessed due to access constraints. Within these areas, habitat polygons were determined using AtkinsRéalis Preliminary Habitat Identification Tool (PHIT).

This tool uses Ordnance Survey MasterMap (OSMM) data to assign habitat types, in accordance with the Statutory Biodiversity Metric which is translatable to UKHab using the Translation Tool within the Statutory Metric. It reads two key attributes embedded within the OSMM metadata, “descriptive term” and “style description” and uses these to generate two additional fields: one representing the broad habitat category and the other the specific habitat type, as defined by the Metric are read by the tool, and these attributes are used to add two additional fields to the data, one corresponding to the Statutory Biodiversity Metric broad habitat, and one corresponding to the Metric’s habitat type.

To determine the appropriate broad habitat and habitat type for each OSMM attribute, OSMM data is analysed from various locations across the UK. A sample of each attribute combination was compared with the associated aerial imagery for that location. Based on a combination of Google Earth and Google Street View data, habitat types were assigned in accordance with the Metric.

In parallel, the tool also leverages open-source datasets to conduct an ecological desk study. The outputs of the desk study have been reviewed against the outputs of the OSMM habitat classification and adjustments to the habitat type made as necessary.

PHIT covers area-based habitats only. It is not able to map linear features such as hedgerows or point features such as individual trees.

Professional ecologists reviewed the OSMM data against aerial images across the UK to assign a ‘best guess’ habitat type for each attribute combination. This classification process is subject to ongoing review and refinement as new data and insights become available. It is important to note that confidence in the assigned habitat types varies across broad habitat categories. For some broad metric habitats (rocky shore, lakes, sparsely vegetated land) the confidence in the specific metric habitat types selected is lower than for other broad habitats (grassland, woodland and forest, cropland). This is due to the inherent limitations of identifying fine-scale habitat characteristics specific habitat attributes of the habitat type and associated limitations of identifying such detail from topographical data and/ or aerial imagery. In contrast, higher confidence is associated with broad habitats such as grassland, woodland and forest, and cropland, where distinguishing features are more readily identifiable.

There is a chance that flora and signs of fauna have been missed due to the lack of access. This is not considered a significant constraint as all on-rail locations have been accessed where the potential impacts are greatest and, no high value habitats have not been accessed. Furthermore, prior to the commencement of the Order Scheme, surveys will be re-visited under specific mitigation “Scheme Clearance and Preparation (AM3)”. A second opportunity for access will be presented.

Therefore, the lack of access is not considered a significant constraint.

UKHab surveys - On-rail surveys

On-rail UKHab surveys were limited to night-time possessions, therefore all surveys had to be conducted at night. Therefore, visibility was partially restricted in comparison to day-time surveys. To overcome this constraint, surveyors carried high power torches to illuminate the vegetation. This was not considered a significant constraint as vegetation was still visible and the majority of on-rail habitat was non-complex with widespread grass, tree and shrub species which are relatively more easily identified.

UKHab surveys - Cryptic taxa

Cryptic taxa such as some species of plant, invertebrates and fungi, could not be adequately surveyed at the time of the survey. These groups require specialist survey, and survey windows are generally highly restrictive. However, when taking into account the desk study results, the nature of the habitats present within the Order Scheme and in the surrounding landscape, this is not considered to be a significant limitation.

UKHab surveys - Desk Study

The desk study reviewed the Ancient Trees Inventory; this provides records of ancient/ veteran trees, but is not an exhaustive list, and other ancient/ veteran trees may be present in the area. The walkover survey aimed to identify such features and as such this is not considered a constraint.

UKHab surveys - Seasonality and timing of surveys

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The ecological surveys undertaken to support this assessment have not therefore produced a complete list of plants and animals, and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future.

Approximately 14% of UKHab surveys were undertaken outside of the recommended survey time frame of April - October. Outside of this timeframe there is a higher chance that plant species are not visible to surveyors due to limited/no growth.

On-rail UKHab surveys were limited to night-time possessions, therefore all surveys had to be conducted at night. Therefore, visibility was partially restricted in comparison to day-time surveys. To overcome this constraint, surveyors carried high power torches to illuminate the vegetation. This was not considered a significant constraint as vegetation was still visible and the majority of on-rail habitat was non-complex with common grass, tree and shrub species which are relatively more easily identified.

This is not considered a significant limitation as at least one of each survey pair was considered capable per CIEEM's competency framework[33] and accredited with a FISC[34] score of Level 4 or higher. It is assumed that the majority of species were therefore identified. Furthermore, the rail environment predominantly comprises of widespread species which are relatively easier to identify to species level throughout the year in comparison to flowering plants or grasses.

Bats - PRAs

Land Access

There was no internal access for Standedge Canal Tunnel (MVL3/39a) and the external survey was carried out from 30m away using binoculars. This is not considered a significant limitation as no works subject to deemed planning are proposed for the tunnel interior.

Hibernation Assessment

Hibernation suitability could not be determined for the structures within the Order Scheme as this would have required endoscopic inspection of the PRF which wasn't achievable considering the location of the structures and associated PRFs over the railway and inability to work from height due to health and safety requirements.

It is assumed that some PRFs could be suitable for hibernation. Hibernation surveys could not be undertaken as this would require either:

Endoscopic inspection – unfeasible due to health and safety requirements as above; and/or

Automated/ static monitoring – detectors could not be left on rail due to minimum clearance distances between the structures and passing trains. It is assumed that the majority/all of the bat calls that would have been recorded would be due to commuting/foraging bats past the structure, rather than recording roosting activity.

Bats - Dusk Emergence Surveys and Hibernation Surveys

Land access

Both sides of two piers on Uppermill viaduct (MVL3/31) could not be directly surveyed for bat emergences. The limitation of land access meant that surveyors could not be positioned in a way to view PRFs. The following piers and orientations were impacted as a result:

- Pier C West;
- Pier C East;
- Pier G west; and

[33]Chartered Institute of Ecology and Environmental Management (**CIEEM**) (2024) Competency Framework | CIEEM
[34] Field Identification Skills Certificate – Botanical Society of Britain & Ireland

- Pier G East

This is not considered a significant constraint as the viaduct was proportionately well covered by surveyors during surveys of the other piers. Bat activity was recorded and any potential flight lines coming from un-surveyed piers were noted. Any mitigation, if required, can be applied on a precautionary basis to cover any potential impacts from the proposed works.

Timings

Two structures with moderate potential for roosting bats; Manchester Road (MVL3/10) and Midge Hall (MVL3/19) were forced by access issues weather constraints into both surveys being in two weeks apart in September. The Bat Conservation Trust Best Practise Guidelines[35] state that, for sites with moderate and high suitability, a proportion of the surveys should be carried out between May and August (to detect maternity roosts if present). This is not considered a significant limitation as the features identified on these structures had been assessed as not suitable for maternity roosts.

Equipment – bat detectors

Bat detectors were used during the emergence surveys to record echolocation of bats that were flying within the vicinity of the surveyor. These records are used to identify bats to a species or genus (Myotis sp.) level. The bat detectors used were predominantly the Elekon Batlogger M model. In certain instances, Anabat Walkabout detectors were also used. The Bat Conservation Trust Best Practise Guidelines[36] state that the same model of detector should ideally be used for all surveys. This is not considered to be a significant limitation as the detectors used are both full spectrum detectors programmed to similar settings and considered suitable for recording bat activity.

The Batlogger failed to save the recordings on two occasions. At Mossley Station Footbridge (MVL3/14), the second surveyor was located on the opposite side of the structure and used a fully functioning Batlogger throughout the duration of the survey. The Batlogger was orientated in a direction that would encourage calls surrounding the bridge to be recorded. Any bat calls that were missed by the first surveyor were likely recorded. Therefore, this is not considered a significant limitation.

The second instance of Batlogger failure was during survey of New Earth Footbridge (MVL3/16) where both Batloggers were corrupted, unbeknownst to the surveyors at the time. Therefore, this survey has no analysed bat call data. No bat activity was recorded on the IR cameras throughout the duration of the survey. The footage was watched through in its entirety and underwent a separate QA process. Furthermore, very little activity was recorded during surveys carried out on structures in the

[35] Collins, J. ed., (2023). *Bat Surverys for Professional Ecologists Good Practice Guidelines.* 4th ed. [online] Bat Conservation Trust. Available at: https://www.nhbs.com/bat-surveys-for-professional-ecologists-book.
[36] Collins, J. ed., (2023). *Bat Surverys for Professional Ecologists Good Practice Guidelines.* 4th ed. [online] Bat Conservation Trust. Available at: https://www.nhbs.com/bat-surveys-for-professional-ecologists-book.

immediate area; Mossley Station Footbridge (MVL3/14), and Roughtown Road (MVL3/17). The bridge is also in an urban area and the features being surveyed had low suitability for roosting bats. Therefore, this is not considered a significant limitation.

Multiple structures are located off busy residential areas and adjacent to passing traffic. All structures were located over the live railway where trains passed intermittently throughout the surveys. Other high baseline noise was recorded at times, including live music and security announcements. High levels of noise were recorded in these areas relative to more rural structures. The background noise had the potential to mask bat calls which could have been missed during sound analysis. Surveys at the following structures were noted as having relatively high levels of baseline noise on a temporary basis:

- Spring Bank Lane (MVL3/09) (traffic);
- Manchester Road (MVL3/10) (traffic);
- Mossley Station Footbridge (MVL3/14) (traffic);
- Oldham Road (MVL3/28) (live music and passing trains); and
- Den Quarry Underbridge (MVL3/30) (loud announcements triggered from armadillo security system).

These traffic noise and live music issues were partly mitigated as surveys were undertaken at times when traffic levels were generally lower than peak times such as rush hours. Furthermore, bat activity was generally limited in the urban areas due to the lack of suitable roosting, foraging and commuting habitat. Therefore, background noise was not considered to be a significant limitation.

The loud announcements from the armadillo security system were disruptive and are likely to have partially masked any bats calls. However, the announcements lasted for only fifteen seconds per trigger which happened on four separate occasions throughout the surveys. Therefore, as the announcements and disruption were temporary, this is not considered to be a significant limitation.

Equipment – infra red cameras

There were 18 occasions where the cameras had poor visibility of the structures due to poor angles, local lighting and overhanging vegetation. This included:

- Heyrod Hall (MVL3/07) - Poor angle;
- Spring Bank Lane (MVL3/09) - Poor angle and vegetation;
- Manchester Road (MVL3/10)- Vegetation and car lights;
- Stamford Road (MVL3/13) - No view of south aspect, poor IR lamp coverage;
- Mossley Station Footbridge (MVL3/14) - Poor angles and road lighting;

- New Earth Footbridge (MVL3/16) - Poor angles and poor IR lamp coverage;
- Wrights Mill (MVL3/20) – Vegetation;
- Royal George (MVL3/25) - Poor lighting on north aspect, interference from car headlights;
- Footway UB (MVL3/26) - Inconsistent IR lamp coverage;
- Oldham Road (MVL3/28) - Disruption from train and station lighting;
- Uppermill Viaduct (MVL3/31)-Pier A East – Vegetation;
- Uppermill Viaduct (MVL3/31)-Pier A West – Vegetation;
- Uppermill Viaduct (MVL3/31)-Pier B West - Very dense vegetation;
- Uppermill Viaduct (MVL3/31)-Pier D West - Very dense vegetation;
- Uppermill Viaduct (MVL3/31)-Pier E East – Vegetation;
- Uppermill Viaduct (MVL3/31)-Pier E West – Vegetation;
- Uppermill Viaduct (MVL3/31)-Pier F East - Extremely dense vegetation; and
- Uppermill Viaduct (MVL3/31)-Pier F West - Extremely dense vegetation.

Due to positioning of vegetation and access arrangements it was not always possible to view every aspect of each structure. However, surveyors and cameras were positioned in the most optimal locations possible and were able to observe bats flying near the structure. In addition, where vegetation or access was severely limited, the view of potential features, surveyors and cameras were used on a one-to-one basis, so the surveyor was present and able to react to bat activity. In some instances, surveyors did not have direct sight of all potential roost features, they were able to monitor bat movements towards and away from the structure allowing them to determine whether bats were likely to be emerging. In addition, all footage captured by the infra-red cameras was reviewed in full. As such, the lack of optimal positioning for some surveys is not considered to be a significant limitation.

Multiple structures are located off busy residential areas and adjacent to passing traffic and street lighting which had the potential to impact the effectiveness of the camera. This was not considered to be a significant limitation as the footage was still clear enough to view any bats passing, and bat activity across most of these structures was limited.

Camera failure

The camera footage was corrupted and could not be fully reviewed on seven occasions:

- Heyrod Hall (MVL3/7) - Start of survey missed on northern aspect;

- Mossley Station Footbridge (MVL3/14)- Missing footage showing the southern aspect of the bridge;
- Roughtown Road (MVL3/17) - Missing footage from the sole camera;
- Charlotte Street (MVL3/24) - First half of survey missing covering southern aspect;
- Royal George (MVL3/25) - Last 20 mins of footage lost covering south aspect;
- Den Quarry Underbridge (MVL3/30) - 10 mins of footage lost from north aspect, southern aspect missing first 15 minutes of survey;
- Uppermill Viaduct (MVL3/31)- Pier A East (Survey 2)- Missing footage from the sole camera;

It is not considered a significant limitation where the camera recording has not captured the initial part of the survey. Up until approximately 30 minutes after dusk, the surveyors are able to view the structure without artificial light/infra-red and would therefore be able to see any emergences prior to this time. None of the structures were in a densely wooded area which would have contributed to poor visibility prior to 30 minutes after sunset. Furthermore, it is not expected that bats would emergence from their roosts until after dusk, therefore it is unlikely that an emergence would have been missed by the camera.

The surveys finished between 1.5 – 2 hours after sunset in order to capture the likely emergence times of species deemed to be present within the Order Scheme. The majority of bats recorded were *pipistrelle sp.* which generally would emerge from their roosts 7 – 43 minutes after sunset, prior to the time of camera failure. Therefore, it is not considered a significant limitation where the camera recording has not captured the end of the survey.

The missing footage at MVL3/24 was rectified by the second survey capturing the PRFs to be considered. Upon review of the full footage, supplemented by the bat sound analysis, bat activity was found to be low at this location and it is deemed unlikely that any roosting bats were missed. Therefore, it is not considered a significant limitation.

The missing footage at MVL3/14 and MVL3/17 is not considered a significant limitation as both structures were identified as having low suitability for roosting bats during the preliminary roost assessment. The PRFs present do not provide enough space, shelter and protection to be used on a regular basis or by a larger number of bats. Therefore, it was unlikely that a bat would have emerged from such PRFs and if so, the emergence would have likely been identified by the surveyor without the use of the camera footage.

Environmental Conditions

There were six instances where rain and wind impacted the survey:

- Uppermill Viaduct (MVL3/31)- Pier A East and West Survey 1 – Heavy rain from 20:12 to 20:22;
- Uppermill Viaduct (MVL3/31)- Pier B East and West Survey 1 – Heavy rain from 20:12 to 20:22.MVL3/31 - Pier F East and West Survey 1 - Intermittent light rain throughout and heavy rain from 20:15 to 20:20;
- Uppermill Viaduct (MVL3/31) - Pier D East and West Survey 2 – Light rain from 20:46 until the end of the survey;
- Uppermill Viaduct (MVL3/31) - Pier E East and West Survey 2 – Light rain from 20:46 until the end of the survey;
- Uppermill Viaduct (MVL3/31) - Pier D East and West Survey 3 – Brief light rain at 19:52 and cooler temperatures (10ºC);
- Uppermill Viaduct (MVL3/31) - Pier E West Survey 3 – Brief light rain at 19:52 and cooler temperatures (10ºC).

This is not considered a significant limitation as all surveys were conducted within the range of appropriate survey parameters as set out in the BCT Guidelines[37]. Any periods of heavy rain were short in duration and sufficient time for bat activity and emergence was available within the survey window to still achieve a full survey.

Where structures were being surveyed in busy residential areas, passing traffic and street lighting impacted the effectiveness of the camera. This was not considered to be a significant limitation as the footage was still clear enough to view any bats passing, and bat activity across most of these structures was limited.

Sound analysis

Brown long-eared bats produce quiet calls that are directional and not always recorded or detected by the detectors. Due to the nature of these calls, these may not be identifiable during sound analysis. Therefore, brown long-eared bats are likely to have been under-recorded during surveys.

Surveyors are aware of these limitations and adjust survey methods accordingly for example, moving detectors closer to the structure if non-echolocating bats are observed and the use of IR cameras which can help with the identification of these species. Therefore, this is not considered a significant constraint.

It is not usually possible to identify calls from Myotis to species level using acoustic analysis alone. Myotis species are known to be present within the desk study area including Daubenton's and Natterers'. However, to reduce the significance of this

[37] Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. Bat Conservation Trust, London.

limitation, visual observation by surveyors and IR cameras was used during surveys in combination with analysis of acoustic recordings to distinguish species-specific behaviour, where possible. Where it was not possible to identify a bat call to species level, the genus is provided but this is not considered a significant constraint.

Equipment - Automated/ Static Bat Detectors

Kaleidoscope auto ID software was used as the first step in identification. The software identifies common and soprano pipistrelle to species level but does not identify Nathusius' pipistrelle. As only a 10% check of pipistrelle species auto ID was undertaken, there is a chance that a small number of calls from Nathusius' pipistrelle may have been mis-identified as common pipistrelle.

The auto ID does not differentiate between noctule, serotine and Leisler's (NSL). All sound files identified as NSL were manually verified by a capable surveyor but due to the limited records of Leisler's across the northwest and difficulty in distinguishing between noctule and Leisler's calls in some environments all NSL were assumed to be noctule within the static datasets. As a result, a small number of Leisler's bats may be misidentified as noctule. Movement of bats around the structure and comparison with footage from other cameras surveying the same structure was used to determine if there were any likely emergences. This is not considered an issue as the static detectors were deployed to help identify roosting bats within Scout and Stalybridge tunnels, without the purpose of identifying bat activity. NSL have been scoped out from using the tunnels for roosting as per the agreed Natural England proposed tunnel bat survey methodology[38]

A high percentage of recordings in February 2024 by the automated detector in the air-vent of Stalybridge Tunnel (Stalybridge 3) identified as bat calls by the auto ID were metallic noise which may be due to work being undertaken on the rail/ in the tunnels during this time period. All bat calls during this time were further checked to confirm the correct identification.

Automated/ static bat detector deployment visits were limited to once per month night time possessions, which did not allow for any redeployments or maintenance of the statics in the interim period. This means that any corrupted data or malfunctions were unable to be addressed. This is not considered a significant limitation as data was recorded in each period (core bat activity period (August), transitional and hibernation) at each location and in most instances exceeded the minimum of five nights as stated in the BCT best practice guidelines[39].

[38] Technical note- TRU W2B – Proposed Tunnel Bat Survey Methodology
[39] Collins, J. ed., (2023). *Bat Surverys for Professional Ecologists Good Practice Guidelines.* 4th ed. [online] Bat Conservation Trust. Available at: https://www.nhbs.com/bat-surveys-for-professional-ecologists-book.

ANNEX C – ECOLOGY SURVEY DATA

Preliminary roost assessments of structures

Preliminary roost assessments (PRAs) were undertaken on structures within the Order Scheme. A summary of results is provided in Table C-1.

Table C-1 - Summary results from bat preliminary roost assessments of structures within

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
Stalybridge Tunnel Western Portal	Portal (Tunnel entrance) Bricks and stonework	Moderate	Survey Notes: Assessed May 2024 from the rail. Potential Roost Features: Crack in mortar present above drainpipe. 3 bats observed emerging from within the tunnel during the initial PRA. Further survey recommendations: Two dusk emergence surveys.
Stalybridge Tunnel Eastern Portal	Tunnel Bricks and stonework	Moderate	Survey Notes: Assessed May 2024 from the rail. Potential Roost Features: Gap under the top layer of stone and a crack in the centre of the span which could extend. 3 bats observed emerging from within the tunnel during the initial walkover. Further survey recommendations: Two dusk emergence surveys.
Stalybridge Tunnel Air Shaft	Air shaft Engineering brick, in good repair,	Moderate	Survey Notes: Assessed May 2024. Potential Roost Features: None observed and the shaft is open to the elements, assessed as moderate due to the hibernation potential within the tunnel. Further survey recommendations: Two dusk emergence surveys.
Printworks (MVL3/05)	Road bridge, well maintained.	Negligible	Survey Notes: Assessed May 2024 from the rail. Potential Roost Features: None observed. Further survey recommendations: None.
Footbridge (MVL3/06)	Metal footbridge with stone abutments	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: 10% ivy coverage on underside of east

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			abutment. Further survey recommendations: None
Heyrod Hall (MVL3/07)	Stone arch bridge with rail underneath and road over the top	Low	Survey Notes: Assessed April 2024 through visual inspection with binoculars. Potential Roost Features: No PRFs visible from the vantage point, however a detailed inspection from the rail corridor is required. Further survey recommendations: One dusk emergence survey.
Footbridge (MVL3/08)	Concrete beam bridge with brick parapets and stone abutments carrying footpath over rail	Moderate	Survey Notes: Assessed in April 2024 through visual inspection with binoculars. Assessed in May 2024 from the rail. Potential Roost Features: Superficial cracks on south facing aspect and west support. Cracks on north aspect and east support appear to extend further. Hole in interior of west support is approximately 5 ft width and extends at least 1.5 ft back. Further survey recommendations: Two dusk emergence surveys.
Spring Bank Lane (MVL3/09)	Stone arch bridge with rail underneath and road over the top	Moderate	Survey Notes: Assessed in April 2024 through visual inspection with binoculars. Assessed in May 2024 from the rail. Potential Roost Features: 10-20% ivy cover on north west corner. Some superficial gaps in the mortar, gap in north aspect east support where the stone wall meets the stone lip (extends a few inches). Gaps in north eastern aspect between stone bricks (facing into adjacent habitat. Further survey recommendations: Two dusk emergence surveys.
Manchester Road (MVL3/010)	Stone arch bridge with rail over top and road underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2025 from the rail. Potential Roost Features: There are potential gaps between the stone work and high visibility signs on both sides of the bridge. (These are considered to be negligible suitability).

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			Drainage pipe on the south-west side, appeared dry and of clay construction, could offer suitability. There are cracks on the north-east abutment but these appear damp. There are gaps above the ring stones of the arch and the spandrel wall on the north-eat side which could extent and provide moderate suitability cannot fully inspect with torchlight due to moving traffic under bridge. Under the bridge in the barrel, there are gaps between the ring stones and barrel that appear to extent but are very heavily disturbed by the noisy busy road and railway. These offer low suitability. The south-west side has gaps in the stonework above the high visibility sign. Both north-east and south-west sides, crevices where ring stones meet the spandrel wall and inner barrel offer up to moderate suitability. Further survey recommendations: Two dusk emergence surveys.
Footbridge (MVL3/10a)	Steel pedestrian footbridge with brick abutments carrying a footpath over the railway.	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None
Scout Tunnel Southern Portal	Portal (Tunnel entrance) Block Stonework, All in good condition with no obvious gaps or cracks.	Negligible	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: None observed Further survey recommendations: None
Scout Tunnel (MVL3/11)	Tunnel	High	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: A number cracks and cut-outs in tunnel walls, including some with extensive depths, provide ideal potential for bats. Throughout the barrel of the tunnel there is a range of suitable features. Most features are believed to be a mix of core and drainage

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			holes as follows; Low drainage holes at approximately 1.5 m height, 5 cm x 5 cm, extending over a meter deep. Could torch extent and they are dry throughout. It is assumed there are approximately 25 within the tunnel; High drainage holes at approximately 3.5 m high, 5x5 cm, extending over a meter deep, limited view with torch but it is assumed there are approximately 40 throughout the tunnel; Core holes - 2-3 cm x 2-3 cm, extend 5-10 cm deep with varied heights. It is assumed there are approximately 30 throughout tunnel. Less suitability than the drainage holes; A medium height drainage hole at 2 m height, approximately 5x5 cm, doesn't extend as far as the other drainage holes (stone/ rubble blocking it approximately 30 cm into the extension). It is assumed there are approximately 5 within the tunnel. No particular order or frequency to the holes but they were present on both walls and ceiling throughout. Both western and eastern sides of the barrel have drainage and core holes, however, the eastern side has fewer overall than the western. No gaps in mortar observed at tunnel entrances all features identified were within the barrel. Some evidence of past repairs to stone facing where it meets barrel on southern side of tunnel entrance where a long crevice in the stone/ mortar had been filled in. The tunnel became damp with dripping water within the central portion but many crevices remained dry (at least internally) particularly core/ drainage holes. Cold temperature throughout the tunnel extent. Good hibernation suitability and day roost suitability. Likely too disturbed and cool in temperature to support maternity. Further survey recommendations Likely presence/likely absence surveys
Scout Tunnel Northern Portal	Portal (Tunnel entrance) Block Stonework, all in good condition with no obvious gaps or	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None.

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
	cracks		
Abney Footbridge (MVL3/12)	Steel pedestrian footbridge with stone abutments over the railway.	Negligible	Survey Notes: Assessed in May 2024 from off rail. Potential Roost Features: Gaps between metal parapet and stone abutments noted but these are too wide and exposed for bats Further survey recommendations: None
Pipe Bridge (MVL3/12a)	Metal pipe	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None
Stamford Road (MVL3/13)	Concrete slab roadbridge over railway	Low	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: Superficial and non-extending gaps between concrete blocks. Gaps where span meets abutment were checked with pole camera, they appear to quickly narrow to wedge with no obvious suitability or crevice available for bats to use but whole extend was not torched and there were limitations with visibility Further survey recommendations: One dusk emergence survey.
Mossley Station Footbridge (MVL3/14)	Steel frame pedestrian footbridge over railway	Low	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps in the stonework under the stairs off platform 2 by bridge abutment and wing walls and gaps under the bridge where the span meets the abutment. These were torched and could see the extent. Low suitability. High levels of disturbance by trains stopping directly underneath Further survey recommendations: One dusk emergence survey.

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
Mill Lane (MVL3/15)	Stone arch bridge with rail over top and road underneath	Negligible	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2025 from the rail. Potential Roost Features: <u>Off rail:</u> Gaps in the mortar of the wing walls and associated stone walls. Parapet stone had a series of holes which looked to be unlikely to extend more than a few inches and likely of extremely poor suitability for bats. As features couldn't be closely inspected it's unclear how far any crevices extend and suitability. But low is assumed due to likely dimensions and context. There are gaps in the wing walls between the mortar on the south-east side but these are unlikely to lead to a proper cavity, these could only offer some suitability for individual bats. <u>On rail:</u> The holes in the parapet stone were found to be negligible. No holes in the wing wall could be seen from the rail. Advise that features are negligible. Further survey recommendations: None
New Earth Footbridge (MVL3/16)	Steel pedestrian footbridge with stone abutments over the railway.	Low	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Some crevices possibly of use to bats. Slight gap observed between the bridge deck and the abutment. Gaps within the mortar where the abutment meets the wing wall. Cavities within the retaining wall between the rail and footpath. North abutment has negligible potential. Further survey recommendations: One dusk emergence survey.
Roughtown Road (MVL3/17)	Stone arch bridge with rail underneath and road over the top	Low	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Single feature under bridge arch where mortar is missing, 2cm x 2cm only extends a few

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			inches suitable for individual bat. Cracks where the bridge joins the wing wall at the north-eastern aspect mostly cobwebbed but some extend 5-10 cm. Further survey recommendations: One dusk emergence survey.
Stockport Road Level Crossing (MVL3/18)	Steel pedestrian footbridge with stone abutments over the railway.	Negligible	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Any features present were found to be non-extending and of negligible suitability. Further survey recommendations: None
Midge Hall (MVL3/19)	Stone arch bridge with rail over top and farm track underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: South-west corner has a gap that appears to extend into a cavity. North-west corner has a similar gap which could potentially have droppings outside it (or may be debris). Eastern side is well sealed generally. There are some gaps in the stonework but it is exposed and would get wet. Further survey recommendations: Two dusk emergence surveys.
Wrights Mill (MVL3/20)	Stone arch bridge with rail underneath and road over the top	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: There are four large beam holes in the barrel that extend and could lead to further PRFs. Further survey recommendations: Two dusk emergence surveys
Water Trough Pipe (MVL3/21)	Pipe bridge	Negligible	Survey Notes: Assessed in May 2024 from on rail. Potential Roost Features: Some superficial cracks in the mortar, wet drain, unsuitable for use as a roost. Further survey recommendations: None

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
Hobble Hole (MVL3/22)	Stone arch bridge with rail over top and footpath underneath	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps in mortar in between stones in the parapet, they are exposed and will get wet. Shallow superficial gaps in stonework inspected with torchlight. Further survey recommendations: None
Wrights (MVL3/23)	Stone arch bridge with rail underneath and footpath over the top	Negligible	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from on rail. Potential Roost Features: Stonework well sealed with some superficial cracks Further survey recommendations: None
Charlotte Street (MVL3/24)	Concrete slab bridge carrying the railway over a road	Moderate	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps between concrete span and abutment could lead to expansion joints or voids. Gaps present between the upper and lower span blocks. Could be inspected with a MEWP or polecam but they have been assessed as precautionary moderate from ground level. Further survey recommendations: Two dusk emergence surveys
Royal George (MVL3/25)	Steel frame bridge with stone abutments carrying the railway over a road	Moderate	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Jackdaws are nesting in the gap between the span and the abutment so this area is largely unsuitable for roosting bats but the area cannot be fully inspected from ground level so there could be PRFs obscured from view. Gaps in mortar generally appear superficial when inspected with torchlight. On northern side, gaps in mortar between stonework are none-extending. Larger gap in stonework on this side on abutment is too exposed for bats. Gaps between the steel parapet and decorative stonework may extend into suitable cavities for bats. Moderate suitability assigned for these but surveyors couldn't determine how far the features potentially extend.

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			Further survey recommendations: Two dusk emergence surveys
Footway UB (MVL3/26)	Stone arch bridge with rail over top and footpath underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps in the retaining wall (not part of bridge structure) which appear to extend up to 30 cm. 18 drainage holes within the barrel of the bridge. Some of the drainage pipes have plastic so would be unsuitable for bats to access, however in some pipes the plastic has fallen away. On the NE wall, the second drainage pipe from the west has no plastic, as it cannot be thoroughly inspected by torch it has been assessed as precautionary moderate suitability. Further survey recommendations: Two dusk emergence surveys
Oldham Road (MVL3/28)	Stone arch bridge with rail underneath and road over the top	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Some mortar gaps and potential holes in the stonework of the bridge on external and in barrel. South east abutment has 3-4 areas of missing stonework. South west abutment has gaps within the mortar and a 3-4 potential holes. Barrel has multiple gaps extending approximately 1 foot deep. Further survey recommendations: Two dusk emergence surveys
Wickers (MVL3/29)	Stone arch bridge with rail over top and footpath underneath	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed, shallow mortar gaps on the wing walls and abutments not suitable for bats either superficial, damp and filled with snails, or evidence of rodent use. Barrel of bridge extremely good condition with no mortar gaps Further survey recommendations:

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			None
Den Quarry Underbridge (MVL3/30)	Stone arch bridge with rail over top and footpath underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: North west abutment stonework in good condition but the connecting stone wall has crevices up to around 15 cm which are of low suitability and can be inspected via torchlight. South east abutment has some shallow gaps in the mortar up to low suitability. The main features offering suitability for bats are 7 core holes within the barrel. 1 is of negligible suitability with a stone blocking the entrance, 1 is in the roof of the barrel and is largely dry extending at least 20 cm potentially further. 4 other holes on north wall and one on south wall all fully inspectable from ground level with torchlight. Some were slightly damp but others seemed suitable for small numbers of bats. Further survey recommendations: Two dusk emergence surveys
Uppermill Viaduct (MVL3/31)	Viaduct carrying rail over river, canal, roads and PROW	High	Survey Notes: Assessed in April 2024. Potential Roost Features: Every pier had drainage pipes on the western and eastern aspects. The vast majority were dripping water but a small number appeared dry. There had been rain the day before the survey. Stonework largely in good condition. At the top of the piers there were occasional crevices in the mortar between the stonework and stone arch edges. Much of the structure wasn't fully visible for detailed PRA. Excellent commuting and foraging habitat. High suitability assumed. Further survey recommendations: Three dusk emergence surveys

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
Butterhouse Lane Footbridge (MVL3/31a)	Steel frame bridge with stone abutments carrying the railway over a road	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: A single crevice was assessed as negligibly suitable following an endoscopic inspection Further survey recommendations: None.
Footbridge (MVL3/35)	Steel frame bridge with concrete abutments carrying footpath over the railway	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None.
Ward Lane (MVL3/36)	Metal span with brick infill. Stone abutments.	Negligible	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: None observed Further survey recommendations: None
Diggle Junction Signal Box	Signal box building. Brick building with upper half comprising PVC panelling and windows; pitched tiled roof.	Negligible	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: None observed. Further survey recommendations: None
Station Road (MVL3/39)	Steel framed bridge with stone abutments carrying road over railway	/Negligible	Survey Notes: Assessed in July 2024 from the rail. Potential Roost Features: The eastern most arch by the eastern abutment had three holes in the stonework at the top of the abutment which were exposed and predominantly offered suitability for nesting birds and low/ negligible suitability for bats. Western side of the pier has a crack in the mortar in the northern corner which extended 20 cm. Moss and nesting material were observed. Negligible suitability. The western most abutment had limited view from the other side of the railway but some shallow mortar gaps were observed which

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			appeared to be fairly superficial but were unable to be closely inspected. The eastern pier had a single gap in the mortar at the south east corner which was heavily cobwebbed at the time of survey. All features negligible due to shallow nature, use by nesting birds, cobwebs and existing disturbance from passing train traffic. Further survey recommendations: None.
Standedge Canal Tunnel (MVL3/39a)	Tunnel of stone and brick construction	Unknown	Survey Notes: Assessed in April 2024 with view from road 30 m+ away. Very limited vantage. Potential Roost Features: Cannot see inside tunnels. Unable to assess suitably. Appears in good condition but there may be suitable crevices internally Further survey recommendations: Further PRA with internal access to the tunnel.
Bywash (MVL3/39b)	Tunnel	Unknown	As per MVL3/39a).
Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
Stalybridge Tunnel Western Portal	Portal (Tunnel entrance) Bricks and stonework	Moderate	Survey Notes: Assessed May 2024 from the rail. Potential Roost Features: Crack in mortar present above drainpipe. 3 bats observed emerging from within the tunnel during the initial PRA. Further survey recommendations: Two dusk emergence surveys.
Stalybridge Tunnel Eastern Portal	Tunnel Bricks and stonework	Moderate	Survey Notes: Assessed May 2024 from the rail. Potential Roost Features: Gap under the top layer of stone and a crack in the centre of the span which could extend. 3 bats observed emerging from within the tunnel during the initial walkover. Further survey recommendations:

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			Two dusk emergence surveys.
Stalybridge Tunnel Air Shaft	Air shaft Engineering brick, in good repair,	Moderate	Survey Notes: Assessed May 2024. Potential Roost Features: None observed and the shaft is open to the elements, assessed as moderate due to the hibernation potential within the tunnel. Further survey recommendations: Two dusk emergence surveys.
Printworks (MVL3/05)	Road bridge, well maintained.	Negligible	Survey Notes: Assessed May 2024 from the rail. Potential Roost Features: None observed. Further survey recommendations: None.
Footbridge (MVL3/06)	Metal footbridge with stone abutments	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: 10% ivy coverage on underside of east abutment. Further survey recommendations: None
Heyrod Hall (MVL3/07)	Stone arch bridge with rail underneath and road over the top	Low	Survey Notes: Assessed April 2024 through visual inspection with binoculars. Potential Roost Features: No PRFs visible from the vantage point, however a detailed inspection from the rail corridor is required. Further survey recommendations: One dusk emergence survey.
Footbridge (MVL3/08)	Concrete beam bridge with brick parapets and stone abutments carrying footpath over rail	Moderate	Survey Notes: Assessed in April 2024 through visual inspection with binoculars. Assessed in May 2024 from the rail. Potential Roost Features: Superficial cracks on south facing aspect and west support. Cracks on north aspect and east support appear to extend further. Hole in interior of west support is approximately 5 ft width and extends at least 1.5 ft back.

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			Further survey recommendations: Two dusk emergence surveys.
Spring Bank Lane (MVL3/09)	Stone arch bridge with rail underneath and road over the top	Moderate	Survey Notes: Assessed in April 2024 through visual inspection with binoculars. Assessed in May 2024 from the rail. Potential Roost Features: 10-20% ivy cover on north west corner. Some superficial gaps in the mortar, gap in north aspect east support where the stone wall meets the stone lip (extends a few inches). Gaps in north eastern aspect between stone bricks (facing into adjacent habitat. Further survey recommendations: Two dusk emergence surveys.
Manchester Road (MVL3/010)	Stone arch bridge with rail over top and road underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2025 from the rail. Potential Roost Features: There are potential gaps between the stone work and high visibility signs on both sides of the bridge. (These are considered to be negligible suitability). Drainage pipe on the south-west side, appeared dry and of clay construction, could offer suitability. There are cracks on the north-east abutment but these appear damp. There are gaps above the ring stones of the arch and the spandrel wall on the north-eat side which could extent and provide moderate suitability cannot fully inspect with torchlight due to moving traffic under bridge. Under the bridge in the barrel, there are gaps between the ring stones and barrel that appear to extent but are very heavily disturbed by the noisy busy road and railway. These offer low suitability. The south-west side has gaps in the stonework above the high visibility sign. Both north-east and south-west sides, crevices where ring stones meet the spandrel wall and inner barrel offer up to moderate suitability. Further survey recommendations: Two dusk emergence surveys.

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
Footbridge (MVL3/10a)	Steel pedestrian footbridge with brick abutments carrying a footpath over the railway.	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None
Scout Tunnel Southern Portal	Portal (Tunnel entrance) Block Stonework, All in good condition with no obvious gaps or cracks.	Negligible	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: None observed Further survey recommendations: None
Scout Tunnel (MVL3/11)	Tunnel	High	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: A number cracks and cut-outs in tunnel walls, including some with extensive depths, provide ideal potential for bats. Throughout the barrel of the tunnel there is a range of suitable features. Most features are believed to be a mix of core and drainage holes as follows; Low drainage holes at approximately 1.5 m height, 5 cm x 5 cm, extending over a meter deep. Could torch extent and they are dry throughout. It is assumed there are approximately 25 within the tunnel; High drainage holes at approximately 3.5 m high, 5x5 cm, extending over a meter deep, limited view with torch but it is assumed there are approximately 40 throughout the tunnel; Core holes - 2-3 cm x 2-3 cm, extend 5-10 cm deep with varied heights. It is assumed there are approximately 30 throughout tunnel. Less suitability than the drainage holes; A medium height drainage hole at 2 m height, approximately 5x5 cm, doesn't extend as far as the other drainage holes (stone/ rubble blocking it approximately 30 cm into the extension). It is assumed there are approximately 5 within the tunnel. No particular order or frequency to the holes but they were present on both walls and ceiling throughout. Both western and eastern sides of

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			the barrel have drainage and core holes, however, the eastern side has fewer overall than the western. No gaps in mortar observed at tunnel entrances all features identified were within the barrel. Some evidence of past repairs to stone facing where it meets barrel on southern side of tunnel entrance where a long crevice in the stone/ mortar had been filled in. The tunnel became damp with dripping water within the central portion but many crevices remained dry (at least internally) particularly core/ drainage holes. Cold temperature throughout the tunnel extent. Good hibernation suitability and day roost suitability. Likely too disturbed and cool in temperature to support maternity. Further survey recommendations Likely presence/likely absence surveys
Scout Tunnel Northern Portal	Portal (Tunnel entrance) Block Stonework, all in good condition with no obvious gaps or cracks	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None.
Abney Footbridge (MVL3/12)	Steel pedestrian footbridge with stone abutments over the railway.	Negligible	Survey Notes: Assessed in May 2024 from off rail. Potential Roost Features: Gaps between metal parapet and stone abutments noted but these are too wide and exposed for bats Further survey recommendations: None
Pipe Bridge (MVL3/12a)	Metal pipe	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None
Stamford Road (MVL3/13)	Concrete slab roadbridge over railway	Low	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: Superficial and non-extending gaps between

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			concrete blocks. Gaps where span meets abutment were checked with polecam, they appear to quickly narrow to wedge with no obvious suitability or crevice available for bats to use but whole extend was not torched and there were limitations with visibility Further survey recommendations: One dusk emergence survey.
Mossley Station Footbridge (MVL3/14)	Steel frame pedestrian footbridge over railway	Low	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps in the stonework under the stairs off platform 2 by bridge abutment and wing walls and gaps under the bridge where the span meets the abutment. These were torched and could see the extent. Low suitability. High levels of disturbance by trains stopping directly underneath Further survey recommendations: One dusk emergence survey.
Mill Lane (MVL3/15)	Stone arch bridge with rail over top and road underneath	Negligible	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2025 from the rail. Potential Roost Features: Off rail: Gaps in the mortar of the wing walls and associated stone walls. Parapet stone had a series of holes which looked to be unlikely to extend more than a few inches and likely of extremely poor suitability for bats. As features couldn't be closely inspected it's unclear how far any crevices extend and suitability. But low is assumed due to likely dimensions and context. There are gaps in the wing walls between the mortar on the south-east side but these are unlikely to lead to a proper cavity, these could only offer some suitability for individual bats. On rail: The holes in the parapet stone were found to be negligible. No holes in the wing wall could be seen from the rail. Advise that features are negligible. Further survey recommendations: None

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
New Earth Footbridge (MVL3/16)	Steel pedestrian footbridge with stone abutments over the railway.	Low	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Some crevices possibly of use to bats. Slight gap observed between the bridge deck and the abutment. Gaps within the mortar where the abutment meets the wing wall. Cavities within the retaining wall between the rail and footpath. North abutment has negligible potential. Further survey recommendations: One dusk emergence survey.
Roughtown Road (MVL3/17)	Stone arch bridge with rail underneath and road over the top	Low	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Single feature under bridge arch where mortar is missing, 2cm x 2cm only extends a few inches suitable for individual bat. Cracks where the bridge joins the wing wall at the north-eastern aspect mostly cobwebbed but some extend 5-10 cm. Further survey recommendations: One dusk emergence survey.
Stockport Road Level Crossing (MVL3/18)	Steel pedestrian footbridge with stone abutments over the railway.	Negligible	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Any features present were found to be non-extending and of negligible suitability. Further survey recommendations: None
Midge Hall (MVL3/19)	Stone arch bridge with rail over top and farm track underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: South-west corner has a gap that appears to extend into a cavity. North-west corner has a similar gap which could potentially have droppings outside it (or may be debris). Eastern side is well sealed generally. There are some gaps in the stonework but it is

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			exposed and would get wet. Further survey recommendations: Two dusk emergence surveys.
Wrights Mill (MVL3/20)	Stone arch bridge with rail underneath and road over the top	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: There are four large beam holes in the barrel that extend and could lead to further PRFs. Further survey recommendations: Two dusk emergence surveys
Water Trough Pipe (MVL3/21)	Pipe bridge	Negligible	Survey Notes: Assessed in May 2024 from on rail. Potential Roost Features: Some superficial cracks in the mortar, wet drain, unsuitable for use as a roost. Further survey recommendations: None
Hobble Hole (MVL3/22)	Stone arch bridge with rail over top and footpath underneath	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps in mortar in between stones in the parapet, they are exposed and will get wet. Shallow superficial gaps in stonework inspected with torchlight. Further survey recommendations: None
Wrights (MVL3/23)	Stone arch bridge with rail underneath and footpath over the top	Negligible	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from on rail. Potential Roost Features: Stonework well sealed with some superficial cracks Further survey recommendations: None
Charlotte Street (MVL3/24)	Concrete slab bridge carrying the railway over a road	Moderate	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps between concrete span and abutment could lead to expansion joints or voids. Gaps present between the upper and lower span blocks. Could be inspected with a MEWP

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			or polecam but they have been assessed as precautionary moderate from ground level. Further survey recommendations: Two dusk emergence surveys
Royal George (MVL3/25)	Steel frame bridge with stone abutments carrying the railway over a road	Moderate	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Jackdaws are nesting in the gap between the span and the abutment so this area is largely unsuitable for roosting bats but the area cannot be fully inspected from ground level so there could be PRFs obscured from view. Gaps in mortar generally appear superficial when inspected with torchlight. On northern side, gaps in mortar between stonework are none-extending. Larger gap in stonework on this side on abutment is too exposed for bats. Gaps between the steel parapet and decorative stonework may extend into suitable cavities for bats. Moderate suitability assigned for these but surveyors couldn't determine how far the features potentially extend. Further survey recommendations: Two dusk emergence surveys
Footway UB (MVL3/26)	Stone arch bridge with rail over top and footpath underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: Gaps in the retaining wall (not part of bridge structure) which appear to extend up to 30 cm. 18 drainage holes within the barrel of the bridge. Some of the drainage pipes have plastic so would be unsuitable for bats to access, however in some pipes the plastic has fallen away. On the NE wall, the second drainage pipe from the west has no plastic, as it cannot be thoroughly inspected by torch it has been assessed as precautionary moderate suitability. Further survey recommendations: Two dusk emergence surveys
Oldham Road (MVL3/28)	Stone arch bridge with rail underneath and road over the top	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: Some mortar gaps and potential holes in the

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
			stonework of the bridge on external and in barrel. South east abutment has 3-4 areas of missing stonework. South west abutment has gaps within the mortar and a 3-4 potential holes. Barrel has multiple gaps extending approximately 1 foot deep. Further survey recommendations: Two dusk emergence surveys
Wickers (MVL3/29)	Stone arch bridge with rail over top and footpath underneath	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed, shallow mortar gaps on the wing walls and abutments not suitable for bats either superficial, damp and filled with snails, or evidence of rodent use. Barrel of bridge extremely good condition with no mortar gaps Further survey recommendations: None
Den Quarry Underbridge (MVL3/30)	Stone arch bridge with rail over top and footpath underneath	Moderate	Survey Notes: Assessed in April 2024 from off rail. Assessed in May 2024 from the rail. Potential Roost Features: North west abutment stonework in good condition but the connecting stone wall has crevices up to around 15 cm which are of low suitability and can be inspected via torchlight. South east abutment has some shallow gaps in the mortar up to low suitability. The main features offering suitability for bats are 7 core holes within the barrel. 1 is of negligible suitability with a stone blocking the entrance, 1 is in the roof of the barrel and is largely dry extending at least 20 cm potentially further. 4 other holes on north wall and one on south wall all fully inspectable from ground level with torchlight. Some were slightly damp but others seemed suitable for small numbers of bats. Further survey recommendations: Two dusk emergence surveys

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
Uppermill Viaduct (MVL3/31)	Viaduct carrying rail over river, canal, roads and PROW	High	Survey Notes: Assessed in April 2024. Potential Roost Features: Every pier had drainage pipes on the western and eastern aspects. The vast majority were dripping water but a small number appeared dry. There had been rain the day before the survey. Stonework largely in good condition. At the top of the piers there were occasional crevices in the mortar between the stonework and stone arch edges. Much of the structure wasn't fully visible for detailed PRA. Excellent commuting and foraging habitat. High suitability assumed. Further survey recommendations: Three dusk emergence surveys
Butterhouse Lane Footbridge (MVL3/31a)	Steel frame bridge with stone abutments carrying the railway over a road	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: A single crevice was assessed as negligibly suitable following an endoscopic inspection Further survey recommendations: None.
Footbridge (MVL3/35)	Steel frame bridge with concrete abutments carrying footpath over the railway	Negligible	Survey Notes: Assessed in April 2024 from off rail. Potential Roost Features: None observed. Further survey recommendations: None.
Ward Lane (MVL3/36)	Metal span with brick infill. Stone abutments.	Negligible	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: None observed Further survey recommendations: None
Diggle Junction Signal Box	Signal box building. Brick building with upper half comprising PVC panelling and windows; pitched tiled	Negligible	Survey Notes: Assessed in May 2024 from the rail. Potential Roost Features: None observed. Further survey recommendations: None

Feature Ref	Feature Type	Bat Roost Suitability Rating	Notes
	roof.		
Station Road (MVL3/39)	Steel framed bridge with stone abutments carrying road over railway	/Negligible	Survey Notes: Assessed in July 2024 from the rail. Potential Roost Features: The eastern most arch by the eastern abutment had three holes in the stonework at the top of the abutment which were exposed and predominantly offered suitability for nesting birds and low/ negligible suitability for bats. Western side of the pier has a crack in the mortar in the northern corner which extended 20 cm. Moss and nesting material were observed. Negligible suitability. The western most abutment had limited view from the other side of the railway but some shallow mortar gaps were observed which appeared to be fairly superficial but were unable to be closely inspected. The eastern pier had a single gap in the mortar at the south east corner which was heavily cobwebbed at the time of survey. All features negligible due to shallow nature, use by nesting birds, cobwebs and existing disturbance from passing train traffic. Further survey recommendations: None.
Standedge Canal Tunnel (MVL3/39a)	Tunnel of stone and brick construction	Unknown	Survey Notes: Assessed in April 2024 with view from road 30 m+ away. Very limited vantage. Potential Roost Features: Cannot see inside tunnels. Unable to assess suitably. Appears in good condition but there may be suitable crevices internally Further survey recommendations: Further PRA with internal access to the tunnel.
Bywash (MVL3/39b)	Tunnel	Unknown	As per MVL3/39a).

Bat survey results from dusk surveys on bridge structures

Survey results from dusk emergence surveys on structures within the Order Scheme are provided from Table C-2 to Table C-25.

Table C-2 - Bat survey results from dusk survey on Heyrod Hall (MVL3/07)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
11/09/2024 – Dusk	Start Time: 19:18 End Time: 21:02 Sunset: 19:32	6-10 degrees, cold with a brief rain shower	First bat: Common pipistrelle at 20:03 (31 minutes after sunset). Common pipistrelle recordings continue until 20:26. Recorded activity also included one soprano pipistrelle pass (20:12) and one Myotis species (20:26). Bats could be observed foraging by the surveyors but not the IR cameras.	No confirmed roost.

Table C-3- Bat survey results from dusk survey on Spring Bank Lane (MVL3/09)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
03/09/2024 – Dusk	Start Time: 19:37 End Time: 21:22 Sunset: 19:52	15 degrees, overcast and dry.	First bat: Common pipistrelle at 19:59 (7 minutes after sunset). Common pipistrelle passes continue until 21:20. Soprano pipistrelle activity was recorded at 20:09. Myotis activity was recorded at 20:49. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.
17/09/2024 – Dusk	Start Time: 19:03 End Time: 20:48 Sunset: 19:18	14-18 degrees, clear and dry.	First bat: Soprano pipistrelle at 19:23 (5 minutes after sunset). Soprano pipistrelle activity continues until 20:08. Common pipistrelle activity was recorded from	Confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
			20:18 until the end of the survey at 20:48. IR footage shows emergence and re-entry at 19:52:20 then two further emergences at 19:53:32 and 19:53:47, the closest recordings to these times are of common pipistrelle. Bats could be observed foraging by the surveyors and the IR cameras.	

Table C-4 - Bat survey results from dusk survey on Manchester Road (MVL3/10)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
04/09/2024 – Dusk	Start Time: 19:34 End Time: 21:19 Sunset: 19:49	13-15 degrees, dry and overcast.	First bat: Common pipistrelle at 19:53 (4 minutes after sunset). Common pipistrelle activity continues until the survey ends at 21:19. Soprano pipistrelle activity was recorded between 20:23 and 21:04. Bats could be observed foraging by the IR cameras but not the surveyors at 20:13 and 21:12.	No confirmed roost.
18/09/2024 – Dusk	Start Time: 19:00 End Time: 20:42 Sunset: 19:15	13-15 degrees, dry and clear.	First bat: Common pipistrelle at 19:52 (37 minutes after sunset) seen flying over bridge and foraging east of the structure. Common and soprano pipistrelle activity continued until the end of the survey. No bat activity was captured by the IR cameras.	No confirmed roost.

Table C-5 - Bat survey results from dusk survey on Stamford Road (MVL3/13)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
10/09/2024 – Dusk	Start Time: 19:25 End Time: 21:05 Sunset: 19:35	12-13 degrees, dry with scattered clouds.	No bat activity recorded on the detectors or cameras.	No confirmed roost.

Table C-6 - Bat survey results from dusk survey on Mossley Station Footbridge (MVL3/14)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
03/09/2024 – Dusk	Start Time: 19:37 End Time: 21:22 Sunset: 19:52	14-15 degrees, dry and overcast.	First bat: Common pipistrelle at 20:28 (36 minutes after sunset). Common pipistrelle activity was detected once more at 20:40 (not seen). Bats could be observed foraging above the structure at 20:28 by the surveyors and the IR cameras.	No confirmed roost.

Table C-7 - Bat survey results from dusk survey on New Earth Footbridge (MVL3/16)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
03/09/2024 – Dusk	Start Time: 19:37 End Time: 21:22 Sunset: 19:52	14-15 degrees, dry and overcast.	No bat activity recorded.	No confirmed roost.

Table C-8 - Bat survey results from dusk survey on Roughtown Road (MVL3/17)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
10/09/2024 – Dusk	Start Time: 19:20 End Time: 21:05 Sunset: 19:35	8-9 degrees, cold and dry with scattered clouds.	First bat: Common pipistrelle at 20:03 (28 minutes after sunset). Common pipistrelle activity continued until the end of the survey. No bat activity was seen by the surveyor or IR cameras.	No confirmed roost.

Table C-9 - Bat survey results from dusk survey on Midge Hall (MVL3/19)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
04/09/2024 – Dusk	Start Time: 19:34 End Time: 21:19 Sunset: 19:49	13-15 degrees, dry and overcast.	First bat: Common pipistrelle at 19:39 (10 minutes before sunset). Common pipistrelle activity continued until the end of the survey. Multiple common pipistrelle (up to three) were observed foraging under the bridge by the surveyors and the IR cameras from 20:06 until the end of the survey at 21:19.	No confirmed roost.
18/09/2024 – Dusk	Start Time: 19:25 End Time: 21:05 Sunset: 19:35	12-13 degrees, dry with scattered clouds.	First bat: Common pipistrelle at 19:34 (1 minute before sunset). Common pipistrelle activity continued until 20:39. Bats could be observed foraging under the bridge by the surveyors and the IR cameras	No confirmed roost.

Table C-10 - Bat survey results from dusk survey on Wrights Mill (MVL3/20)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
09/09/2024 – Dusk	Start Time: 19:22 End Time: 21:07 Sunset: 19:37	11 degrees, dry and overcast.	First bat: Common pipistrelle at 19:55 (18 minutes after sunset). Common pipistrelle activity continued until the end of the survey. Soprano pipistrelle activity was recorded at 20:25 and 20:29. Bats could be observed around the structure and nearby trees by the surveyors and the IR cameras.	No confirmed roost.

Table C-11 - Bat survey results from dusk survey on Charlotte Street (MVL3/24)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
05/09/2024 – Dusk	Start Time: 19:32 End Time: 21:17 Sunset: 19:47	15-16 degrees, breezy overcast and dry.	First bat: Common pipistrelle at 20:15 (28 minutes after sunset. Common pipistrelle activity continued until the end of the survey. Myotis activity was recorded 5 times between 19:50 and 20:38. Soprano pipistrelle activity was recorded twice at 19:58 and 20:24. Plecotus species activity was recorded at 20:41. Bats could be observed foraging under the bridge by the surveyors and the IR cameras.	No confirmed roost.
18/09/2024 – Dusk	Start Time: 19:15 End Time: 20:45 Sunset: 19:15	14-16 degrees clear and dry.	First bat: Common pipistrelle at 19:29 (14 minutes after sunset. Common pipistrelle activity continued until 20:50. Also recorded was occasional presence of soprano pipistrelle, brown long eared, and myotis species of bat. Bats could be observed foraging under the bridge by the surveyors and the IR cameras.	No confirmed roost.

Table C-12 - Bat survey results from dusk survey on Royal George (MVL3/25)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
05/09/2024 – Dusk	Start Time: 19:32 End Time: 21:17 Sunset: 19:47	15-16 degrees, gusty, dry, and overcast.	First bat: Common pipistrelle recorded at 19:58 (11 minutes after sunset. Common pipistrelle activity was recorded three more times with the last at 21:07. Bat activity was seen by surveyors with one flying west at 19:58 and foraging on the eastern side at 20:08.	No confirmed roost.
19/09/2024 – Dusk	Start Time: 18:58 End Time: 20:43 Sunset:19:12	14-16 degrees, gusty and dry with clear skies	First bat: Soprano pipistrelle at 19:01 (11 minutes before sunset). Common and soprano pipistrelle activity continues until 20:38. No bat activity was seen by the surveyor or IR cameras.	No confirmed roost.

Table C-13 - Bat survey results from dusk survey on Footway UB (MVL3/26)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
05/09/2024 – Dusk	Start Time: 19:32 End Time: 21:17 Sunset: 19:47	17 degrees, gusty dry and overcast.	First bat: Common pipistrelle at 20:02 (15 minutes after sunset). Common pipistrelle activity continues until 21:11 with few passes in between. Bats could be observed foraging under the bridge by the surveyors at 20:39	No confirmed roost.
19/09/2024 – Dusk	Start Time: 18:58 End Time: 20:43 Sunset: 19:12	14-16 degrees, gusty and dry with clear skies	First bat: Common pipistrelle at 19:20 (8 minutes after sunset). Common pipistrelle activity continues until 20:43 when the survey	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
			ends. Bats could be observed foraging by the surveyors and the IR cameras.	

Table C-14 - Bat survey results from dusk survey on Oldham Road (MVL3/28)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
19/09/2024 – Dusk	Start Time: 18:58 End Time: 20:43 Sunset:19:12	14-16 degrees, gusty and dry with clear skies	First bat: Common pipistrelle at 19:39 (27 minutes after sunset). Common pipistrelle activity was recorded until the end of the survey. No bat activity was seen by the surveyor or IR cameras.	No confirmed roost.

Table C-15 - Bat survey results from dusk survey on MVL3/30 (Den Quarry Underbridge)

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
09/09/2024 – Dusk	Start Time: 19:22 End Time: 21:07 Sunset: 19:37	11-12 degrees, dry and overcast.	First bat: Common pipistrelle at 19:58 (22 minutes after sunset). Common pipistrelle activity was recorded fifteen further times with the last at the end of the survey. Bats could be observed foraging by the IR cameras at 20:45 but not the surveyors.	No confirmed roost.

Table C-16 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier A East

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
27/08//2024 – Dusk	Start Time: 19:54 End Time: 21:40 Sunset: 19:57	15-16 degrees, passing clouds and light rain at the start.	First bat: Common pipistrelle at 20:08 (11 minutes after sunset). Common pipistrelle activity continues until the end of the survey. Myotis activity was recorded 6 times between 20:15 and 21:09. Soprano pipistrelle activity was recorded twice at 20:10 and 20:21. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.
12/09/2024 – Dusk	Start Time: 19:15 End Time: 21:00 Sunset: 19:30	11 degrees, clear and dry.	First bat: Common pipistrelle at 19:31 (1 minute after sunset). Common pipistrelle activity continues until the end of the survey. Myotis activity was recorded 6 times between 19:45 and 20:58. Bats could be observed foraging by the surveyor.	No confirmed roost.

Table C-17 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier A West

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
27/08/2024 – Dusk	Start Time: 19:54 End Time: 21:40 Sunset: 19:57	15-16 degrees, passing clouds and light rain at the start.	First bat: Common pipistrelle at 20:08 (11 minutes after sunset). Common pipistrelle activity continues until the end of the survey. Myotis activity was recorded 6 times between 20:15 and 21:09. Soprano pipistrelle activity was recorded twice at 20:10 and 20:21. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.
16/09/2024 – Dusk	Start Time: 19:05 End Time: 20:50 Sunset: 19:20	12 degrees, dry with scattered showers.	First bat: Common pipistrelle at 19:27 (7 minutes after sunset). Common pipistrelle activity continues until the end of the survey. Myotis activity was recorded 5 times between 19:55 and 20:02. Soprano pipistrelle activity was recorded 3 times between 19:34 and 19:36. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Table C-18 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier B East

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
27/08/2024 – Dusk	Start Time: 19:54 End Time: 21:40 Sunset: 19:57	15-16 degrees, passing clouds and light rain at the start.	First bat: Common pipistrelle at 19:57 (at sunset). Common pipistrelle activity continues until the end of the survey. Myotis activity was recorded at 21:35. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.
12/09/2024 – Dusk	Start Time: 19:15 End Time: 21:00 Sunset: 19:30	11 degrees, clear and dry.	First bat: Common pipistrelle at 19:25 (5 minutes before sunset). Common pipistrelle activity continues until the end of the survey. Myotis activity was recorded for one minute each at 20:13 and 20:58. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Table C-19 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier B West

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
27/08/2024 – Dusk	Start Time: 19:54 End Time: 21:40 Sunset: 19:57	15-16 degrees, passing clouds and light rain at the start.	First bat: Common pipistrelle at 19:57 (at sunset). Common pipistrelle activity continues until the end of the survey. Myotis species was recorded at 21:35. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
16/09/2024 – Dusk	Start Time: 19:05 End Time: 20:50 Sunset: 19:20	12 degrees, dry with scattered showers.	First bat: Common pipistrelle at 19:27 (7 minutes after sunset). Common pipistrelle activity continues until the end of the survey. Myotis species was recorded 5 times between 20:00 and 20:03. Bats could be observed foraging by the surveyors but not the IR cameras.	No confirmed roost.

Table C-20 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier D East

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
14/08/2024 – Dusk	Start Time: 20:23 End Time: 22:08 Sunset: 20:38	12-15 degrees, dry with scattered clouds.	First bat: Common pipistrelle at 20:38 (at sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species was recorded three times between 21:08 and 21:34. Soprano pipistrelle activity was recorded at 20:53. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.
10/09/2024 – Dusk	Start Time: 19:20 End Time: 21:05 Sunset: 19:35	8-9 degrees, cold and dry with scattered clouds.	First bat: Common pipistrelle at 19:45 (10 minutes after sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species was	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
			recorded 5 times between 20:26 and 21:01. Bats could be observed foraging by the surveyors and the IR cameras.	
24/09/2024 – Dusk	Start Time: 18:43 End Time: 20:28 Sunset: 18:58	10-11 degrees, cold and dry with clouds.	First bat: Common pipistrelle at 19:12 (14 minutes after sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species was recorded at 19:33, 19:35 19:54 and 20:06. Nathusius' pipistrelle was recorded at 19:33. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Table C-21 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier D West

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
14/08/2024 – Dusk	Start Time: 20:23 End Time: 22:08 Sunset: 20:38	12-15 degrees, dry with scattered clouds.	First bat: Common pipistrelle at 20:38 (at sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species was recorded between 21:08 and 21:20 and 21:34. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
10/09/2024 – Dusk	Start Time: 19:20 End Time: 21:05 Sunset: 19:35	8-9 degrees, cold and dry with scattered clouds.	First bat: Common pipistrelle at 19:57 (22 minutes after sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species was recorded at 20:00, 20:34, 20:42, and 21:01. Bats could be observed foraging by the surveyors but their movements were not picked up by the IR cameras.	No confirmed roost.
24/09/2024 – Dusk	Start Time: 18:43 End Time: 20:28 Sunset: 18:58	10-11 degrees, cold and dry with clouds.	First bat: Common pipistrelle at 19:12 (14 minutes after sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species was recorded at 19:33, 19:35 19:54 and 20:06. Nathusius's pipistrelle was recorded at 19:33. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Table C-22 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier E East

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
14/08/2024 – Dusk	Start Time: 20:23 End Time: 22:08 Sunset: 20:38	12-15 degrees, dry with scattered clouds.	First bat: Common pipistrelle at 20:39 (1 minute after sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis activity was recorded regularly between 21:01 and 21:21 then twice more at 21:35 and 21:47. Noctule activity	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
			was recorded once at 22:06. Bats could be observed foraging by the surveyors and the IR cameras.	
10/09/2024 – Dusk	Start Time: 19:20 End Time: 21:05 Sunset: 19:35	8-9 degrees, cold and dry with scattered clouds.	First bat: Common pipistrelle at 19:45 (10 minutes after sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species activity was recorded 6 times between 20:20 and 21:01. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Table C-23 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier E West

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
14/08/2024 – Dusk	Start Time: 20:23 End Time: 22:08 Sunset: 20:38	12-15 degrees, dry with scattered clouds.	First bat: Common pipistrelle at 21:03 (25 minutes after sunset). Common pipistrelle activity was recorded regularly until the end of the survey. Myotis species activity was recorded twice at 21:17 and 21:59. Soprano pipistrelle was recorded once at 21:33. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
10/09/2024 – Dusk	Start Time: 19:20 End Time: 21:05 Sunset: 19:35	8-9 degrees, cold and dry with scattered clouds.	First bat: Common pipistrelle at 19:53 (18 minutes after sunset) Common pipistrelle activity was recorded regularly until the end of the survey. Myotis species activity was recorded at 20:12, 20:15 and three times at 20:47. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.
24/09/2024 – Dusk	Start Time: 18:43 End Time: 20:28 Sunset: 18:58	10-11 degrees, cold and dry with clouds.	First bat: Common pipistrelle at 19:22 (24 minutes after sunset). Common pipistrelle activity was recorded continuously until the end of the survey. Myotis species activity was recorded three times between 19:53 and 19:55. Plecotus species activity was recorded twice at 19:43 and 19:58. Bats could be observed foraging by the surveyors and the IR cameras.	No confirmed roost.

Table C-24 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier F East

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
27/08/2024 – Dusk	Start Time: 19:54 End Time: 21:40 Sunset: 19:57	15-16 degrees, passing clouds and light rain at the start.	First bat: Common pipistrelle at 19:59 (2 minutes after sunset). Common pipistrelle activity was recorded continuously until 20:13. Soprano pipistrelle activity was recorded once at 20:00.	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
			No bat activity was seen by the surveyor or IR cameras.	
16/09/2024 – Dusk	Start Time: 19:05 End Time: 20:50 Sunset: 19:20	12 degrees, dry with scattered showers.	First bat: Common pipistrelle at 19:31 (11 minutes after sunset). Common pipistrelle activity was recorded continuously until 20:35. Soprano pipistrelle activity was recorded once at 19:34. Bats could be observed foraging by the surveyors but not the IR cameras.	No confirmed roost.

Table C-25 - Bat survey results from dusk survey on Uppermill Viaduct (MVL3/31) Pier F West

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
27/08/2024 – Dusk	Start Time: 19:54 End Time: 21:40 Sunset: 19:57	15-16 degrees, passing clouds and light rain at the start.	First bat: Common pipistrelle at 19:54 (3 minutes before sunset). Common pipistrelle activity was recorded continuously until 22:38. Myotis species activity was recorded regularly between 20:27 and 20:58. Soprano pipistrelle activity was recorded once at 20:03. No bat activity was seen by the surveyor or IR cameras.	No confirmed roost.

Survey dates	Start/ end time Sunset/ sunrise	Weather conditions	Summary survey results	Confirmed roost
16/09/2024 – Dusk	Start Time: 19:05 End Time: 20:50 Sunset: 19:20	12 degrees, dry with scattered showers.	First bat: Common pipistrelle at 19:31 (11 minutes after sunset). Common pipistrelle activity was recorded continuously until 20:35. Soprano pipistrelle activity was recorded once at 19:34. Bats could be observed foraging by the surveyors but not the IR cameras.	No confirmed roost.

For each dusk survey the darkest point of the footage was recorded and summarised in Table C-26 through to Table C-48 below.

Table C-26- Darkest point from dusk surveys on Heyrod Hall (MVL3/07)

Survey	Darkest point
11/09/2024 -North	

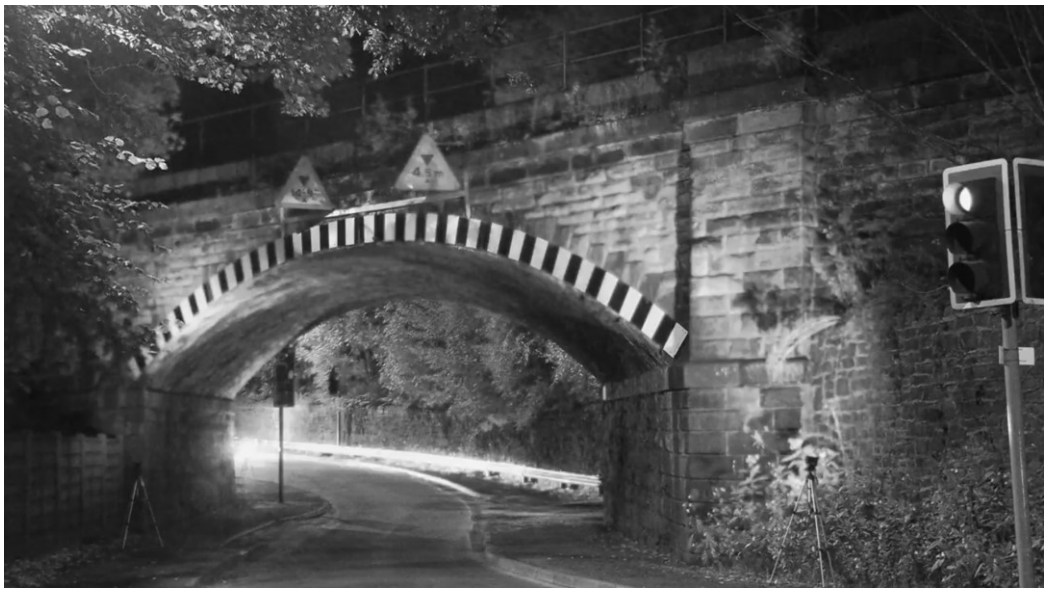
Survey	Darkest point
11/09/2024 -South	

Table C-27 - Darkest point from dusk surveys on Spring Bank Lane (MVL3/09)

Survey	Darkest point
03/09/2024 – North	
03/09/2024 – South	

Survey	Darkest point
17/09/2024 – South	
17/09/2024 – North	

Table C-28- Darkest point from dusk surveys on Manchester Road (MVL3/10)

Survey dates	Darkest Point
04/09/2024 – South	
04/09/2024 – North	

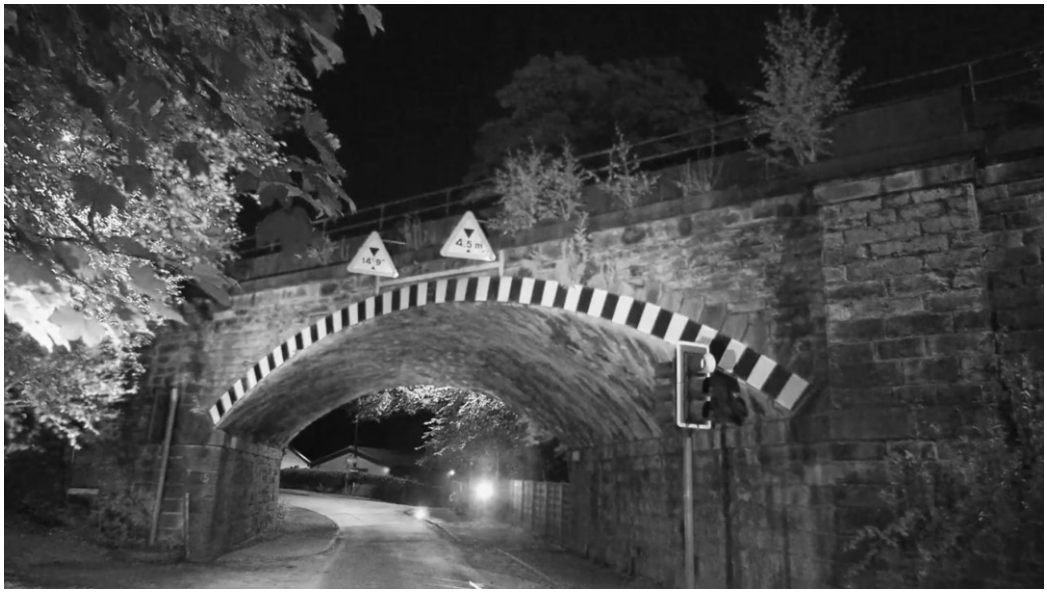
Survey dates	Darkest Point
18/09/2024 – South	
18/09/2024 – North	

Table C-29 - Darkest point from dusk surveys on Stamford Road (MVL3/13)

Survey dates	Darkest Point
10/09/2024 – North West	
10/09/2024 – North East	

Table C-30 - Darkest point from dusk surveys on Mossley Station Footbridge (MVL3/14)

Survey dates	Darkest Point
03/09/2024 – North West	

Table C-31 - Darkest point from dusk surveys on New Earth Footbridge (MVL3/16)

Survey dates	Darkest Point
03/09/2024 – North	

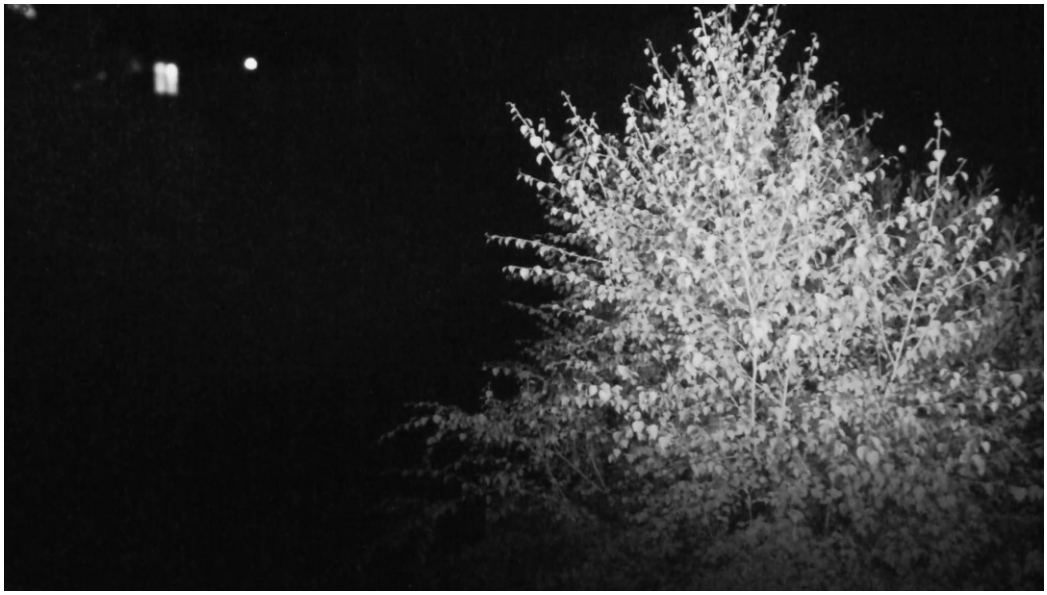
Survey dates	Darkest Point
03/09/2024 South	

Table C-32- Darkest point from dusk surveys on Midge Hall (MVL3/19)

Survey dates	Darkest Point
04/09/2024 – East	
04/09/2024 – West	

Survey dates	Darkest Point
18/09/2024 – East	
18/09/2024 – West	

Table C-33 - Darkest point from dusk surveys on Wrights Mill (MVL3/20)

Survey dates	Darkest point
09/09/2024 – North	
09/09/2024 – South	

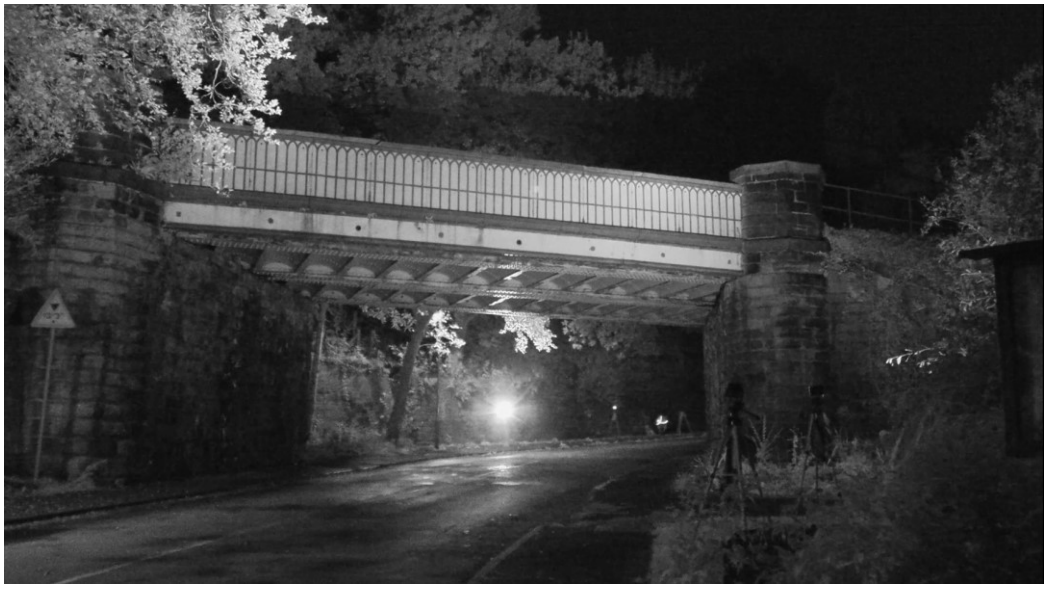
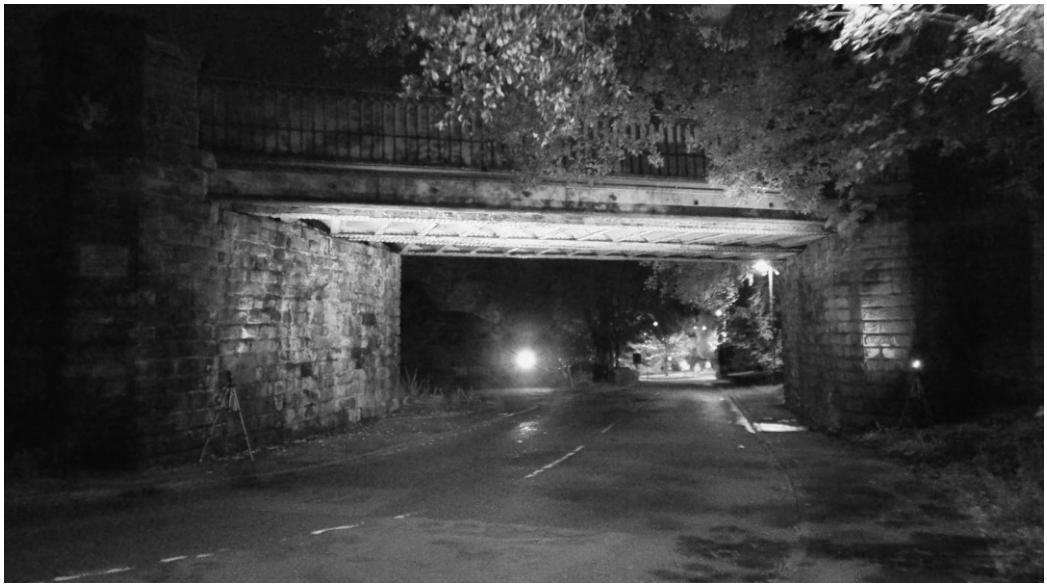
Table C-34 - Darkest point from dusk surveys on Charlotte Street (MVL3/24)

Survey dates	Darkest Point
05/09/2024 – North	
18/09/2024 – South	

Survey dates	Darkest Point
18/09/2024 – North	

Table C-35 - Darkest point from dusk surveys on Royal George (MVL3/25)

Survey dates	Darkest Point
05/09/2024 – North	

Survey dates	Darkest Point
05/09/2024 – South	
19/09/2024 – North	

Survey dates	Darkest Point
19/09/2024 – South	

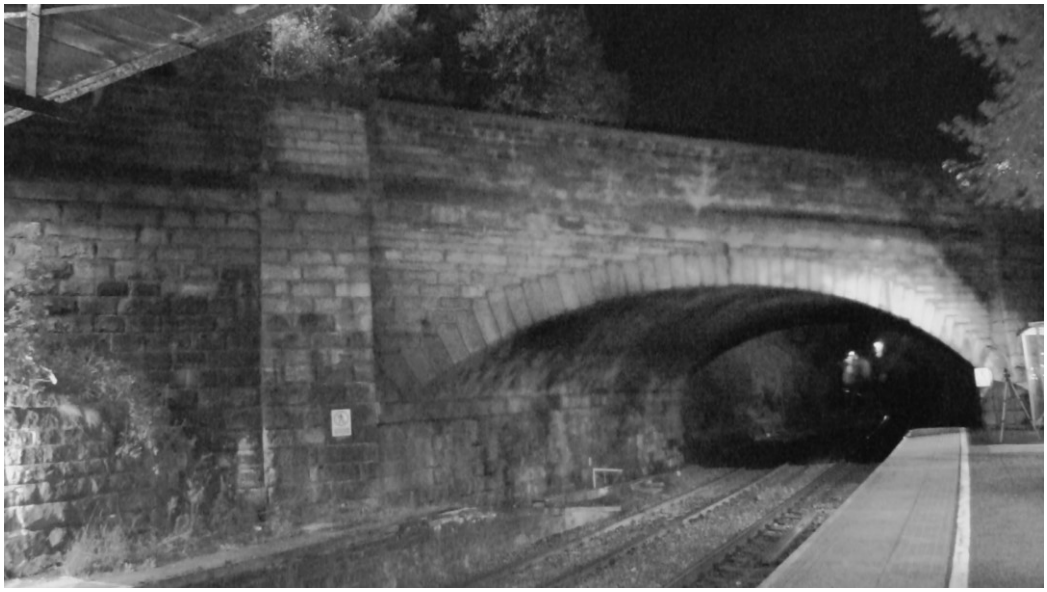
Table C-36 - Darkest point from dusk surveys on Footway UB (MVL3/26)

Survey dates	Darkest point
05/09/2024 – East	

Survey dates	Darkest point
05/09/2024 – North	
19/09/2024 – West	

Survey dates	Darkest point
19/09/2024 – East	

Table C-37 - Darkest point from dusk surveys on Oldham Road (MVL3/28)

Survey dates	Darkest point
19/09/2024 – South	

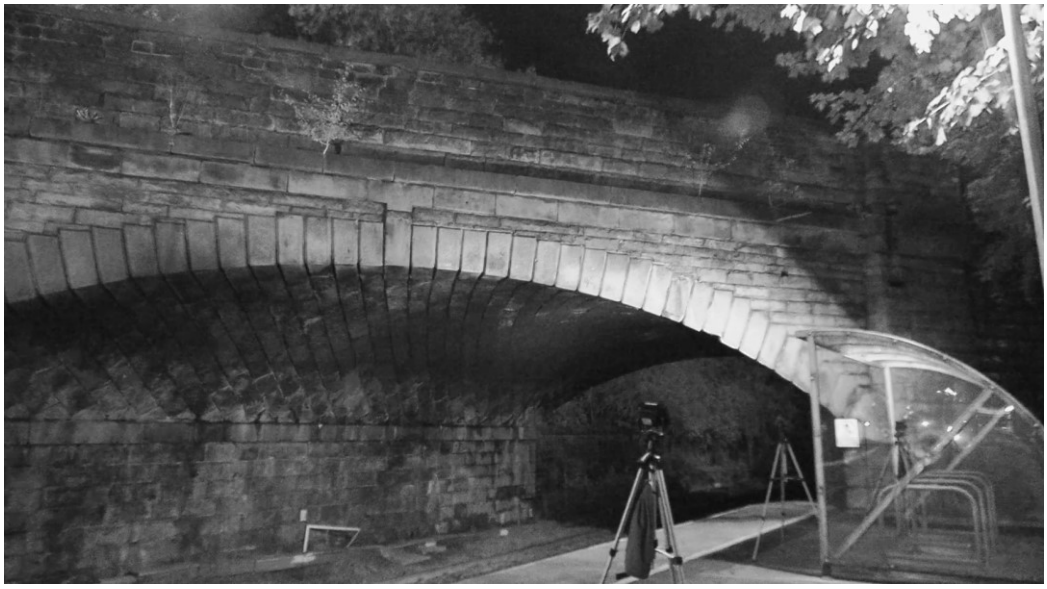
Survey dates	Darkest point
19/09/2024 – South east	

Table C-38 - Darkest point from dusk surveys on Den Quarry Underbridge (MVL3/30)

Survey dates	Darkest point
09/09/2024 – North	

Survey dates	Darkest point
09/09/2024 – South	

Table C-39 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier A East

Survey dates	**Darkest point**
27/08//2024 – East	

Survey dates	Darkest point
12/09/2024 – N/A	**No Footage**

Table C-40 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier A West

Survey dates	Darkest point
27/08/2024 – West	

Survey dates	Darkest point
16/09/2024 – West	

Table C-41 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier B East

Survey dates	Darkest point
27/08/2024 – East	

Survey dates	Darkest point
12/09/2024 – East	

Table C-42 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier B West

Survey dates	Darkest point
27/08/2024 – West	

Survey dates	Darkest point
16/09/2024 – West	

Table C-43 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier D East

Survey dates	Darkest point
14/08/2024 – East	

Survey dates	Darkest point
10/09/2024 – East	
24/09/2024 – East	

Table C-44 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier D West

Survey dates	Darkest point
14/08/2024 – West	
10/09/2024 – West	

Survey dates	Darkest point
24/09/2024 – West	

Table C-45 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier E East

Survey dates	Darkest point
14/08/2024 – East	

Survey dates	Darkest point
10/09/2024 – East	

Table C-46 - Darkest point from dusk surveys on MVL3/31 (Uppermill Viaduct) Pier E West

Survey dates	Darkest point
14/08/2024 – West	

Survey dates	Darkest point
10/09/2024 – West	
24/09/2024 – West	

Table C-47- Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier F East

Survey dates	Darkest point
27/08/2024 – East	
16/09/2024 – East	

Table C-48 - Darkest point from dusk surveys on Uppermill Viaduct (MVL3/31) Pier F West

Survey dates	Darkest point
27/08/2024 – West	
16/09/2024 – West	

Static survey data

Static survey data is summarised within Table C-49 to Table C-53

Table C-49 – Static detector survey locations and dates

Structure Reference	Grid Reference	Surrounding Habitat Type	Deployment Periods	Recording periods
Scout 1 (South Portal)	SD 97300 01238	Mixed scrub and bramble scrub.	August: 13/08/2024-03/09/2024 Transitional: 03/09/2024-29/09/2024 29/09/2024-03/11/2024 Hibernation: 03/11/2024-08/12/2024 08/12/2024-12/01/2025 12/01/2025-16/02/2025 16/02/2025-16/03/2025	August: 13/08/24-14/08/24 Transitional: 03/09/24-08/09/24 29/09/24-28/10/24 Hibernation: 03/11/24-24/11/24 08/12/24- 26/12/24 12/01/25-01/02/25 16/02/25-06/03/25
Scout 2 (North Portal)	SD 97362 01403	Mixed scrub	August: 13/08/2024-03/09/2024 Transitional: 03/09/2024-29/09/2024 29/09/2024-03/11/2024 Hibernation: 03/11/2024-08/12/2024 08/12/2024-12/01/2025 12/01/2025-16/02/2025 16/02/2025-16/03/2025	August: 12/08/24-19/08/24 Transitional: 03/09/24-20/09/24 29/09/24-31/10/24 Hibernation: 01/11/24-24/11/24 08/12/24-14/01/25

Structure Reference	Grid Reference	Surrounding Habitat Type	Deployment Periods	Recording periods
Stalybridge 1 (South Portal)	SJ 96230 98739	Mixed scrub, bramble scrub, other woodland – broadleaved.	August: 13/08/2024-03/09/2024 Transitional: 03/09/2024-29/09/2024 29/09/2024-03/11/2024 Hibernation: 03/11/2024-08/12/2024 08/12/2024-12/01/2025 12/01/2025-16/02/2025 16/02/2025-16/03/2025	August: 13/08/25-31/08/25 Transitional: 03/09/24-27/10/24 Hibernation: 03/11/24-24/11/24 08/12/24-21/12/24 12/01/25-01/02/25 16/02/25-07/03/25
Stalybridge 2 (North Portal)	SJ 96758 98982	Mixed scrub, urban developed land, other woodland – broadleaved.	August: 13/08/2024-03/09/2024 Transitional: 03/09/2024-29/09/2024 29/09/2024-03/11/2024 Hibernation: 03/11/2024-08/12/2024 08/12/2024-12/01/2025 12/01/2025-16/02/2025 16/02/2025-16/03/2025	August: 12/08/25-31/08/25 Transitional: 01/09/24-31/10/24 Hibernation: 01/11/24-24/11/24 08/12/24-01/01/25 12/01/25-13/01/25 16/02/25-05/03/25
Stalybridge 3 (Air Shaft)	SJ 96484 98823	Mixed scrub parkland	August: N/A Transitional: N/A Hibernation: 03/11/2024-08/12/2024 08/12/2024-12/01/2025 12/01/2025-16/02/2025	August: N/A Transitional: N/A Hibernation: 03/11/24-17/11/24 08/12/24-12/12/24 12/01/25-21/01/25 16/02/25-02/03/25

Structure Reference	Grid Reference	Surrounding Habitat Type	Deployment Periods	Recording periods
			16/02/2025-16/03/2025	

Table C-50 - Data collected by the static detectors in August

Detector	Species	Number of passes within emergence window
Scout 1	Myotis	1
	Common Pipistrelle	99
	Soprano Pipistrelle	4
Scout 2	Myotis	4
	Brown Long Eared	1
	Common Pipistrelle	616
	Soprano Pipistrelle	87
Stalybridge 1	Common Pipistrelle	1,542
	Soprano Pipistrelle	31
Stalybridge 2	Common Pipistrelle	1,332
	Soprano Pipistrelle	179

Table C-51 - Data collected by the static detectors during the transitional period September-October.

Detector	Species	Total
Scout 1	Myotis	2
	Brown Long-eared	5
	Common Pipistrelle	1,067
	Soprano Pipistrelle	85

Detector	Species	Total
Scout 2	Myotis	20
	Brown Long-eared	7
	Common Pipistrelle	2,106
	Soprano Pipistrelle	83
Stalybridge 1	Brown Long-eared	1
	Common Pipistrelle	930
	Soprano Pipistrelle	16
Stalybridge 2	Brown Long-eared	1
	Common Pipistrelle	1,142
	Soprano Pipistrelle	76

Table C-52 - Data collected by the static detectors during the hibernation period October-March.

Detector	Species	Number of passes
Scout 1	Common Pipistrelle	228
	Soprano Pipistrelle	4
Scout 2	Common Pipistrelle	136
Stalybridge 1	Common Pipistrelle	115
Stalybridge 2	Common Pipistrelle	38
	Soprano Pipistrelle	1
Stalybridge 3	Common Pipistrelle	4

Table C-53 - Temperature and humidity readings at the time of each deployment

Detector	Location	Temperature (°C)	Humidity (%)
November 2024			
Scout	North Portal (Scout 2 static location)	12	66
	Internal 1	12	67
	Internal 2	12	67
	South Portal (Scout 1 static location)	12	69
Stalybridge	South West Portal (Staly 1 static location)	12	71
	Internal 1	12	70

Detector	Location	Temperature (°C)	Humidity (%)
	Air Vent	12	72
	Internal 2	12	72
	North East Portal (Staly 2 static location)	12	73
December 2024			
Scout	North Portal (Scout 2 static location)	6	67
	Internal 1	5	68
	Internal 2	5	69
	South Portal (Scout 1 static location)	5	70
Stalybridge	South West Portal (Staly 1 static location)	5	70
	Internal 1	5	70
	Air Vent	5	70
	Internal 2	5	70
	North East Portal (Staly 2 static location)	5	70
January 2025			
Scout	North Portal (Scout 2 static location)	3	61
	Internal 1	2	64
	Internal 2	2	64
	South Portal (Scout 1 static location)	2	65
Stalybridge	South West Portal (Staly 1 static location)	3	67
	Internal 1	4	68
	Air Vent	3	68
	Internal 2	4	69
	North East Portal (Staly 2 static location)	3	68
February 2025			
Scout	North Portal (Scout 2 static location)	6	55
	Internal 1	5	55
	Internal 2	5	55
	South Portal (Scout 1 static location)	5	58
Stalybridge	South West Portal (Staly 1 static location)	4	62

Detector	Location	Temperature (°C)	Humidity (%)
	Internal 1	4	64
	Air Vent	5	65
	Internal 2	4	65
	North East Portal (Staly 2 static location)	4	66
March 2025			
Scout	North Portal (Scout 2 static location)	5	53
	Internal 1	5	54
	Internal 2	5	54
	South Portal (Scout 1 static location)	4	55
Stalybridge	South West Portal (Staly 1 static location)	3	61
	Internal 1	3	63
	Air Vent	3	65
	Internal 2	3	64
	North East Portal (Staly 2 static location)	2	63

Background

The rationale behind the methodology due to access limitations and associated interpretation of results are described within Volume 3, Appendix 6C of this Report [**NR14**]. This approach has been formulated because traditional dusk emergence surveys were not possible due to access constraints. Therefore, an alternative roost likely presence/ likely absence survey methodology was formulated in conjunction with Natural England.

Discussion

Automated/ static detectors were deployed in order to identify likely roosting in Stalybridge and Scout Tunnels. Staly 1, Staly 2, Scout 1 and Scout 2 automated/ static detectors were deployed at each tunnel portal entrance from August 2024 – March 2025 to identify evidence of swarming, day/ transitional and hibernation roosting. Staly 3 was deployment was delayed until November 2024 – March 2025 due to initial access issues and was located in the middle of Stalybridge Tunnel adjacent to an air shaft.

Staly 1, Staly 2, Scout 1 and Scout 2 automated/ static detector deployment was constrained to vegetated verges outside of the tunnel portals to retain the clearance from the track due to the ongoing operating train service. Microphones were directed towards the portals as far as feasible, however, it is not possible to definitively state that any of the calls recorded at these portals were from bats using the tunnels rather

than foraging/ commuting within the rail verge at either end of the tunnels. There were instances where bat calls were recorded at either portal in quick succession which could suggest a bat commuting/ foraging through the tunnel. For example, on 11 October 2024, a single Myotis was recorded at 18:54 at Scout 1 and then a single Myotis was recorded at 18:57 at Scout 2. However, calls that might indicate instances of possible foraging/ commuting through the tunnel were infrequently captured and it cannot be conclusively determined if the same bat was recorded on separate automated/ static detectors and, if the tunnel was used by the bat for foraging/ commuting.

Staly 3 was located underneath an air shaft approximately 50 m in height at 20 m above ground level and is surrounded by scrub and trees on the exterior. A total of four bat calls were recorded during its deployment; all identified as common pipistrelle and within the hibernation period. It is considered highly unlikely that these calls were recorded from bats flying over the vent as more suitable commuting/ foraging habitat is located outside the tunnel at a lower level surrounding the air vent. It is assumed that the calls were therefore recorded within the tunnel. Furthermore, an automated/ static detector is unlikely to pick up conclusive pipistrelle calls over 50 m away due the echolocation dissipation. A precautionary approach has been taken, and small numbers of common pipistrelle are assumed to be hibernating within Stalybridge tunnel.

No internal static data is available for Scout Tunnel, therefore the interpretation of results are reliant on data gathered at portal entrances. Small numbers of common pipistrelle were recorded within the main hibernation period. It is therefore assumed that individual/ a small number of common pipistrelle are using Scout Tunnel as a hibernation roost.

Four soprano pipistrelle calls were recorded during the hibernation period. Of the four soprano calls recorded at Scout 1, three were recorded in March and one at the end of February and no calls were recorded at Scout 2. Due to the seasonality of these calls i.e. at the end of the main hibernation period/ start of transitional period, the detector is likely to have recorded soprano pipistrelle that are flying more frequently due to the raised temperatures. Furthermore, the low number of calls are within the parameters that soprano pipistrelle are expected to change roost features throughout this timeframe. It is therefore assumed that these calls recorded soprano pipistrelle commuting/ foraging outside of the tunnel, rather than being indicative of roosting within the tunnel.

Brown long-eared bats have very quiet echolocation calls and must be within 5 m to be detected[40]. One particular brown long-eared call recorded at Staly 1 on 14 October 2024 was very distorted. Given minimal distance these calls can be detected by the automated/ static detector, it is likely the distortion was due to the bat echolocating within the tunnel. It is therefore assumed that the brown long-eared was roosting within Stalybridge tunnel.

[40] Russ J. (2012) British Bat Calls A Guide to Species Identification. Pelagic Publishing, Exeter.

Common pipistrelle, soprano pipistrelle and brown long-eared bats were recorded at both tunnels throughout the transitional period within the expected emergence times for each species. A portion of the calls recorded could be attributed to commuting/ foraging behaviour due to echolocating representative of the bats moving at higher speed in a less cluttered environment (in comparison to the tunnel). However, multiple calls for common pipistrelle and brown long-eared were recorded with calls akin to flight in clutter, or, where conclusions could not be drawn about flight behaviour. A precautionary approach has therefore been taken and small numbers of common and widespread crevice-dwelling species, specifically common and soprano pipistrelle and brown long-eared bats have been assumed to be likely roosting in both Scout and Stalybridge Tunnels during the core bat activity period (May to August) and the transitional period (April and October).

Small numbers of Myotis and brown long-eared bats were recorded during the transitional period across both tunnels. These calls were spread throughout the deployment and it is not considered to be indicative of swarming where it would be expected that a large volume of calls would coincide with relative high temperatures. Pipistrelle species are not known to perform regular swarming behaviour.

Summary

The Proposed Tunnel Bat Survey Methodology in conjunction with sound analysis recorded and Ecologist best practise judgement concluded that the following bat roosts are likely present at both Stalybridge and Scout Tunnels:

- Common pipistrelle hibernation roost;
- Common pipistrelle day/transitional roost; and
- Brown long-eared day/transitional roost.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT

VOLUME 3 APPENDIX 6B - HABITATS REGULATIONS ASSESSMENT

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CONTENTS

1. INTRODUCTION 1
1.1 Terms of reference 1
1.2 The Site 1
1.3 Background to HRA 3
1.4 Legal Context to HRA 5
1.5 Consultation 7
2. METHODOLOGY 7
2.1 Overview 7
2.2 Preliminary steps 7
2.3 Identification of sites for consideration 7
2.4 Data gathering 9
2.5 Effect pathways 9
2.6 Obtaining information on other projects and plans 10
2.7 Stage 1: Screening for Likely Significant Effects (LSE) 11
2.8 Stage 1 – screening European Sites Scoped out of Screening 13
2.9 European Sites Identified for Screening 13
2.10 Qualifying Species Desk Study 16
2.11 Stage 1 Screening Results 17
3. CONCLUSION 37

1. INTRODUCTION

1.1 Terms of Reference

1.1.1 AtkinsRéalis (UK) Ltd has been appointed by Network Rail Infrastructure Ltd to provide a shadow Habitats Regulations Assessment (HRA) for the Transpennine Route Upgrade Project W2B - Stalybridge to Diggle (Saddleworth) Enhancements Order (hereafter referred to as the "Order Scheme"),. A Transport and Works Act Order (TWAO) is required to authorise elements of the Transpennine Route Upgrade Project between Stalybridge to Eastern Portal of Standedge Tunnel which forms part of the wider Transpennine Route Upgrade (TRU)[1] W2 programme.

1.1.2 HRA is required by Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') for all plans and projects which may have a likely significant effect on and are not directly connected with or necessary to the management of a European Site[2].

1.2 The Order Scheme Site

1.2.1 The proposed W2B scheme is the section of TRU from Stalybridge Tunnel (at Ordnance Survey National Grid Reference (OSNGR) SJ96249876), through to the western portal of Standedge Tunnel (at OSGR SE00760814). The Order Scheme extends for approximately 16 km and crosses two local authority areas: Tameside Metropolitan Borough Council and Oldham Metropolitan Borough Council.

1.2.2 The topography of the area is characterised by the steep-sided River Tame valley, which the existing railway line follows. The route of the Order Scheme follows the western bank of the River Tame passing through wooded countryside, the town of Mossley and the villages of Greenfield and Uppermill. The villages in this area comprise predominantly residential areas with some light industrial use. Scattered sites of industrial use are also present across the area, with Huddersfield Narrow Canal, a Site of Special Scientific Interest (SSSI), located between Stalybridge and Tollemache Arms lock (approximately 1.5 km north of Mossley) running to

[1] TRU is a major, multi-billion pound programme of improvements to the railway line between York, Leeds and Manchester. The TRU programme is phased and involves a variety of works including the electrification of the railway (installation of overhead line equipment and associated infrastructure), bridge and structure works to accommodate the upgrades, and structural strengthening works.

[2] This is defined as a Special Area of Conservation (SAC) or Special Protection Area (SPA), which as a matter of government policy (Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework (NPPF). Paragraph 194) also includes possible SACs (pSAC), potential SPAs (pSPA), listed or proposed Ramsar sites (wetland sites of international importance, as designated under the Ramsar Convention 1971) and any site identified, or required, as compensatory measures for adverse effects on any of the above listed designations.
Following the changes made to the Conservation of Habitats and Species Regulations 2017 (as amended) by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, SACs and SPAs in the UK no longer form part of the EU's Natura 2000 network but form the UK's national site network. The term 'Habitats Sites' is sometimes now used instead of 'European Sites' following the UK's departure from the EU.

the east of the existing railway line. The canal crosses under the existing railway line in the north of the Order Scheme at the Uppermill Viaduct.

1.2.3 Approximately 2 km north of Uppermill Viaduct is the village of Diggle on the urban-rural fringe. The western portal of Standedge Tunnel is the eastern extent of the Order Scheme at OSNGR SE0076081[3].

1.2.4 Two European Site are located to the east of the Order Scheme and include the 'Peak District Moors Special Protection Area (SPA)' and the 'South Pennine Moors Special Area of Conservation (SAC)', located approximately 775 m east, at the nearest point. A third European Site 'the South Pennine Moors (Phase 2) SPA', is located approximately 965 m north at the nearest point.

1.2.5 The development proposals for the Order Scheme are largely located within the existing railway corridor and are focused on works required to be undertaken by Network Rail for the electrification of the existing railway. Accordingly, the development for the TRU programme of works will, in the main, be within Network Rail's operational boundariesand will be undertaken using permitted development rights pursuant to the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) (GPDO). However, in order to facilitate the full package of upgrades to the existing railway required by the TRU programme of works, some of the works will need to be constructed on land outside of operational rail boundaries and cannot be constructed under PDR. Accordingly, it is these works that will require a TWAO and form the Order Scheme. Refer to section 1.2 Chapter 1 of this report [**NR14**] for a summary of the works required.

1.2.6 Certain works to be authorised by the TWAO comprise elements that will require planning permission and so, accordingly, a request for deemed planning permission under Section 90(2A) of the Town and Country Planning Act 1990 will also be made by Network Rail for the development proposed to be authorised by the TWAO.

1.2.7 The Order Scheme includes interventions situated at approximately 43 separate locations along the length of the route, which when combined total approximately 3 km.

1.2.8 The Order Scheme relevant to the works that are the focus of this Habitats Regulations Assessment (HRA) and subject to Rule 7 of the Transport Works Act Order Rules[3].

1.2.9 Construction works at the western portal of Standedge Tunnel, near Diggle, represent the eastern extent of the Order Scheme and are the closest activities to the South Pennine Moors SAC located approximately 795 m east at the nearest location and South Pennine Moors SPA (Phase 2),

[3] The Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006. Available online at: https://www.legislation.gov.uk/uksi/2006/1466/article/7 [Accessed January 2025].

located approximately 965 m north at the nearest location. All works are confined to the operational railway corridor and adjacent local highways, with no construction activity, access, or material storage proposed within or above the designated sites or on the intervening sheep-grazed farmland.

1.2.10 The details of the Order Scheme, as they are currently understood, are detailed in Volume 1, Chapter 1 and Volume 2 Figures 1.1.1 -1.1.6 of this report [**NR14**].

1.2.11 Timescales for the commencement and duration of construction works for the Order Scheme are to be confirmed. However, at present, the Order Scheme is expected to begin construction in 2027 before coming into operation in 2030.

1.3 Background to HRA

1.3.1 In accordance with Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations'), before deciding to undertake or give any consent for a plan or project, '..which is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and is not directly connected with or necessary to the management of that site,' the Competent Authority must 'make an appropriate assessment of the implications of the plan or project for that site in view of that site's conservation objectives.'

1.3.2 The powers required to construct and operate the Order Scheme are to be gained under a Transport Works Act Order (TWAO) under the Transport and Works Act 1992. The TWAO will also comprise works which constitute development that will require planning permission and so accordingly a request for deemed planning permission under Section 90(2A) of the Town and Country Planning Act 1990 will be made by Network Rail for the development proposed to be authorised by the TWAO. Therefore, under the Habitats Regulations, the Secretary of State for Transport (SoS) is the Competent Authority for the proposed application and therefore has a duty to undertake a HRA prior to granting planning permission to ascertain if granting the permission is likely to give rise to a significant effect on any European Site(s).

1.3.3 This shadow HRA Stage 1 Screening report has been prepared to assist the SoS in their determination of whether the Order Scheme could significantly harm the designated features of the European Sites associated with the Order Scheme.

1.3.4 According to Regulation 75 of the Habitats Regulations, where planning is permitted under a 'general development order' and likely significant effects on any European Site cannot be discounted, project works can only be begun where the local planning authority have provided written approval (under Regulation 77). This document presents an assessment of whether

the project is likely to have significant effects on any European Site and, therefore, whether Regulation 77 approval is required.

1.3.5 the Order Scheme is not directly connected with, or necessary to, the nature conservation management of any European Site.

1.3.6 UK Government policy: National Planning Policy Framework (NPPF)[4], states that potential Special Protection Areas (pSPA) and possible Special Areas of Conservation (pSAC), listed or proposed Ramsar sites[5] and sites identified, or required, as compensatory measures for adverse effects on habitats sites, pSPAs, pSACs, and listed or proposed Ramsar sites, on which the Government has initiated public consultation on the scientific case for their designation, should also be considered European Sites. Hereafter, all of the above designated nature conservation sites are referred to as 'European Sites'.

1.3.7 The stages of the HRA process are:

- **Stage 1 - Screening**: To assess whether a plan or project either alone or in combination with other plans and projects is likely to have a significant effect on a European Site.
- **Stage 2 - Appropriate Assessment:** To determine whether, in view of a European Site's conservation objectives, the project or plan (either alone or in combination with other projects and plans) would have an adverse effect (or risk of this) on the integrity of the site with respect to the conservation objectives. If adverse impacts are anticipated, potential mitigation measures to alleviate impacts should be proposed and assessed.
- **Stage 3[6] – Derogations (allow exceptions):** Where a project or plan is assessed as having an adverse residual impact (or risk of this) on the integrity of a European Site, it may qualify for a derogation. Three legal tests according to Regulation 55 of the Habitats Regulations must be applied in the following order:
    1. There are no feasible alternative solutions that would be less damaging or avoid damage to the site.
    2. The proposal needs to be carried out for imperative reasons of overriding public interest.
    3. The necessary compensatory measures can be secured.

[4] National Planning Policy Framework - GOV.UK (www.gov.uk) (December 2024)
[5] Defined by the Convention on Wetlands of International Importance, especially as waterfowl habitat (otherwise known as the 'Ramsar Convention). https://www.ramsar.org/
[6] Derogations stages were previously described as two separate stages, but now commonly grouped together.

1.3.8 This report comprises Stage 1 - HRA Screening of the Order Scheme.

1.4 Legal Context to HRA

1.4.1 A critical part of the HRA Screening process is determining whether or not the proposals are likely to have a significant effect on European Sites, and therefore, if they will require an Appropriate Assessment. The concept of likely significant effects ('LSE') as embodied in Regulation 63(1) is central to their operation as it acts as the trigger for whether a project or plan requires further assessment under the HRA process. Its interpretation is well established in law and guidance and embraces the precautionary principle.

1.4.2 The European Court Waddenzee judgement[7] provides clarification regarding the term 'likely'. It concludes that: "any plan or project not directly connected with or necessary to the management of the site is to be subject to an Appropriate Assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects."

1.4.3 Clarification has also been provided through case law on the meaning of 'likely' in relation to Bagmoor Wind Ltd. v The Scottish Ministers[8]: "the word 'likely' in the regulation is not to be construed as an expression of probability, in a legal sense, but as a description of the existence of a risk (or possibility)." Consequently, if the possibility of a significant effect cannot be excluded based on objective information, an Appropriate Assessment will be required.

1.4.4 The European Court Waddenzee judgement also provides further clarification regarding the term 'significant': "..where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project."

1.4.5 The Bagmoor Wind case also provides guidance on the term 'objective'. It states: ".objective, in this context, means information based on clear verifiable fact rather than subjective opinion". The Habitats Regulations Assessment Handbook[9] states: "..it will not normally be sufficient for an applicant merely to assert that the plan or project will not have an adverse effect on a site, nor will it be appropriate for a competent authority to rely on reassurances based on supposition or speculation. On the other hand, there should be credible evidence to show that there is a real rather than a

[7] Case C – 127/02 Waddenzee, reference for a preliminary ruling from the Raad van State: Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij, 7th November 2004.
[8] Bagmoor Wind Limited v The Scottish Ministers, Court of Sessions (2012) CSIH 93.
[9] Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook 2017: DTA Publications Limited.* Available at: www.dtapublications.co.uk (Accessed October 2024).

hypothetical risk of effects that could undermine the site's conservation objectives. Any serious possibility of a risk that the conservation objectives could be undermined should trigger an 'appropriate assessment' ''.

1.4.6 The test for likelihood of significant effects requires that consideration is given to potential causes and potential effects (i.e. any potential impact pathways). To do this, information on the Order Scheme is needed to identify the potential causes of effects and information on the European Site is needed to identify any potential implications related to these effects. In the absence of a potential impact pathway, it can be concluded that no likely significant effect would arise. Relevant aspects (effects) of the Order Scheme have been checked against all features of the relevant European Sites (i.e. screened) to determine whether a likely significant effect may arise.

1.4.7 The judgement as to whether a significant effect is likely needs to be based on the best readily available information. Sources of information may include evidence from projects where similar operations have affected sites with similar qualifying features and conservation objectives and the judgement of relevant specialists that an effect is likely, as well as survey data collected to date for a particular project. In line with the precautionary principle, where there is uncertainty and/ or information is lacking in relation to the capacity of the effect to undermine the site's conservation objectives, it must be assumed that there will be an effect, unless further information can be made available to eliminate any areas of doubt.

1.4.8 The implication of the Court of Justice of the European Union (CJEU) judgement referred to as 'People Over Wind'[10] is that competent authorities cannot take account of any "..measures that are intended to avoid or reduce the harmful effects of the envisaged project on the site concerned", when considering at the HRA screening stage whether the plan or project is likely to have an adverse effect on a European Site. The effect of this is that the screening stage must be undertaken on a precautionary basis with no regard to any proposed integrated or additional avoidance or reduction measures. Where the likelihood of significant effects cannot be excluded on the basis of objective information, the competent authority must proceed to carry out an Appropriate Assessment to establish whether the plan or project will affect the integrity of the European Site, which can include at that stage consideration of the effectiveness of the proposed avoidance or reduction measures.

1.4.9 Case law in 2017 referred to as the 'Wealden Judgement'[11] prompted Natural England to make their internal guidance on assessing the effects of road traffic emissions on European Sites public[12]. The guidance provides

[10] Peter Sweetman v Coillte Teoranta, Case C-323/17
[11] Case no: CO/3943/2016 – Between Wealden District Council and Secretary of State for Communities and Local Government, Lewes District Council and South Downs National Park Authority and Natural England.
[12] NE Internal Guidance – *Approach to advising Competent Authorities on Road Traffic Emissions and HRAs* V1.4 Final – June 2018.

further information on the in-combination assessment at screening stage with regard to air quality effects following the Wealden Judgement.

1.5 Consultation

1.5.1 Under Regulation 63(3) of the Habitats Regulations, the appropriate nature conservation body, in this case Natural England, must be consulted at Stage 2 Appropriate Assessment.

1.5.2 As this report only details the results of Stage 1 Screening, consultation with Natural England is not necessary.

2. METHODOLOGY

2.1 Overview

2.1.1 The Habitats Regulations Assessment Handbook[13] outlines that screening for appropriate assessment requires gathering sufficient information to objectively conclude whether effects on a European Site will be significant or not. On this basis, screening to ascertain whether appropriate assessment is required covers four themes:

- Determining whether the plan (or project) is directly connected with or necessary to the management of the European Site;
- Identifying the potential effects on the European Site;
- Assessing the likely significant effect (LSE) on the European Site; and,
- Describing the plans (or projects) and characterising other plans (or projects) that in combination have the potential for having significant effects on the European Site.

2.1.2 The preliminary steps in the assessment have been based on these themes.

2.2 Preliminary steps

2.2.1 The first step was to consider the Order Scheme to determine whether it is directly connected with or necessary to the management of the European Site.

2.3 Identification of sites for consideration

2.3.1 The following selection criteria adapted from National Highways Design Manual for Roads and Bridges (DMRB) standard LA 115 Habitats Regulations Assessment[14], (there is no equivalent standard for rail projects), based on the geographic extent of any impacts which could arise

[13] Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook, (2019) edition UK: DTA Publications Limited.* Available at: www.dtapublications.co.uk (AccessedOctober 2024).
[14] DMRB LA 115 - Habitats Regulations Assessment. Available at: LA 115 - Habitats Regulations assessment - DMRB (standardsforhighways.co.uk)

as a result of the Order Scheme and as explained below, have been used to determine what European Sites to consider in the HRA screening assessment:

- All European Sites within 2 km of the Order Scheme, or functionally linked land (see below);
- All European Sites up to 20 km from the Order Scheme where birds are a qualifying interest feature;
- All European Sites up to 30 km from the Order Scheme where bats are a qualifying interest feature;
- All European Sites within 10 km upstream or downstream of watercourses either within, adjoining or crossed by the Order Scheme ;
- All European Sites containing a groundwater dependent terrestrial ecosystem (GWDTE), which have a potential hydrological or hydrogeological linkage to the Order Scheme ; and
- All European Sites within 200 m of an affected road network (ARN), which triggers the criteria for assessment of European Sites under LA 105[15].

2.3.2 The core range for many species for example breeding and non-breeding bird species, bats, otter and fish can extend beyond the boundaries of SAC, SPA and Ramsar site designations, meaning land beyond a designated site boundary having 'functional linkage' with the designated sites. Functional linkages include key flyways, foraging areas, breeding or roost sites.

2.3.3 The core range for Annex II bat species can extend beyond the boundaries of SAC designations, meaning land beyond a designated site boundary having functional linkage with the SAC. Functional linkages include key habitat resources surrounding a communal roost (e.g. maternity roost and/ or hibernation site), which will have an important influence on the conservation status of colonies utilising the roost. Current BCT guidelines16 indicate that the Core Sustenance Zone (CSZ) for lesser horseshoe bat, greater horseshoe bat and Bechstein's bat is typically a 3 km radius around communal roosts, and 6 km for barbastelle bat; however, this will vary according to the quality and accessibility of habitats. Dietz and Keifer (2016)17 states that whilst foraging, barbastelle bats typically utilise habitats at a distance of up to 7 km from nursery colonies, although individual barbastelle bats have been recorded travelling between 3.8 km

[15] DMRB LA 105 – Air Quality. Available at: 10191621-07df-44a3-892e-c1d5c7a28d90 (standardsforhighways.co.uk) Accessed October 2024).
[16] Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. London: Bat Conservation Trust.
[17] Dietz C., and Keifer A. (2016) *Bats of Britain and Europe.* Bloomsbury Naturalist, London.

and 20 km from nursery roosts in south west England (Greenway 200418; Zeale 200919).

2.4 Data gathering

2.4.1 Baseline information used to describe the location and characteristics of European Sites and Conservation Objectives was taken from following sources:

- Multi-Agency Geographic Information for the Countryside (MAGIC) Webmap[20];
- Joint Nature Conservation Committee (JNCC) Natura 2000 Standard Data Forms[21];
- Natural England Designated Site Information[22].

2.5 Effect pathways

2.5.1 Plans or projects can adversely affect a site by:

- Causing delays in progress towards achieving the Conservation Objectives of the European Site;
- Interrupting progress towards achieving the Conservation Objectives of the European Site;
- Disrupting those factors that help to maintain the favourable conditions of the European Site; and
- Interfering with the balance, distribution and density of key species that are the indicators of the favourable condition of the European Site.

2.5.2 Supplementary Advice[23] from Natural England describes the measures necessary to achieving the Conservation Objectives for a European Site,

[18] Greenway, F (2004). *Advice for the management of flightlines and foraging habitats of the barbastelle bat Barbastella barbastellus*. Peterborough: English Nature.
[19] Zeale, M.R.K. (2009). *Barbastelles in the Landscape: Ecological Research and Conservation in Dartmoor.* Research report to Dartmoor National Park Authority and SITA Trust. University of Bristol.
[20] Available from http://magic.defra.gov.uk (accessed October 2024).
[21] Available from http://jncc.defra.gov.uk (accessed October 2024).
[22] Available from https://designatedsites.naturalengland.org.uk/SiteSearch.aspx (accessed October 2024)
[23] Natural England. (2024) *Designated Sites View:* South Pennine Moors (Phase 2) SPA [online]. Available from:<https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK9007022.pdf> > (accessed October 2024).
Peak District Moors (South Pennine Moors Phase 1) SPA [online]. Available from: <https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK9007021.pdf> (accessed October 2024).
South Pennine Moors SAC [online]. Available from: <https://designatedsites.naturalengland.org.uk/TerrestrialAdvicePDFs/UK0030280.pdf> (accessed October2024).

comprising a range of ecological attributes that are most likely to contribute to the overall integrity of a European Site.

2.5.3 With reference to the Supplementary Advice on Conservation Objectives (SACOs)[24], effect pathways on the Conservation Objectives for the European Site were considered against the following list:

- **Habitat loss and fragmentation** – includes direct loss of habitats under the footprint of temporary or permanent works. Indirect effects through the loss of functionally linked habitats, i.e. habitats that support species outside of the European Site boundary;
- **Species disturbance** - (visual, noise, vibration) – this refers to disturbance during construction, operation or decommissioning works on species that may cause behavioural effects, e.g. avoidance, change in foraging behaviour. Physical works, vehicle movements, light pollution and presence of staff/ workers are all considered;
- **Changes to water quality –** considers effects on species (and their prey) as a result of contamination, changes in pH, increased nutrient loads, salinity, turbidity, alterations in the thermal regime, discharges or changes in sedimentation levels;
- **Changes to air quality** – evaluates the risk of discharges to air, including fugitive dust and combustion emissions;
- **Changes to surface and groundwater hydrology** – changes to the flow, supply, availability and drainage of water, and increased risks associated with flooding;
- Introduction of Invasive Non-Native Species (INNS) – the risk of introducing or spreading INNS as a result of the Order Scheme ;

2.6 Obtaining information on other projects and plans

2.6.1 The Habitats Regulations requires assessment of the potential for LSE of the project 'in combination' with other projects and plans.

2.6.2 The effects of this project in combination with other projects are the cumulative effects which will, or might, result from the addition of the effects

[24] SACO information obtained from NE online resources Site Search (naturalengland.org.uk)

of other relevant plans or projects, and making an assessment as to whether these could be significant.

2.6.3 The Habitats Regulations Assessment Handbook[25] advises that any plans or projects at the following stages may be relevant to an in-combination assessment:

- Planning applications submitted but not yet determined;
- Planning application refusals subject to appeal procedures and not yet determined;
- Projects authorised but not yet started;
- Projects started but not yet completed;
- Known projects that do not require external authorisation, e.g. permitted development;
- 'Projects' subject to periodic review e.g. annual licences, during the time that their renewal is under consideration;
- Proposals in adopted plans (e.g. land use plans, transport plans, minerals and waste plans, shoreline management plans etc.); and
- Proposals in finalised draft plans (see examples above) formally published or submitted for final consultation, examination or adoption.

2.6.4 The National Infrastructure Planning[26] website is searched for Nationally Significant Infrastructure Projects which could have effects 'in combination' with the Order Scheme.

2.6.5 A desktop review of local authority websites and planning portals is required to identify plans or projects that have undergone a HRA and could have an LSE in combination with the Order Scheme. Based on the scale, complexity and duration of the Order Scheme, a desktop review of projects and plans proposed or consented within the last five years is considered to be sufficient and precautionary in this instance. Only 'reasonably foreseeable' and 'committed' projects and plans have been included in this assessment.

2.7 Stage 1: Screening for Likely Significant Effects (LSE)

2.7.1 The precautionary principle (as enshrined in the Habitats Regulations) has been taken into account during this HRA. Whenever potential significant

[25] Tyldesley, D., and Chapman, C., (2013) *The Habitats Regulations Assessment Handbook, (2019) edition UK: DTA Publications Limited.* Available at: www.dtapublications.co.uk (Accessed October 2024).

effects are not able to be objectively discounted, the European Site is screened in.

2.7.2 Following the gathering of information on the Order Scheme and European Sites, and the identification of effect pathways, each European Site was screened against each potential pathway to identify whether LSE were possible or whether they could be discounted by the Order Scheme 'alone'.

2.7.3 LSE effects are assessed in reference to the Conservation Objectives of each qualifying interest feature of each European Site. The results are presented in Table 2-1, Table 2-2 and Table 2-3 in section 2.9.

2.7.4 Any plan or project that causes the interest features of a European Site to fall into unfavourable condition is considered to have an LSE on the site. Stage 1 of the HRA process does not assess effects on the integrity of European Sites, this forms Stage 2 of the HRA process.

2.7.5 Following the completion of the Stage 1 'alone' screening. Consideration was also given to the potential for the effects of the Order Scheme to combine with other plans and projects and result in additional LSEs that were discounted by the Order Scheme 'alone'.

2.7.6 Any European Sites with LSE pathways 'alone', that were already screened in and requiring Stage 2 Appropriate Assessment, are not subject to 'in-combination' assessment.

2.7.7 Effects or effect pathways which are wholly discounted or considered to be so unlikely or limited that they are in effect nugatory or de minimus and, therefore, not likely to combine with anything else are not subject to 'in-combination' assessment.

2.8 Stage 1 – screening European Sites Scoped out of Screening

2.8.1 Special Areas of Conservation (SACs) with bats as qualifying features are not included in this Habitats Regulations Assessment because no such SACs are located within 30 km of the Site. SACs designated for bats in England are generally located in areas that support specific bat species including greater and lesser horseshoe bats, barbastelle and Bechstein's bat, with a primary concentration in the south of England. These areas provide essential roosting and foraging habitats, making them critical to the conservation of specific bat populations. Since no SACs with bats as qualifying features are within the 30 km geographical extent of impact zone, SACs with bats as qualifying features are scoped out of the assessment.

2.9 European Sites Identified for Screening

2.9.1 The desk study identified three European Sites within the search areas defined in paragraph 1.1.36. These are as follows:

- South Pennine Moors SAC, located approximately 775 m east at the nearest point.
- South Pennine Moors (Phase 2) SPA, located approximately 965 m north at the nearest point.
- Peak District Moors (South Pennine Moors Phase 1) SPA, located approximately 775 m east at the nearest location.

2.9.2 The location of the European Sites identified in relation the Order Scheme are shown in Volume 2, Figure 6.1.1 of this Report [**NR14**].

Information of European Sites Identified for Screening

2.9.3 Relevant environmental information for each European Site taken from the designation citations is presented in Table 2-1, Table 2-2 and Table 2-3 below.

Table 2-1 – South Pennine Moors SAC

EU Site Code	UK0030280
Designation	SAC
Name	South Pennine Moors
Area (ha)	65024.32
Proximity	The SAC is approximately 780 m east of the Order Scheme from OSNGR: SE 01191 08461, (Boat Lane vehicle access).
Qualifying Interest Features	Annex I habitats that are a primary reason for selection of this site: • European dry heaths; • Blanket bog; • Old sessile oak woods with Ilex and Blechnum in the British Isles. Annex I habitats present as a qualifying feature, but not a primary

EU Site Code	UK0030280
	reason for selection of this site: • Northern Atlantic wet heaths with cross-leaved heath; • Transition mires and quaking bogs.
Conservation Objectives	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring: • The extent and distribution of the qualifying natural habitats; • The structure and function (including typical species) of the qualifying natural habitats; and, • The supporting processes on which the qualifying natural habitats rely.
Vulnerabilities	The site is vulnerable to: • Air pollution, air-borne pollutants; • Agriculture activities; • Human induced changes in hydraulic conditions; • Fire and fire suppression; • Outdoor sports and leisure activities, recreational activities.

Table 2-2 – Peak District Moors (South Pennine Moors Phase 1) SPA

EU Site Code	UK9007021
Designation	SPA
Name	Peak District Moors (South Pennine Moors Phase 1)
Area (ha)	45300.54
Proximity	The SPA is located approximately 780m east of the Order Scheme from SE 01191 08461, (Boat Lane vehicle access).
Qualifying Interest Features	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • Short eared owl at least 2.2% of the GB breeding population Count, as at 1990 and 1998; • Merlin at least 2.3% of the GB breeding population Count as at 1990 and 1998; • European Golden plover [North-western Europe - breeding] at least 1.9% of the GB breeding population Count, as at 1990 and 1998.
Conservation Objectives	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: • The extent and distribution of the habitats of the qualifying features; • The structure and function of the habitats of the qualifying features; • The supporting processes on which the habitats of the qualifying features rely;

EU Site Code	UK9007021
	• The population of each of the qualifying features; and, • The distribution of the qualifying features within the site.
Vulnerabilities	The site is vulnerable to: • Outdoor sports and leisure activities, recreational activities; • Human induced changes in hydraulic conditions; • Fire and fire suppression; • Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.); • Reduced fecundity/ genetic depression.

Table 2-3 – South Pennine Moors (Phase 2) SPA

EU Site Code	UK9007022
Designation	SPA
Name	South Pennine Moors (Phase 2)
Area (ha)	20944.46
Proximity	The SPA is located approximately 980 m north of the Order Scheme at OSNGR: SE 01114 08528 (Boat Lane vehicle access).
Qualifying Interest Features	ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: • Short eared owl 0.3% of the GB breeding population Count as at 1990; • Merlin 2.2% of the GB breeding population Count as at 1995; • European Golden plover [North-western Europe - breeding] 1.3% of the GB breeding population No count period specified. ARTICLE 4.2 QUALIFICATION (79/409/EEC): An internationally important assemblage of birds
Conservation Objectives	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: • The extent and distribution of the habitats of the qualifying features; • The structure and function of the habitats of the qualifying features; • The supporting processes on which the habitats of the qualifying features rely; • The population of each of the qualifying features; and, • The distribution of the qualifying features within the site.
Vulnerabilities	The site is vulnerable to: • Hunting and collection of wild animals (terrestrial), including

EU Site Code	UK9007022
	damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.); • Reduced fecundity/ genetic depression; • Fire and fire suppression; • Human induced changes in hydraulic conditions; • Outdoor sports and leisure activities, recreational activities.

2.10 Qualifying Species Desk Study

2.10.1 Records of birds within 2 km of the Order Scheme boundary were obtained from the Greater Manchester Biodiversity Record Centre in October 2024. A review was undertaken to identify records of qualifying birds of the South Pennine Moors (Phase 2) SPA and Peak District Moors (South Pennine Moors Phase 1) SPA; qualifying bird species including merlin, short eared owl, golden plover and the additional breeding assemblage of birds that are a feature of the South Pennine Moors (Phase 2) SPA. The objective of the review was to identify areas of land within the Order Scheme boundary that could be used by SPA birds and important to sustaining the population and, therefore, functionally linked to SPAs.

2.10.2 The review concluded no records of birds within the Order Scheme boundary or land within 50 m of the Order Scheme boundary, that are qualifying features, assemblages of the South Pennine Moors (Phase 2) SPA and Peak District Moors (South Pennine Moors Phase 1) SPA were identified.

2.10.3 The nearest records of SPA birds to the Order Scheme boundary include:

- Short eared owl, located approximately 1260 m north of the Order Scheme at OSGR; SE018094, and within the Peak District Moors (South Pennine Moors Phase 1) SPA;
- Merlin, located approximately 185 m north of the Order Scheme at OSGR: SD951345. Also, approximately 770 m south from the South Pennine Moors (Phase 2) SPA and approximately 825 m south west of the Peak District Moors (South Pennine Moors Phase 1) SPA boundary;
- Golden plover, located approximately 620 m east of the Order Scheme at OSGR: SD986050. Also approximately 3.12 km from the South Pennine Moors (Phase 2) SPA and approximately 3.07 km from the Peak District Moors (South Pennine Moors Phase 1) SPA boundary; and
- The nearest breeding bird assemblage species is snipe located approximately 345 m east of the Order Scheme at OSGR: SD981028. Also 7.3 km from the South Pennine Moors (Phase 2) SPA and 3.6 km

from the Peak District Moors (South Pennine Moors Phase 1) SPA boundary.

2.11 Stage 1 Screening Results

Identified effect pathways

2.11.1 As outlined in paragraph 1.2.3, the following effect pathways have been identified. Each Conservation Objective has been considered against each pathway:

- Habitat loss and fragmentation;
- Species disturbance (visual, noise, vibration) - within the screening tables this pathway will only be considered for qualifying species and not qualifying habitats;
- Changes to water quality;
- Changes to air quality;
- Changes to surface and groundwater hydrology;
- Introduction of Invasive Non-Native Species (INNS).

Likely Significant Effect Screening - Alone

2.11.2 LSE screening for the identified European Sites is provided in Table 2-4, Table 2-5 and Table 2-6 below. The assessment considers the construction and operation of the Order Scheme. As the Order Scheme will be operational for the foreseeable future, decommissioning has not been considered within the assessment.

Table 2-4 – South Pennine Moors SAC Stage 1 Screening Results

South Pennine Moors SAC Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
Annex I habitats that are a primary reason for selection of this site European dry heaths; Blanket bog; Old sessile oak woods with Ilex and Blechnum in the British Isles.	The extent and distribution of the qualifying natural habitats. The structure and function (including typical species) of the qualifying natural habitats, and, The supporting processes on which the qualifying natural habitats rely	Construction	Habitat loss and fragmentation	The South Pennine Moor SAC is located approximately 780 m east of the Order Scheme (Boat Lane), where the following construction works are proposed: a temporary highway diversion route between Harrop Court Road and Boat Lane; and, works to the western portal of Standedge Tunnel. Construction activities at the western portal of Standedge tunnel including bridge deck replacement and tunnel works will use cranes and heavy machinery within the rail corridor and immediately adjacent roads to the portal. All construction is confined to areas outside of the SAC boundary and involves no encroachment on qualifying habitat features. Therefore, there will be no habitat loss or fragmentation from construction of the Order Scheme that would result in an LSE on the South Pennine Moor SAC qualifying habitat features.	No
			Changes to water quality	Construction activities can result in changes to water quality in local watercourses as a result of, for example, from pollution incidents, run-off containing suspended solids or deposition of contaminants on surface waters. Diggle Brook originates from the South Pennine Moors and	No

South Pennine Moors SAC Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				flows through the South Pennine Moor SAC, upstream of the Order Scheme. The watercourse passes beneath the Order Scheme at Uppermill Viaduct at OSGR: SD99560627. As the Order Scheme is located downstream of the South Pennine Moor SAC, there is no impact pathway by which water quality impacts during construction could have LSEs on the qualifying habitat features of the SAC.	
			Changes to surface and groundwater hydrology	The Order Scheme works will not result in the alteration of surface water drainage or watercourses such that SAC habitats might be affected, particularly given the location of the Order Scheme downstream of the SAC. No significant excavations or other activity that may result in hydrogeological impacts, e.g. by affecting the water table or local movement of groundwater, are required as part of the Order Scheme. Therefore, it is considered that there is no impact pathway by which changes to surface and groundwater hydrology could have an LSE on SAC habitats.	No
			Changes to air quality	There is no affected road network (ARN) associated with the Order Scheme as the works are largely within the railway corridor. Therefore, air quality changes are limited to those impacts that may occur during construction such as localised dust and vehicle	No

South Pennine Moors SAC Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				emissions. the Order Scheme is located approximately 780 m west of the South Pennine Moor SAC at its closest point. This is considered to be too distant for a feasible impact pathway to be present by which changes in air quality could affect habitat features of the SAC.	
			Introduction of INNS	As the Order Scheme works are outside of the SAC boundary by at least 780 m and are located downstream of Diggle Brook (i.e. a potential hydrological link), it is not considered possible that construction activities could introduce or spread INNS within the SAC.	No
		Operation	Habitat loss and fragmentation	Once the Order Scheme is operational, trains will remain confined to the existing Transpennine Railway Route and the route will function as before, i.e. there are no operational changes that could have an LSE on the SAC.	No
			Changes to water quality	During operation of the Order Scheme and the Transpennine Railway Route there still remains no pathway for water quality impacts on SAC habitat features.	No
			Changes to surface and groundwater hydrology	During operation of the Order Scheme and the Transpennine Railway Route there still remains no pathway by which changes to surface and groundwater hydrology could have an LSE on SAC habitat features.	No
			Changes to air quality	There is no impact pathway for air quality effects and , once operational, the Order	No

South Pennine Moors SAC Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				Scheme will allow the use of electric trains rather than diesel trains, thereby improving air quality along the route.	
			Introduction of INNS	There is no impact pathway by which the operational phase of the Order Scheme could result in the introduction of INNS that may result in an LSE on SAC habitats.	No
Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site North Atlantic wet heaths with cross-leaved heath; Transition mires and quaking bogs.	The extent and distribution of the qualifying natural habitats. The structure and function (including typical species) of the qualifying natural habitats, and, The supporting processes on which the qualifying natural habitats rely	Construction	Habitat loss and fragmentation	As above for Annex I habitats that are a primary reason for selection of this site.	No
			Changes to water quality	As above for Annex I habitats that are a primary reason for selection of this site.	No
			Changes to surface and groundwater hydrology	As above for Annex I habitats that are a primary reason for selection of this site.	No
			Changes to air quality	As above for Annex I habitats that are a primary reason for selection of this site.	No
			Introduction of INNS	As above for Annex I habitats that are a primary reason for selection of this site.	No
		Operation	Habitat loss and fragmentation	As above for Annex I habitats that are a primary reason for selection of this site.	No
			Changes to water quality	As above for Annex I habitats that are a primary reason for selection of this site.	No
			Changes to surface and	As above for Annex I habitats that are a primary reason for selection of this site.	No

South Pennine Moors SAC Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
			groundwater hydrology		
			Changes to air quality	As above for Annex I habitats that are a primary reason for selection of this site.	No
			Introduction of INNS	As above for Annex I habitats that are a primary reason for selection of this site.	No

Table 2-5 – Peak District Moors (South Pennine Moors (Phase 1) SPA Stage 1 Screening Results

Peak District Moors (South Pennine Moors (Phase 1) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Merlin (Breeding); European golden plover (Breeding); Short-eared owl (Breeding birds)	The extent and distribution of the habitats of the qualifying features The structure and function of the habitats of the qualifying features The supporting processes on which the habitats of the qualifying features rely The population of each of the qualifying features, and, The distribution of the qualifying features within the site	Construction	Habitat loss and fragmentation – including consideration of functionally linked land	The Order Scheme will not directly affect the Peak District Moors (South Pennine Moors Phase 1) SPA. The SPA is located approximately 780 m east of the Order Scheme where the following construction works are proposed: a temporary highway diversion route between Harrop Court Road and Boat Lane; and, works to the western portal of Standedge Tunnel. Construction activities at the western portal of Standedge tunnel including bridge deck replacement and tunnel works will use cranes and heavy machinery within the rail corridor and immediately adjacent roads to the portal. These works along with all other works that form part of the Order Scheme will not indirectly result in any habitat loss or fragmentation within the SPA. The land adjacent to the existing railway line within the Order Scheme and up to 50 m from the boundary was assessed through a desk study undertaken in October 2024 and site surveys in June 2025 (refer to section 1.1). The intervening land within and adjacent to road access works located north/ north east of the Standedge Tunnel western portal and the nearest part of the Order Scheme to the SPA, comprises	No

Peak District Moors (South Pennine Moors (Phase 1) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				improved, sheep-grazed farmland, which is not suitable for breeding European golden plover, short-eared owl, or merlin. These species require open upland habitats such as heather moorland, blanket bog, or rough grassland with structural vegetation and a rich prey base. The uniform, closely grazed sward of improved pasture lacks the cover, foraging conditions, and nesting substrates necessary to support these birds, and is subject to regular agricultural disturbance. As such, the land is not considered to be functionally linked to the SPA for breeding or foraging purposes. It is concluded that the Order Scheme is highly unlikely to result in an LSE on the SPA and qualifying features from habitat loss and fragmentation within the SPA and no functionally linked land was identified.	
			Species disturbance (visual, noise, vibration)	The Peak District Moors (South Pennine Moors Phase 1) SPA qualifying features includes ground nesting breeding birds that are likely to be sensitive to disturbance (visual, noise or vibration). However, the SPA is located approximately 780 m east of the Order Scheme and given the topography, with the land rising approximately 130 m within the SPA, noise from works at the western portal of Standedge tunnel would attenuate significantly over the distance and terrain and there is not considered to be an impact pathway for species disturbance.	No

Peak District Moors (South Pennine Moors (Phase 1) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				It was concluded above (see Habitat loss and fragmentation) that there is no potential for functionally linked land to be present and so there is also no potential for disturbing qualifying species on functionally linked land. It is concluded that there is no impact pathway for species disturbance and the Order Scheme does not present opportunity for an LSE on the qualifying features of the SPA.	
			Changes to water quality	Construction activities can result in changes to water quality in local watercourses as a result of, for example, from pollution incidents, run-off containing suspended solids or deposition of contaminants on surface waters. Diggle Brook originates from the South Pennine Moors and flows through the Peak District Moors (South Pennine Moors Phase 1) SPA, upstream of the Order Scheme. The watercourse passes beneath the Order Scheme at Uppermill Viaduct at SD99560627. As the Order Scheme is located downstream of the Peak District Moors (South Pennine Moors Phase 1) SPA, there is no impact pathway by which water quality impacts during construction could affect the qualifying habitat features of the SPA.	No
			Changes to surface and groundwater	The Order Scheme works will not result in the alteration of surface water drainage or watercourses such that the habitats of qualifying species might be	No

Peak District Moors (South Pennine Moors (Phase 1) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
			hydrology	affected, particularly given the location of the Order Scheme downstream of the SPA. No significant excavations or other activity that may result in hydrogeological impacts, e.g. by affecting the water table or local movement of groundwater, are required as part of the Order Scheme. Therefore, it is considered that there is no impact pathway by which changes to surface and groundwater hydrology could have an LSE on the habitats of qualifying species within the SPA.	
			Changes to air quality	There is no affect road network (ARN) associated with the Order Scheme as the works are on a railway route. Therefore, air quality changes are limited to those impacts that may occur during construction such as localised dust and vehicle emissions. the Order Scheme is located approximately 780 m west of the Peak District Moors (South Pennine Moors Phase 1) SPA at its closest point. This is considered to be too distant for a feasible impact pathway to be present by which changes in air quality could affect the habitats of qualifying species within the SPA.	No
			Introduction of INNS	As the Order Scheme works are outside of the SPA boundary by at least 780 m and are located downstream of Diggle Brook (i.e. a potential hydrological link), it is not considered possible that construction activities could introduce or spread	No

Peak District Moors (South Pennine Moors (Phase 1) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				INNS within the SPA.	
		Operation	Habitat loss and fragmentation – including consideration of functionally linked land	There is no means by which the operational phase of the Order Scheme could affect the extent and distribution of habitats of qualifying species within the SPA.	No
			Species disturbance (visual, noise, vibration)	The operational phase of the Order Scheme is confined to the existing TransPennine Railway Route and there will be no significant operational changes. As such, there is no pathway by which there could be any significant species disturbance impacts.	No
			Changes to water quality	During operation of the Order Scheme and the TransPennine Railway Route there still remains no pathway for water quality impacts on the habitats of qualifying species.	No
			Changes to surface and groundwater hydrology	During operation of the Order Scheme and the TransPennine Railway Route there still remains no pathway by which changes to surface and groundwater hydrology could have an LSE on the habitats of qualifying species within the SPA.	No
			Changes to air quality	There is considered to be no impact pathway for air quality once operational as the Order Scheme will allow the use of electric trains rather than diesel trains, thereby improving air quality along the route.	No

Peak District Moors (South Pennine Moors (Phase 1) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
			Introduction of INNS	There is no impact pathway by which the operational phase of the Order Scheme could result in the introduction of INNS that may result in an LSE on the habitats of qualifying species within the SPA.	No

Table 2-6 – South Pennine Moors (Phase 2) SPA Stage 1 Screening Results

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Short-eared owl; Merlin; European golden plover.	The extent and distribution of the habitats of the qualifying features The structure and function of the habitats of the qualifying features The supporting processes on which the habitats of the qualifying features rely The population of each of the qualifying features, and, The distribution of the qualifying features within the site	Construction	Habitat loss and fragmentation – including consideration of functionally linked land	The Order Scheme will not directly affect the South Pennine Moors (Phase 2) SPA. The SPA is approximately 980 m north of the Order Scheme that comprises the following construction works: a temporary highway diversion route between Harrop Court Road and Boat Lane works to the western portal of Standedge Tunnel. These works along with all other works that form part of the Order Scheme will not indirectly result in any habitat loss or fragmentation within the SPA. The land adjacent to the existing railway line within the Order Scheme and up to 50 m from the boundary was assessed through a desk study undertaken in October 2024 and site surveys in June 2025 (refer to section 1.1). The intervening land adjacent to road access works located north-east of the Standedge tunnel western portal; and the nearest part of the Order Scheme to the SPA, comprises improved, sheep-grazed farmland, which is not suitable for breeding European golden plover, short-eared owl, or merlin. These species require open upland habitats such as heather moorland, blanket bog, or rough grassland with	No

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				structural vegetation and a rich prey base. The uniform, closely grazed sward of improved pasture lacks the cover, foraging conditions, and nesting substrates necessary to support these birds, and is subject to regular agricultural disturbance. As such, the land is not considered to be functionally linked to the SPA for breeding or foraging purposes It is concluded that the Order Scheme is highly unlikely to result in an LSE on the SPA and qualifying features from habitat loss and fragmentation within the SPA and no functionally linked land was identified.	
			Species disturbance (visual, noise, vibration)	The South Pennine Moor (Phase 2) SPA qualifying features includes ground nesting breeding birds that are likely to be sensitive to disturbance (visual, noise or vibration). However, the SPA is located approximately 980 m north of the Order Scheme and given the topography, with the land rising approximately 130 m within the SPA, noise from works at the western portal of Standedge tunnel would attenuate significantly over the distance and terrain and there is not considered to be an impact pathway for species disturbance. It was concluded above (see Habitat loss and fragmentation) that there is no potential for functionally linked land to be present and so	No

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				there is also no potential for disturbing qualifying species on functionally linked land. It is concluded that the Order Scheme is highly unlikely to result in an LSE on the qualifying features of the SPA as a result of disturbance.	
			Changes to water quality	Construction activities can result in changes to water quality in local watercourses as a result of, for example, pollution incidents, run-off containing suspended solids or deposition of contaminants on surface waters. The River Tame originates from the South Pennine Moors, upstream of the Order Scheme. The watercourse passes beneath the Order Scheme at Uppermill Viaduct at OSNGR SD99570631. As the Order Scheme is located downstream of the South Pennine Moors (Phase 2) SAC, there is no impact pathway by which water quality impacts during construction could affect the habitats of qualifying species within the SPA.	No
			Changes to surface and groundwater hydrology	The Order Scheme works will not result in the alteration of surface water drainage or watercourses such that the habitats of SPA species might be affected, particularly given the location of the Order Scheme downstream of the SPA. No significant excavations or other activity that may result in hydrogeological impacts, e.g. by affecting the water table or local movement of	No

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				groundwater, are required as part of the Order Scheme. Therefore, it is considered that there is no impact pathway by which changes to surface and groundwater hydrology could have an LSE on the habitats of qualifying species within the SPA.	
			Changes to air quality	There is no affect road network (ARN) associated with the Order Scheme as they are works on a railway route. Therefore, air quality changes are limited to those impacts that may occur during construction such as localised dust and vehicle emissions. the Order Scheme is located approximately 980 m south of the South Pennine Moors (Phase 2) SPA at its closest point. This is considered to be too distant for a feasible impact pathway to be present by which changes in air quality could affect the habitats of qualifying species within the SPA.	No
			Introduction of INNS	As the Order Scheme works are outside of the SPA boundary by at least 965 m and are located downstream of the River Tame (i.e. a potential hydrological link), it is not considered possible that construction activities could introduce or spread INNS within the SPA.	No
		Operation	Habitat loss and fragmentation	There is no means by which the operational phase of the Order Scheme could affect the extent and distribution of habitats of qualifying	No

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
			– including consideration of functionally linked land	species within the SPA.	
			Species disturbance (visual, noise, vibration)	The operational phase of the Order Scheme is confined to the existing TransPennine Railway Route and there will be no significant operational changes. As such, there is no pathway by which there could be any significant species disturbance impacts.	No
			Changes to water quality	During operation of the Order Scheme and the TransPennine Railway Route there still remains no pathway for water quality impacts on habitats of qualifying species.	No
			Changes to surface and groundwater hydrology	During operation of the Order Scheme and the TransPennine Railway Route there a pathway by which changes to surface and groundwater hydrology could have an LSE on the habitats of qualifying species remains absent.	No
			Changes to air quality	There is considered to be no impact pathway for air quality effects; however, once operational, the Order Scheme will allow the use of electric trains rather than diesel trains, thereby improving air quality along the route.	No
			Introduction of INNS	There is no impact pathway by which the operational phase of the Order Scheme could result in the introduction of INNS that may result in an LSE on the habitats of qualifying species.	No

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS	The extent and distribution of the habitats of the qualifying features The structure and function of the habitats of the qualifying features The supporting processes on which the habitats of the qualifying features rely The population of each of the qualifying features, and, The distribution of the qualifying features within the site	Construction	Habitat loss and fragmentation – including consideration of functionally linked land	The Order Scheme will not directly affect the South Pennine Moors (Phase 2) SPA. The SPA is approximately 980 m north of the Order Scheme that comprises the following construction works: a temporary highway diversion route between Harop Court Road and Boat Lane works to the western portal of Standedge Tunnel. These works along with all other works that form part of the Order Scheme will not indirectly result in any habitat loss or fragmentation within the SPA. The land adjacent to the existing railway line within the Order Scheme and up to 50 m from the boundary was assessed through a desk study and site surveys in November 2020[27]. Land within these areas comprises grassland and woodland and were considered not to provide optimal habitat for ground nesting merlin, European golden plover and breeding birds within the qualifying assemblage, including red grouse, twite, ring ouzel, snipe, dunlin, curlew, common sandpiper and wheatear. These are predominantly migratory birds of moorland and moorland fringe habitat,	No

[27] TransPennine Route Upgrade Work Package 2 – Stalybridge to Huddersfield – Ecological Constraints Report- Document ref: 151667-TSA-00-TRU-REP-W-EN-000924

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
				favouring young plantation woodland and rough grassland. Furthermore, many of these species are susceptible to disturbance, preferring more remote upland habitat away from human disturbance. Therefore, it is considered highly unlikely that any of these species would rely upon woodland and grassland in proximity to the Order Scheme. It is concluded that the Order Scheme is highly unlikely to result in an LSE on the SPA and qualifying features from habitat loss and fragmentation within the SPA and no functionally linked land was identified.	
			Species disturbance (visual, noise, vibration)	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
			Changes to water quality	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
			Changes to surface and groundwater hydrology	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
			Changes to air quality	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
			Introduction of INNS	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
		Operation	Habitat loss	As above for ARTICLE 4.1 QUALIFICATION	No

South Pennine Moors (Phase 2) SPA Qualifying features	Conservation Objective	Phase of Scheme which may cause and effects	LSE Risk Pathway	LSE conclusions	Potential LSE
			and fragmentation – including consideration of functionally linked land	(79/409/EEC).	
			Species disturbance (visual, noise, vibration)	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
			Changes to water quality	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
			Changes to water quality Changes to surface and groundwater hydrology	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No
			Changes to air quality	As above for ARTICLE 4.1 QUALIFICATION (79/409/EEC).	No

Likely Significant Effect Screening – In-combination

2.11.3 As the Screening assessment did not identify any LSEs and concluded 'no effects' due to an absence of impact pathways, there is no requirement for an in-combination assessment.

3. CONCLUSION

3.1.1 The following European Sites were considered at Screening:

- South Pennine Moors SAC;
- South Pennine Moors (Phase 2) SPA; and
- Peak District Moors (South Pennine Moors Phase 1) SPA.

3.1.2 Screening for LSEs identified that all effect pathways for the Order Scheme 'alone' could be screened out. As the presence of impact pathways was discounted, it was not necessary to undertake an in-combination assessment. Therefore, it can be concluded that the Order Scheme will not have any LSEs on any European Sites and there is no need to proceed to Stage 2 Appropriate Assessment.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT

VOLUME 3 APPENDIX 6C - BAT SURVEY METHODOLOGY

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CONTENTS

1. OVERVIEW OF WORKS 1
1.2 Current Survey Progress 4
1.3 Access Restrictions and Issues 4
1.4 Dusk Emergence Surveys 5
1.5 Roost Re-entry Surveys 6
2. PROPOSED METHODOLOGY 6
2.2 Bat Species Scoping 7
2.3 Day Roost & Transitional Roost Monitoring 9
2.4 Autumn Swarming Monitoring 10
2.5 Hibernation Monitoring 10
2.6 Maternity Suitability 10
2.7 Proposed Interpretation of Results 10
2.8 Limitations 12
2.9 Proposed Mitigation Licensing 13
2.10 Policy 4 13
2.11 Provision of Advice 14

1. OVERVIEW OF WORKS

1.1.1 This Technical Note provides the bat survey methodology used for the Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order (hereinafter referred to as the 'Order Scheme'). This Technical Note is focused on Stalybridge Tunnel and Scout Tunnel and represents a summary of the proposed tunnel works for the Order Scheme, and the approach used for the bat survey methodology, interpretation of results and mitigation. The requirement for this Technical Note has arisen following a Discretionary Advice Service (DAS) meeting with Natural England on 7 August 2024 and forms the formal written scope. This Technical Note was authored and checked by AtkinsRéalis Natural England Bat Level 2 (CL18) licenced Ecologists who are knowledgeable of the Order Scheme and local region.

1.1.2 The Order Scheme is located between Stalybridge and Diggle (Greater Manchester). The proposed works are required to electrify the railway through overhead line equipment (OLE), thereby increasing network reliability, carrying capacity and reducing the reliance on trains powered directly by fossil fuels. This note focuses specifically on works which will occur within Stalybridge Tunnel (MVL3/3), and Scout Tunnel (MVL3/11) (see Figures 1-1 – 1-4 and Table 1-1 below). Ground stabilisation works are required and the track beds will be lowered to allow space for the OLE.

1.1.3 These tunnel works will be consented through the Order Scheme powers or via the use of permitted development rights.

1.1.4 It is assumed that bats are able to roost within the railway tunnels as they may have become desensitised to the noise, vibration and air flow disturbance from passing trains. AtkinsRéalis understand the potential value of rail tunnels for bat roosting (including hibernation) and foraging.

1.1.5 There is little available literature and guidance to inform a robust methodology and mitigation for surveying the tunnels. To avoid potential project delays, AtkinsRéalis sought guidance from Natural England in 2024 on the proposed survey methodology, interpretation of results and mitigation at Stalybridge and Scout Tunnels.

Table 1-1 - Scheme Details

Site Location	Central Grid Reference	Tunnel Length (m)	Trains per Hour (peak)	Hours of Operation	Proposed Works (applicable to both tunnels)
Stalybridge Tunnel (MVL3/3)	SJ 96560 98860	610	4	24 hours	Ground stabilization works in the tunnel stability. Cutting works to lower the existing track to create room for the OLE within the tunnel. Construction works are likely to take several months to complete. Exact month for the start of works to be confirmed.
Scout Tunnel (MVL3/11)	SD 97326 01314	183	4	24 hours	

Figure 1-1 - Stalybridge Tunnel – Western Portal. Off A635 Wakefield Road.

Figure 1-2 - Stalybridge Tunnel – Eastern Portal. Off A635 Wakefield Road.

Figure 1-3 - Scout Tunnel – Southern Portal. Off A635 Manchester Road.

Figure 1-4 - Scout Tunnel – Northern Portal. Off A635 Manchester Road.

1.2 Current Survey Progress

1.2.1 Preliminary Roost Assessments (PRA) were undertaken on Stalybridge and Scout Tunnels in May 2024, which identified multiple potential roost features (PRFs) within both tunnels. Bats were noted exiting Stalybridge Tunnel incidentally during the PRA.

1.2.2 PRAs were undertaken under possessions, between 00:00 and 04:30 hours. The length of the tunnels was walked and the interior and exterior of the portals viewed. Both tunnels are not artificially lit, therefore PRA effort was undertaken in generally pitch-black conditions, although high-powered lamps were utilised to inspect the outer walls of the structures and identify PRFs. Multiple crevice features were found along the length of both tunnels.

1.2.3 Other ecological surveys, including bat emergence surveys will be undertaken for other aspects of TRU W2B. Access is comparatively less restricted therefore surveys will be undertaken in accordance with the relevant good practice guidance.

1.3 Access Restrictions and Issues

1.3.1 Possessions are heavily restricted on the MVL3 rail line in which the Order Scheme is located; the line is the main rail line between Manchester Victoria and Huddersfield, Leeds, York, and the East Coast Main Line. Surveyor access onto the railway would is only permitted between 00:00 – 04:30

hours in midweek nights (Monday to Friday) on an occasional basis; the reality of accessing the rail corridor under a possession means access is usually taken 1 hour after the possession begins whilst waiting for permission from the Signaller. Further access outside of these timeframes have been explored with Network Rail but are not deemed possible due to maintaining the existing rail service and associated health and safety requirements.

1.3.2 Separated access can theoretically allow for access to the railway corridor at any point during the day or night. However, separated access cannot be safely progressed for both portals of the tunnels due to restrictions in access points and/ or safe walking routes along the access.

1.3.3 Separated access would, in theory, allow for a surveyor to stand at one end of the tunnel for both Stalybridge Tunnel (western portal only) and Scout Tunnel (eastern portal only); the opposite ends of each tunnel offer no separated access due to a lack of a suitable, safe access (i.e. no safe way to stay more than 2 metres away from the nearest rail line). Given the constrained access, surveyors are unable to be positioned at both ends of the same tunnel at one time. Therefore, any bats recorded flying through either of the tunnels during bat roost surveys may be foraging/ commuting having flown through the tunnel, rather than roosting within, however, there would be no way to confirm this.

1.4 Dusk Emergence Surveys

1.4.1 The 4th edition of Bat Conservation Trust (BCT) Good Practise Guidelines[1] state that dusk emergence surveys should start 15 minutes before sunset and finish 1.5 to 2 hours after sunset.

1.4.2 Sunset in Stalybridge on 15 August 2024 was at 20:35, therefore requiring a dusk emergence survey between 20:20 to 22:05-22:35. If surveys took place in 2025 outside of seasonal restrictions, the latest the sun would set in Stalybridge is 21:41 (21 June 2025). The dusk emergence survey would end at 23:11-23:41. That would be prior to gaining any possession of the site at 00:00 (noting that realistic site access is usually one hour after the possession begins).

1.4.3 Irrespective of the time of year, there is no overlap between railway possessions and dusk emergence survey times. Dusk emergence surveys

[1] Collins, J. (ed.) (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition).* The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6.

of Stalybridge Tunnel and Scout Tunnel is therefore not possible to take place in line with best practice guidelines.

1.5 Roost Re-entry Surveys

1.5.1 Roost re-entry surveys are no longer routinely recommended in the 4th edition of the BCT Guidelines[1] due to the risk of bats returning to the roost early and being missed. Surveys generally would be expected to start 2 hours prior to sunrise and finish 15 minutes after sunrise. AtkinsRéalis have taken a view to suspend roost re-entry surveys in line with guidelines, unless there is no possible alternative (i.e. dusk emergence surveys).

1.5.2 Sunrise in Stalybridge on 16 August 2024 was 05:50, therefore requiring a roost re-entry survey period of 03:50 – 06:05; an overlap of only ten minutes with site access for any possession. If surveys took place in 2025 outside of seasonal restrictions, the earliest the sun would rise in Stalybridge is 04:38 (21 June 2025), twenty-three minutes after the BCT Guideline survey suggested end time. At most, there is only a small period of 1 hour and 22 minutes of overlap between any railway possession and roost re-entry suggested survey time. This available time on site would reduce prior to and after 21 June / mid summer.

1.5.3 Given the above constraints, roost re-entry surveys would be insufficient due to:

- The unreliability of roost re-entry surveys per the BCT Guidelines;
- Insufficient time spent surveying during the suggested survey window; and
- Missing the most important survey times relative to expected roost re-entry.

1.5.4 Therefore, neither a dusk emergence or roost re-entry survey would provide sufficient on-rail time to provide robust conclusions on roosting behaviour.

2. PROPOSED METHODOLOGY

2.1.1 A proposed methodology has been developed to in accordance with the BCT Guidelines[1], namely:

- Table 2 Roosting preferences of different species;
- Table 3 Summary of emergence times; and
- Table 4 Foraging habitat preferences and foraging strategies of different UK species.

2.1.2 The same survey methodology would be adopted for both Stalybridge and Scout Tunnels. The proposed survey approach would rely on automated/ static detectors which would record the calls of bats entering and exiting each of the tunnels. Records would be cross-referenced with likely bat emergence times and assumptions made on roosting. Sections 2.2 – 2.7 below provides further clarification into the proposed methodology.

2.2 Bat Species Scoping

2.2.1 Table 1-2 lists all bat species that are known to breed within the UK and provides a scoping decision based upon presence in the local area and the roosting preference. A review of local record centre desk study data will be used to validate this scoping. The bat species that are scoped out are deemed as not roosting within the tunnels; any records would be assumed as foraging/ commuting.

Table 1-2 - Bat Scoping

Bat common name	Scoping decision	Justification
Brandt's bat/ Whiskered bat	Scoped In	Able to use tunnel crevice features for roosting.
Daubenton's bat	Scoped In	Able to use tunnel crevice features for roosting.
Natterer's bat	Scoped In	Able to use tunnel crevice features for roosting.
Common pipistrelle/ Soprano pipistrelle	Scoped In	Able to use tunnel crevice features for roosting.
Nathusius' pipistrelle	Scoped In	Able to use tunnel crevice features for roosting.
Brown long-eared bat	Scoped In	Able to use tunnel crevice features/potential void features for roosting.
Barbastelle	Scoped Out	Considered absent from the North West of England
Serotine	Scoped Out	Considered absent from the North West of England
Alcathoe	Scoped Out	Considered absent from the North West of England.
Bechstein's bat	Scoped Out	Considered absent from the North West of England
Grey long-eared bat	Scoped Out	Considered absent from the North West of England
Leisler's bat	Scoped Out	Unlikely to be present in local area. Prefers

Bat common name	Scoping decision	Justification
		to roost in tall trees[2].
Noctule	Scoped Out	Roosts almost exclusively in tree holes, otherwise are generally found in high roosts relative to ground level and near water
Greater horseshoe bat	Scoped Out	Considered absent from the North West of England
Lesser horseshoe bat	Scoped Out	Considered absent from the North West of England

2.2.2 Table 1-3 lists all bat species scoped in for further consideration. A May – September scoping decision, targeting day and transitional roosts denote the maximum known emergence time. A hibernation scoping decision and justification is provided. The bat species that are scoped out for hibernation are deemed as not hibernating within the tunnels; any records would be assumed as foraging/ commuting. The bat species that are scoped out for swarming are deemed as not swarming at/ within the tunnels; any records would be assumed as foraging/ commuting.

Table 1-3 – Bats Scoped In

Bat common name	Emergence time[3]			Hibernation scoping decision	Hibernation justification	Swarming scoping decision	Swarming justification
	May/ June	July	August				
Brandt's bat	30.9	24.8	29	Scoped In	Have been found hibernating in caves and other underground sites[4].	Scoped In	Swarming behaviour is common among *Myotis* species.
Whiskered bat	33.3						
Daubenton's bat	58.1			Scoped In	Have been found hibernating in tunnels.		
Natterer's bat	57.7			Scoped In	Have been found		

[2] Automated/static detector records would likely encompass foraging or commuting calls. Any calls linked to roosting would be considered to have been recorded from adjacent woodland.
[3] Emergence times taken from Table 3.3 in the BCT Guidelines. The times represent the latest (relative to sunset) mean or median emergence times (minutes) for each particular species. The time calculated is the standard deviation (range in which 95% of observations accrued in studies).
Emergence times are generalised where there is insufficient data to inform monthly differences. In this scenario, the maximum known emergence time is considered.
No data is provided for September. August emergence times will be adopted for this month.
[4] For this exercise, tunnels are considered as caves/underground sites. Namely, due to the tunnel length which would provide shelter from the elements and a relatively constant temperature relative to the outdoor environment.

Bat common name	Emergence time[3]			Hibernation scoping decision	Hibernation justification	Swarming scoping decision	Swarming justification
	May/ June	July	August				
					hibernating in railway tunnels.		
Brown long-eared bat	54	66	94	Scoped In	Have been found hibernating in underground sites.	Scoped In	Swarming behaviour is common among *Plecotus* species.
Nathusius' pipistrelle	30			Scoped In	Records are unlikely as hibernation usually occurs in mainland Europe. Remained scoped in as bats have been found in caves and underground sites.	Scoped Out	There is little evidence that *Pipistrelle* bats undergo regular swarming.
Common pipistrelle	42.7			Scoped In	Not generally found hibernating in tunnels, caves or underground sites, but may be hibernating at tunnel entrances.		
Soprano pipistrelle	47	33	34				

2.3 Day Roost & Transitional Roost Monitoring

2.3.1 Automated/ static detectors will be deployed in accordance with the BCT Guidelines for 'high' suitability structures i.e. data to be collected for a minimum of five consecutive nights per month, ideally through months April to October. Due to access restrictions, monitoring commenced in August and no data has been collected for months April – July. Temperature

permitting, monitoring will be extended into September to target transitional roosts.

2.3.2 The tunnels will be assumed as suitable for night and feeding roosts. Automated/ static monitoring would not be able to confirm the presence or absence of these roost types.

2.4 Autumn Swarming Monitoring

2.4.1 Automated/ static detectors will be deployed during the main swarming period (August – October inclusive) to identify if the tunnel is used by bats for swarming.

2.5 Hibernation Monitoring

2.5.1 Automated/ static detectors will be deployed during the main hibernation period (December – February inclusive) to identify if the tunnel is used by hibernating bats. Tunnel conditions will be monitored during each possession (i.e. once monthly over the hibernation period) whereby handheld temperature and humidity readings will be taken at fixed points along Stalybridge and Scout Tunnels. Data from nearby weather stations may be used to supplement the handheld readings if deemed necessary by the surveyor. The results will provide context (in terms of environment conditions) for the survey results collected.

2.6 Maternity Suitability

2.6.1 Both tunnels are considered to offer negligible suitability for maternity roosts. The tunnels are subject to regular increases in noise, artificial lighting, vibration and air-flow from passing trains including during the key maternity period. Whilst bats can become acclimatised to regular sources of potential disturbance, bats are usually very sensitive during the maternity season and may abandon their young if they are disturbed[5]. Additionally, internal tunnel temperatures are expected to be low year-round and maternity roosts require relatively high mean temperatures[6].

2.6.2 Though PRFs with suitable depth or extension may be present, conditions are deemed sub-optimal. Maternity roosts are scoped out for further assessment.

[5] Bat Conservation Trust (2024) *Bat roosts.* Available at: https://www.bats.org.uk/about-bats/where-do-bats-live/bat-roosts/maternity-roosts Accessed 13/08/2024.
[6] Shepherd, B., Stroud, J. (2009) *Mitigation for roosts in buildings workshop national bat conference.* Available at: https://www.bsg-ecology.com/wp-content/uploads/2017/05/Mitigation-for-roosts-in-buildings-ps-final.pdf Accessed 13/08/2024.

2.7 Proposed Interpretation of Results

Roost/ Swarming Identification

Day Roost and Transitional Roost Monitoring

2.7.1 All bat calls recorded prior to the maximum emergence time for that species will be considered as a possible roost within the tunnel. All calls that are within the defined time bracket will be subject to analysis. Records will be classified by a competent ecologist i.e. an ecologist deemed Capable in bat sound analysis and a check conducted by an Accomplished ecologist per the Chartered Institute of Ecology and Environmental Management (CIEEM) Competency Framework[7].

2.7.2 It is assumed that bats emerging from the tunnel will be echolocating as if in a cluttered environment due to the surrounding tunnel walls and track. This would be represented by a change in call features such as frequency, intensity, duration and intervals[8]. Bats commuting past the outside of the tunnel would likely echolocate as if in an open environment due to less obstacles being present. In some cases, it may be possible to differentiate between bats emerging from the tunnel which may be indicating a roost, and commuting which would indicate flight past the tunnel entrance. The classification of a day roost and transitional roost will be assessed using ecologist professional judgement based on time of year and weather conditions.

Autumn Swarming Monitoring

2.7.3 High levels of bat activity that peak later in the night during stable high-pressure, high-temperature weather conditions can indicate swarming[9], shown especially through social calling. If bat activity fits such parameters, calls will be analysed to help determine if the tunnel are used for swarming. The classification of the tunnel(s) as a swarming site will be assessed using ecologist professional judgement. Many swarming sites are also hibernation sites and it is likely that at least some of the bats swarming go on to hibernate in the same site[10]. Hibernation data can be used to help inform the presence of autumn swarming.

Hibernation Monitoring

2.7.4 A review of temperature and humidity data would inform which time periods were deemed appropriate for hibernation. It is expected that bats would

[7] CIEEM (2021) *Competency Framework.* Available at: https://cieem.net/wp-content/uploads/2023/09/Competency-Framework-2022-Web.pdf Accessed 13/08/2024.
[8] Jones, G., Holderied, M. (2007) *Bat echolocation calls: adaptation and convergent evolution*. School of Biological Sciences, University of Bristol, 274: 905–912
[9] Grubb, E. (2012) *The effect of landscape scale weather conditions on swarming activity of Natterer's bat.* MSc thesis, University of Leeds.
[10] Glover, A., Altringham, J. (2008) *Cave selection and use by swarming bat species.* Biological Conservation. 141: 1493-1504.

generally hibernate in prolonged conditions of 60-100% relative humidity with temperatures of <5°C[11], although it is acknowledged that this can vary by species. Outside of these conditions, bats may enter torpor or be fully awake.

2.7.5 When bat calls overlap with suitable hibernating conditions, inferences can be made into whether the tunnels are used as a hibernation site. This will take into account recent research which suggests that bats rouse from hibernation fairly regularly to switch roosts during the hibernation period. The classification of a hibernation roost will be assessed using ecologist professional judgement.

2.8 Limitations

Tree Roosts

2.8.1 Both tunnels are surrounded by semi-mature/ mature deciduous woodland, a valuable commuting, foraging and roosting resource for a number of UK bat species. There is a possibility that the automated/ static detector monitoring will record emergences from tree roosts and commuting/ foraging behaviour surrounding the woodland. The records would be falsely applied as a tunnel roost.

2.8.2 This limitation will be reduced by placing the automated/ static detectors inside the tunnel, on the tunnel portals and/ or at maximum distance away from trees with potential roost features.

Automated/ Static Monitoring

2.8.3 The number of bats cannot be counted using automated/ static detectors. Records would only indicate the species richness, rather than numbers present. The number of roosts could not accurately be identified as bats considered roosting may have exited from one, or multiple features.

2.8.4 Species such as brown long-eared may be under recorded due to relatively quiet echolocation calls that have not been recorded by the monitors.

2.8.5 Upon analysis of monitoring data, assumptions into the number of individual roosts will be made, relative to species recorded and emergence times.

Roost Re-entry

2.8.6 There is insufficient data on the roost re-entry time for each species as this is based upon many unknown variables including the local weather conditions, availability of prey and presence of other bats and species. Data from possible roost re-entry will be considered alongside the species recorded, environmental conditions and season, but will not be used in

[11] Perry, R. (2012) *A review of factors affecting cave climates for hibernating bats in temperate North America.* Environmental Reviews. 21.

isolation to classify the presence of a roost. The intended use of this data is to help inform the dusk emergence roosting activity which is considered more robust for this proposed approach.

Hibernation Monitoring

2.8.7 Data loggers, designed to record temperature and humidity, cannot be deployed within the tunnels as a >2 metre separation to passing trains cannot be maintained. The data loggers would therefore have to be placed outside of the tunnel portals within the open air and therefore would not provide an accurate representation of the tunnel conditions. A review of weather station data and handheld monitoring at fixed locations through both tunnels will be conducted to address this constraint.

2.9 Proposed Mitigation Licensing

The Three Tests

2.9.1 Any future licence submission for the destruction of bat roosts within Stalybridge and Scout Tunnels under PD would reference the 'three tests' which are required for a licence to be granted:

1. The proposed works can be justified in relation to preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature;
2. There is no satisfactory alternative as the associated rail network requires an essential upgrade; and
3. The surveys will determine if the proposed works will be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

2.9.2 The proposed works will follow the mitigation hierarchy of avoiding adverse effects, mitigating for impacts if this is not possible and as a last rest, compensating for impacts.

2.10 Policy 4

2.10.1 It is understood that Natural England will be expected to ensure that licensing decisions are properly supported by survey information, taking into account industry standards and guidelines. It is suggested that a Policy 4[12] licencing approach is adopted as the alternative proposed methodologies will assume roosting details including:

- The presence of a roost;
- The exact whereabouts of the roost feature;
- The number of bats within the roost; and

- The classification of roost type.

2.10.2 Mitigation and compensation will be provided to cover the maximum impact of the activity, based on an assessment of plausible scenarios (Natural England, 2022)[12]. The design will be produced with input from an AtkinsRéalis Bat Technical Lead and consultation from Natural England if deemed necessary.

2.11 Provision of Advice

2.11.1 This Technical Note is intended to inform a document review by Natural England. AtkinsRéalis intend to receive an agreement of the proposed methodology and mitigation strategy, or information on the amendments required to receive an agreement of the proposed methodology and mitigation strategy.

[12] Natural England (2022) *European protected species policies for mitigation licences.* Available at: https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences#policy-4-alternative-sources-of-evidence-to-reduce-standard-survey-requirements Accessed 14/08/2024.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT

VOLUME 3 APPENDIX 7A – LANDSCAPE AND VISUAL TECHNICAL APPENDIX

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CONTENTS

1. INTRODUCTION 1
1.1 Landscape and Visual Appraisal 1
2. RELEVANT POLICY AND GUIDANCE 2
2.1 General 2
2.2 National Policy 2
2.3 Regional Policy 2
2.4 Local Policy 3
2.5 Relevant Transport Policy 5
3. METHODOLOGY 6
3.1 Guidance 6
3.2 Scope of Appraisal 6
3.3 Approach 7
3.4 Extent of Study Area 8
3.5 Sources of Information/ Data 8
3.6 Limitations and Assumptions 9
3.7 Consultation with Stakeholders 13
3.8 Definitions of terms used to describe change 13
3.9 Landscape Sensitivity 16
3.10 Landscape Magnitude of Impact 24
3.11 Visual Sensitivity 27
3.12 Magnitude of Visual Impact Criteria 30
4. BASELINE INFORMATION 34
4.1 Existing Landscape Baseline 34
4.2 Existing Visual Baseline 57
5. APPRAISAL OF IMPACTS 84

5.1 Potential Construction Impacts 84

6. MITIGATION AND ENHANCEMENT MEASURES 85

6.1 Landscape Impacts 85

6.2 Visual Impacts 113

7. MITIGATION AND CONSIDERATION OF CONTROL MEASURES 179

8. CONCLUSIONS AND RECOMMENDATIONS 182

8.1 Policy Summary 182

8.2 Visual Impact Conclusion 183

8.3 Landscape Impact Conclusion 183

1. INTRODUCTION

1.1 Landscape and Visual Appraisal

1.1.1 This Landscape and Visual Technical Appendix presents an appraisal of the landscape and visual impacts related to the Order Scheme. As described in Volume 1, Chapter 1 of this Report [**NR14**], the Order Scheme consists of both permanent works and associated temporary works, such as the provision of site compounds. This Technical Appendix concerns itself only with those Order Scheme elements for which deemed planning permission is sought ('the Order Scheme'), as summarised in Table 1-1 of Chapter 1 of this Report [**NR14**]. This appraisal evaluates the impacts of Order Scheme during both the construction phase and the operational phase. This appraisal will:

- Summarise the relevant policies and guidelines related to landscape and visual amenity and evaluate their importance (refer to section 2 of this document).
- Describe the baseline environment concerning landscape and visual amenity by identifying the landscape and visual amenity receptors within the study areas that the Order Scheme may impact (refer to section 4 of this document)
- Present the findings of a landscape and visual appraisal that assesses the predicted impacts of the Order Scheme on landscape and visual receptors (refer to section 5 of this document).
- Outline the measures incorporated into the design of the Order Scheme aimed at avoiding or reducing any predicted adverse impacts on landscape and visual amenity (refer to section 6 of this document).
- Identify appropriate mitigation strategies to address the impacts resulting from the Order Scheme (refer to section 6 of this document).

1.1.2 Landscape impacts related to the Order Scheme involve alterations in the landscape's fabric, character or quality, as well as changes in how people experience it. Visual impact refers to the changes in people's views resulting from the Order Scheme.

2. RELEVANT POLICY AND GUIDANCE

2.1 General

2.1.1 This section provides a summary of national and planning policies of relevance to the study area of the Order Scheme. Land use designations are detailed in section 4 of this document. Further policy and guidance are covered in the Planning Statement [**NR15**].

2.2 National Policy

2.2.1 The National Planning Policy Framework (NPPF) was last updated in December 2024. The main goal of the NPPF is to achieve sustainable development, leading to positive progress in economic, environmental, and social aspects. The NPPF is built on the presumption that the planning systems should contribute towards sustainable development.

2.2.2 In relation to this proposal, the following key landscape-related policies are applicable:

- Chapter 12 Achieving well-designed places (paragraphs 131 to 141): Developments must take local character and history into consideration, including the surrounding built environment and landscape setting, without discouraging appropriate innovation or change.
- Chapter 15 Conserving and enhancing the natural environment (paragraphs 187 to 191: Developments should aim to protect and enhance valued landscapes and recognise the wider benefits of ecosystem services, including trees and woodland.

2.3 Regional Policy

2.3.1 Places for Everyone Joint Development Plan document (adopted 2024), which covers Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford, and Wigan for the period 2022 to 2039.

2.3.2 Places for Everyone (PfE) Joint Development Plan relevant policies:

- PfE Policy JP-Strat13 - This policy focuses on Green Infrastructure, aiming to enhance and protect green spaces, improve biodiversity, and ensure sustainable development across the region. The policy outlines specific measures to integrate green infrastructure into urban planning, promoting healthier environments and contributing to climate resilience.
- PfE Policy JP-G2 - This policy focuses on the Green Infrastructure Network. It aims to protect, enhance, and expand green infrastructure across the region. ‘Development within and around the Green Infrastructure Network should be consistent with delivering major green

infrastructure improvements within them and should contribute to improvements.'

- PfE Policy JP-G7 This policy focuses on Trees and Woodland. Key aspects include:
    - Protection and Enhancement: Safeguarding existing trees and woodlands and promoting their enhancement.
    - New Planting: Encouraging the planting of new trees and woodlands to increase canopy cover.
    - Biodiversity and Climate Resilience: Supporting biodiversity and contributing to climate resilience through strategic tree planting and woodland management
- 'Where development would result in the loss of existing trees, requiring replacement on the basis of two new trees for each tree lost, or other measures that would also result in a net enhancement in the character and quality of the treescape and biodiversity value in the local area, with a preference for on-site provision; and Protecting trees and woodland during the construction phase of development.'.
- PfE Policy JP-P1 This policy focuses on Sustainable Development. Key aspects include:
- High-Quality Design: Ensuring that new developments are of high design quality, contributing positively to the character and appearance of the area.
- Sustainable Construction: Promoting the use of sustainable construction methods and materials.
- Climate Resilience: Incorporating features that enhance climate resilience, such as energy efficiency and sustainable drainage systems
- 'Incorporating high-quality and well-managed green infrastructure and quality public realm, with… High-quality landscaping with Schemes'.

2.4 Local Policy

Oldham Metropolitan Borough Council

2.4.1 The adopted Development Plan for Oldham consists of the Joint Core Strategy and Development Management Policies Development Plan Document (DPD) 2011, the Places for Everyone Joint Development Plan between the Greater Manchester Local Authorities (2024), and the saved policies of the Unitary Development Plan 2006. The following policies from the Joint Core Strategy and Development Management Policies DPD are relevant to the Order Scheme. Relevant landscape and visual policies are as follows:

- Policy PO9 focuses on improving and valuing the built environment by delivering high-quality design and placing greater emphasis on place-making, creating buildings and spaces that respond positively to local distinctiveness
- Saved Policy 22 of Oldham's development plan, which protects open spaces that contribute to local distinctiveness. While the Oldham Council Local Green Space Assessment Report (July 2021)1 recommends de-designation of the site, its 'Other Protected Open Land' (OPOL) status remains until the revised Local Plan is formally adopted.
- OPOL refers to open spaces that, while not meeting the criteria for Green Belt designation, hold local importance due to their role in preserving the character and distinctiveness of an area. These sites may or may not be accessible to the public as open spaces. Proposals for development on OPOL-designated land are only permitted if they adhere strictly to the provisions outlined in Policy 22.2
- Policy 1.10 Protecting and Enhancing the Natural Environment aims to safeguard the natural environment, countryside character, and biodiversity of the Borough by prioritising nature conservation in decision-making.
- Policy 1.11, Conserving Built Heritage and Retaining Local Identity, aims to conserve the cultural heritage, historic character, distinctiveness, and local identity of buildings and areas within the borough. The extension, conversion, refurbishment, and, where necessary, redevelopment Schemes involving historic buildings will be carefully considered.

Tameside Metropolitan Borough Council

2.4.2 Tameside Metropolitan Borough Council (TMBC) is developing a new plan for the borough titled 'Homes, Spaces, Places – Shaping Tameside for Tomorrow' (HSP), in accordance with the NPPF and PfE, covering the period until 2037.

2.4.3 The UDP, adopted in 2004 and partially saved in 2007, remains a key part of Tameside's Local Plan until fully replaced by the new HSP Plan. Relevant landscape-related policies include:

- UDP Policy N1 Nature Conservation Protects designated and non-designated sites of ecological value, promotes biodiversity, and supports habitat creation and enhancement.
- UDP Policy OL6 Protection of Open Land Seeks to safeguard open land from inappropriate development, particularly where it contributes to landscape character and visual amenity.

- UDP Policy C1 Conservation of the Built Environment Protects listed buildings and heritage assets, ensuring that development proposals respect historic character and setting.

2.5 Relevant Transport Policy

Railway High-Level Output Specification (HLOS-CP7)

2.5.1 This document, prepared in accordance with schedule 4A of the Railways Act 1993 (as amended by schedule 4 of the Railways Act 2005), outlines the objectives set by the Secretary of State for the upcoming review period CP7. Covering the period from 1 April 2024 to 31 March 2029, the statement provides guidance for the Office of Rail and Road on the expected outcomes for the operations, maintenance, and renewal of railway infrastructure.

3. METHODOLOGY

3.1 Guidance

3.1.1 This appraisal has been informed by the following guidance which are recognised as the landscape industry standards for LVIA and LVA:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3)[1]
- TGN 06/19 Visual Representation of Development Proposals[2]
- TGN 02/21 Assessing Landscape Value Outside National Designations.[3]

3.2 Scope of Appraisal

3.2.1 The scope used in this Technical Appendix has been developed in accordance with the guidance set out in GLIVA3. In accordance with that guidance, this non-statutory report is referred to as an 'Appraisal' rather than an 'Assessment' and no reference is made to the level of 'significance of effect'. This Appraisal identifies and evaluates the potential magnitude of impacts (change) on landscape character and visual receptors (all people) that may arise because of the proposed Scheme Development.

3.2.2 A high-level qualitative Appraisal has been conducted to evaluate the likely impacts on various receptors resulting from the relevant elements of the Order Scheme. Additionally, initial proposals for mitigation have been developed. This appraisal assumes a "worst-case" scenario where there are likely significant changes to views or landscape, for instance, where changes may arise from modifications or the introduction of features/elements that are incongruous or in contrast to the baseline, and which are typically considered adverse. Works as a result of the Order Scheme are appraised on a site-by-site basis.

3.2.3 To facilitate comparisons and establish a "control" scenario against which the magnitude of impact of the relevant elements of the Order Scheme can be evaluated, the baseline conditions have been projected into the future to create a "modified baseline" scenario. This modified baseline incorporates elements of the broader Scheme Development works that can be carried out under permitted development rights. These elements are listed in Chapter 1,

1 Guidelines for Landscape and Visual Impact Assessment, Third Edition (Landscape Institute and Institute of Environmental Management and principles, IEMA, 2013)

2 Technical Guidance Note (TGN) 06/19: Visual Representation of Development Proposals (Landscape Institute, 2019)

3 Technical Guidance Note 02/21 Assessing Landscape Value Outside National Designations (Landscape Institute, 2021)

Table 1-2 of this Report [**NR14**], including overhead line equipment (OLE) for electrification within the Scheme area and other works. The potential impacts of the Order Scheme on the modified future baseline landscape and views have been identified, and an appraisal of the resulting magnitude of impact has been performed. This includes consideration of the potential impacts of the scheme elements subject to permitted development rights cumulatively with the Order Scheme.

3.3 Approach

3.3.1 Baseline data has been collected, during the desk study, from a study of Ordnance Survey (OS) maps, Google Earth™, aerial photographs, and other publicly available documents, such as landscape character assessments from local authorities in the area and national character mapping provided by Natural England (National Area Profiles, 2013). The baseline data was established to inform a preliminary understanding of the baseline conditions and to identify potential issues and adverse impacts. The baseline landscape character assessments utilised in this appraisal are comprehensive for both the Order Scheme elements and the wider Scheme elements subject to permitted development rights.

3.3.2 A Chartered Landscape Architect conducted a field survey to verify and supplement the desk study. The aim was to gain insights into the existing character of the area and assess the potential impacts of the relevant elements of the Order Scheme on the surrounding community. This included documenting views from representative viewpoints, along with representative photographs taken in and around the site. The surveys took place on the following dates:

- 01/07/2024: Warm and sunny with temperatures around 22°C. Visibility was good. Trees were in leaf.
- 19/07/2024: Cooler with light rain, temperatures around 18°C. Visibility was moderate due to rain. Trees were in leaf.
- 22/07/2024: Mostly cloudy with occasional showers, temperatures around 19°C. Visibility was moderate. Trees were in leaf.
- 25/07/2024: Cloudy with light rain, temperatures around 19°C. Visibility was moderate. Trees were in leaf.
- 04/08/2024: Warm and clear skies, temperatures around 23°C. Visibility was excellent. Trees were in leaf.
- 07/08/2024: Mild with light rain, temperatures around 20°C. Visibility was moderate. Trees were in leaf.
- 30/10/2024: Cool and cloudy, temperatures around 12°C. Visibility was good. Trees were in leaf.

- 25/03/2025: Cool, overcast temperatures around 16°C. Visibility was good. Trees in bud.

3.3.3 Photography was carried out in March, when the trees were not in leaf, to illustrate a worst-case scenario in the Viewpoint Photography, as shown in Figures 7.5.1 to 7.5.76 of the in Volume 2 of this Report [**NR14**]. The site visit itself was carried out in summer to understand the character of the area when trees are in leaf and was used in conjunction with the findings of the viewpoint photography to inform this appraisal.

3.3.4 The field studies looked in further detail at:

- The range of receptors whose visual amenity could possibly be affected by the introduction of new structures and associated elements/amendments to the existing site during operation; and
- The nature and condition of the existing vegetation that could possibly be affected by the construction of the proposed Scheme.

3.4 Extent of Study Area

3.4.1 Chapter 1 of this report [**NR14**] and Figures 1.1.1 to 1.1.6 in Volume 2 of this Report [**NR14**] defines the 'Order Scheme boundary' as the perimeter of each individual element of the 'Order Scheme' for which deemed planning permission is being sought.

3.4.2 Within this appraisal, the landscape and visual 'Study Areas' encompass everything inside the individual element Scheme boundary, as well as selected areas outside of it, depending on potential visibility and the characteristics of the surrounding landscape. These Study Areas are proportionate to the size and scale of each element Scheme boundary, as well as the features of the surrounding environment.

3.4.3 These individual Study Areas are refined through professional judgment, desktop research, and site surveys. Due to the proximity of certain elements of the Order Scheme, the appraisal groups related elements that share a common study area.

3.4.4 The Study Area for each element or group of the Order Scheme is illustrated in Figure 7.1.1 in Volume 2 of this Report [**NR14**].

3.5 Sources of Information/ Data

3.5.1 This Technical Appendix should be read in conjunction with the relevant document figures and Scheme drawings submitted as part of this Report [**NR14**], including:

- Volume 2, Figures 1.1.1 - 1.1.6 - Site Location Plan

- Volume 2, Figures 7.1.1 - 7.1.6 - Landscape Constraints and Designations Plans
- Volume 2, Figures 7.3.1 – 7.3.20 - Landscape Mitigation Proposals
- Volume 2, Figures 7.4.1 – 7.4.6 - Viewpoint Plan
- Volume 2, Figures 7.5.1 - 7.5.76 - Representative Viewpoint Photography

3.6 Limitations and Assumptions

3.6.1 The following limitations and assumptions are applicable to this appraisal:

- A preliminary evaluation of the impacts during the construction phase has been conducted. This appraisal provides a high-level overview of the likely impacts associated with construction activities. It is important to note that this evaluation is based on the limited and evolving information available at this stage of the project design.
- In identifying the likely impacts that would arise, for the purposes of this appraisal, it is noted and assumed that permanent works will be subject to refinement and to detailed design, which may impact results of the appraisal.
- It has been assumed that general good practice in the environmental management of construction would be applied.
- The Landscape and Visual appraisal has been conducted solely in terms of landscape and visual aspects. Impacts on heritage or ecological assets, as well as their broader context, are not included in this appraisal. Information regarding the impacts on heritage or ecological assets can be found in Appendices 5B and 6A (Historic Environment and Ecology) of this Report [**NR14**].
- The Landscape and Visual appraisal are based on views that can be accessed publicly, and the impact on private views, such as residential and commercial properties, is estimated.
- The Landscape and Visual appraisal considered daytime views and changes to the ‘sight of light’ by receptors during the hours of darkness.
- Tree removal will be limited to the minimum necessary to accommodate the Order Scheme. Working practices will be devised to ensure that the maximum number of existing trees are retained.
- A separate Arboricultural Impact Assessment (Volume 3, Appendix 8A of this Report [**NR14**]) has been undertaken regarding the Order Scheme. That document sets out a detailed appraisal of the nature, age, and quality of the existing trees and woodland and the likely impacts of the proposed Scheme.

- Scheme elements have been categorised into a landscape character area or type according to their alignment with the relevant published landscape character assessment documents. Professional judgment was made by assessing how the landscape setting of each element corresponds with the designated landscape character type, taking into account landscape elements and features both on-site and in the surrounding region.

Scheme Elements and Sites not included in Appraisal

3.6.2 Following a desktop study of the Order Scheme elements indicated within the TWAO application, a number of site interventions related to receptors, landscape, and visual aspects have been excluded, as shown in Table 3-1. It is considered that some Scheme elements may have a minimal impact, which would be barely perceptible at most, and therefore further appraisal is unnecessary as further study would be disproportionate within the context of this landscape and visual appraisal.

Table 3-1: Table of Scheme Elements or Sites not included in Appraisal

Scheme Elements	Comment
Stalybridge Tunnel Temporary Ground Stabilisation Works	The proposed works include the insertion of rock anchors and rock removal/cutting works to ensure stability within the tunnel, and all works would be underground. Therefore, no further detailed study is required as part of this appraisal as there is likely to be no direct change to the existing view or landscape character as a result of the proposals.
Lineside fencing access from Wakefield Road	Works to create an access route from Wakefield Road, through a field to the railway line for lineside fencing installation, between Printworks Road and Heyrod Road Footbridge (MVL3/6), considered as part of the Printworks Road Scheme element as noted in the Planning Statement [**NR15**].
Scout Tunnel Temporary Ground Stabilisation Works	The proposed Scheme elements involves track lowering, ground stabilisation and other improvement works. All activities would be underground. Therefore, no further detailed study is necessary as part of this appraisal, as it is unlikely to cause any direct change to the current view or landscape character as a result of the proposals.
Uppermill Rangers Car Park Site Compound (consented as part of wider Greenfield Compound	Site compound utilising an existing parking area. No further detailed study is needed for this appraisal, as it is unlikely that there will be any

Scheme Elements	Comment
works)	direct changes to the existing views. Any potential changes are so minor that they will not affect the current receptor views. Additionally, the proposals are expected to have little to no noticeable impact on the landscape character.
Wickens Underbridge Works (MVL3/29)	Ballast retention and GRP handrails. Part 8 PD Rights apply since the replacement handrails will be of the same size as the existing ones, and the other works on the bridge are minor. It is considered that no further detailed study is necessary for this appraisal, as it is unlikely that there will be any direct changes to the existing views. Any potential changes are so minor that they will not impact on the current receptor views. Additionally, the proposals are expected to have little to no noticeable impact on the landscape character.
Ravenstone Drive Footbridge Works (MVL3/35)	Views of MVL3/35 are limited from the east by the local topography. The bridge is set in a valley alongside the Huddersfield Canal. Views of the bridge are from along the Huddersfield Canal towpath PRoW. Views from properties to the east are heavily filtered by intervening vegetation and limited to the rear views from residential properties. Views from the west (Diggle) are limited by topography and intervening vegetation. It is noted that temporary construction access runs along the PRoW between No.15 and No. 17 Ravenstone Drive. This access is very narrow and directly adjacent to residential properties. Construction movement and noise will be perceptible. Limited vegetation removal is likely. Given the nature of the Order Scheme, the impact and change to long-distance views are likely to be barely perceptible and not significant. Therefore, no further detailed study is required as part of this appraisal as there is likely to be no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor views.
Standedge Tunnel Bywash Underbridge Replacement – (MVL3/39B)	It is considered that no further detailed study is necessary for this appraisal, as it is unlikely that there will be any direct changes to the existing views. Any potential changes are so minor that they will not affect the current receptor views. Additionally, the proposals are expected to have little to no noticeable impact on the landscape

Scheme Elements	Comment
	character.

Viewpoints not included in the Appraisal

3.6.3 During the desktop study phase of the appraisal, viewpoints were identified. These viewpoints were then verified on site. As a result, some viewpoint locations have been removed from the overall appraisal, as potential receptors in these locations are expected to experience little to no visual change.

Table 3-2: Table of Viewpoints not included in Appraisal

Viewpoint Ref.	Easting (OSGB36)	Northing (OSGB36)	View
VP A	395779.95	398721.7	View east along Market Street
VP 4	397026.79	399644.8	View east from Wakefield Road
VP 5	397193.76	399649.64	View west from Printworks Road
NVP 2	397523.7	401641.52	View east towards Plevins
VP 24	397283.52	401902.55	View towards northeast from 2 Abney Rd
VP 42	399917.96	407124.58	View north along High Grove Lane, Adjacent to Friezland Primary School
VP 43	400137.21	406646.18	View North from the junction of Church Road and High Grove Lane
VP 44	400708.67	408065.72	View West from Church Meadow and Church Road junction.
VP 58	399968.48	406440.24	View east from Ryefields Drive
VP 69	400773.29	408216.37	View to north and south 3 Harrop Ct Rd, PRoW 3 SADD

Scheme Elements not Included Within the Landscape Appraisal

3.6.4 During the desktop study phase of the appraisal, a number of Order Scheme elements were considered to cause no direct change to the existing landscape or only negligible changes that do not alter the existing receptor landscape, or the Order Scheme element is outside the scope of the relevant published landscape character assessment – i.e. the Order Scheme element sits within an area for which there is no landscape character assessment information available because it is classified as ‘urban’. Since the area is mainly urban, a landscape appraisal is considered unnecessary. As a result, the following elements have been removed from the landscape appraisal; these are listed in Table 3-3 below.

Table 3-3: Table of Scheme Elements not included in the Landscape Appraisal

Scheme Elements	Reason for exclusion
• Heyrod Hall Overbridge, Site Compound and Access Works (MVL3/7) • Footbridge Overbridge Works (MVL3/8) • Spring Bank Lane Overbridge (MVL3/9)	There will be no direct change to the existing landscape or a change so inconsequential that it does not alter the existing receptor landscape, either during construction or operation.
• Mossley Cottages, Pipebridge Overbridge Works (MVL3/12a) and OB Works (MVL 3/13) • Mossley Station Relocation Works • Roughtown Road Overbridge works (MVL3/17)	These elements are outside the scope of the relevant published landscape character assessment i.e. there is no landscape character assessment available because it is classified as 'urban'. Since the area is mainly urban, landscape appraisal is considered unnecessary.
• Wrights Mill Overbridge Works (MVL3/20) • PRoW upgrade works (MVL3/29) • Oldham Road Access and Drainage Works • Royal George Underbridge Works (MVL3/25) • New Oldham Road Footbridge (proposed MVL3/27B), Greenfield Station Platform 2 Secondary Means of Escape Works, and Oldham Road Overbridge (MVL3/28) Reconstruction • Diggle Road Overbridge Works (MVL3/29)	There will be no direct change to the existing landscape or a change so inconsequential that it does not alter the existing receptor landscape, either during construction or operation.

3.7 Consultation with Stakeholders

3.7.1 Additional information about the comments from consultees and the corresponding responses can be found in the Consultation Report [**NR07**] and has been incorporated into this appraisal.

3.8 Definitions of terms used to describe change

3.8.1 The GLVIA3 emphasises the importance of clarifying any assumptions underlying professional judgements; therefore, where descriptive scales are used to describe the nature and magnitude of impact likely to occur as a result of the Order Scheme, which differs from the previously defined scales, the following definitions apply (all derived from GLVIA3).

Nature of change to landscape/landscape character

3.8.2 The nature of change is defined as follows:

- Direct (resulting directly from the Order Scheme) or Indirect (consequential change resulting from the Order Scheme);
- Permanent or Temporary (if temporary, a timescale will be described); and
- Adverse, Beneficial, or Neutral.

3.8.3 GLVIA3 acknowledges that determining whether change is positive, negative, or Neutral is a challenging issue and requires informed professional judgements to be made with reference to the following criteria as a minimum:

- The degree to which the proposal fits with the existing landscape character; and
- The contribution to the landscape that the development may make in its own right, usually by virtue of good design, even if it is in contrast to the existing character of the landscape.

Nature of view

3.8.4 This criterion describes the nature and relative amount of time over which views of the Order Scheme are likely to be experienced. Views are described as being:

- Full: views will be relatively open/unscreened and of a duration sufficient to appreciate the scale of the Order Scheme;
- Partial: views of the Order Scheme will be partially screened/filtered and/or will be of a limited duration that will not allow the full scale of the development to be fully appreciated; or
- Glimpsed: views of the Order Scheme will be largely screened, and/or the duration of views will be so limited that the receptor cannot appreciate the scale of the development.

Distance of the receptor from the Order Scheme boundary

3.8.5 This is expressed in metres or kilometres and considers the following thresholds in relation to the Order Scheme boundary:

3.8.6 Adjacent: next to or in very close proximity to any part of the Order Scheme;

- Near Distance: up to 500 m.
- Middle Distance: between 500 m and 2 km; or
- Long Distance: 2 km and above.

The extent of landscape impact

3.8.7 This criterion provides thresholds that describe the geographical extent of the landscape over which change arising as a result of the Order Scheme will be felt. Change is described as being of the following scales:

- Regional: likely to influence more than one landscape type or character area.
- Local: at the scale of a landscape type or character area.
- Immediate Setting: within proximity to the Site or
- Site only: within the Order Scheme boundary itself.

The angle of view of visual receptors

3.8.8 This criterion describes the angle of the view toward any part of the Order Scheme that a visual receptor is likely to experience in relation to the activity they are undertaking, e.g., walking along a public footpath:

- Direct: in line with the activity being undertaken.
- Indirect: not in line with the activity being undertaken.

Duration of impact

3.8.9 The duration of impacts is considered against the following thresholds:

- Temporary: During Construction.
- Short term: up to 5 years.
- Medium term: between 5 and 10 years; or
- Long term: over ten years

3.8.10 The reversibility of impacts is also considered. These are recorded as either reversible or irreversible and comprise a judgement about the prospects and practicality of a particular impact being reversed over a defined timescale.

3.9 Landscape Sensitivity

3.9.1 Whilst landscapes generally have some intrinsic sensitivity, landscape receptors have different features and elements that can accommodate different types of development and levels of change. Therefore, the sensitivity of a landscape receptor is a combination of the landscape receptor's value and the landscape receptor's susceptibility to the type of change proposed, using professional judgment.

Landscape Value

3.9.2 Landscape value has been informed by guidance in GLVIA3, and LI Technical Guidance Note (TGN) 02/21 - Assessing landscape value outside national designations. Table 3-4 below sets out a range of factors that can be considered when identifying landscape value in any of the contexts described above. It also includes examples of potential indicators of value (derived from TGN 02/21).

Table 3-4: Table of technical aspects included within the Environmental Report

Factor	Definition	Indicator
Natural heritage	Natural heritage Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contributes positively to the landscape.	• The presence of wildlife and habitats of ecological interest contribute to a sense of place. • Extent and survival of semi-natural habitat that is characteristic of the landscape type. • Presence of distinctive geological, geomorphological or pedological features. • The landscape contains valued natural capital assets that contribute to ecosystem services, for example, distinctive ecological communities and habitats that form the basis of ecological networks. • Landscape, which makes an identified contribution to a nature recovery/ green infrastructure network.
Cultural heritage	Landscape with clear evidence of archaeological, historical or cultural interest which contributes positively to the landscape	• Presence of historic landmark structures or designed landscape elements (e.g. follies, monuments, avenues, tree roundels) • The presence of historic parks and gardens and designed landscapes • Landscape which contributes to the significance of heritage assets, for example, forming the setting of heritage assets (especially if identified in specialist studies) • Landscape, which offers a dimension of time depth. This includes natural time depth, e.g., the presence of features such as glaciers and peat bogs and cultural time depth, e.g., the presence

Factor	Definition	Indicator
		of relic farmsteads, ruins, historic field patterns, historic rights of way (e.g. drove roads, salt ways, tracks associated with past industrial activity)
Landscape condition	Landscape which is in a good physical state both with regard to individual elements and overall landscape structure	• Good physical condition/ intactness of individual landscape elements (e.g. walls, parkland, trees)
Associations	Landscape which is connected with notable people, events and the arts	• Associations with well-known literature, poetry, art, TV/film and music that contribute to perceptions of the landscape • Associations with science or other technical achievements • Links to a notable historical event • Associations with a famous person or people
Distinctiveness	Landscape that has a strong sense of identity	• Landscape character that has a strong sense of place (showing the strength of expression of landscape characteristics)
Recreational	Landscape offering recreational opportunities where experience of landscape is important	• Presence of open access land, common land and public rights of way (particularly National Trails, long-distance trails, Coastal Paths and Core Paths) where appreciation of landscape is a feature • Areas with good accessibility that provide opportunities for outdoor recreation and spiritual experience/ inspiration • The presence of town and village greens • Other physical evidence of recreational use where experience of landscape is important • Landscape that forms part of a view that is important to the enjoyment of a recreational activity
Perceptual (Scenic)	Landscape that appeals to the senses, primarily the visual sense	• Distinctive features, or distinctive combinations of features, such as

Factor	Definition	Indicator
		dramatic or striking landforms or harmonious combinations of land cover • Strong aesthetic qualities such as scale, form, colour and texture • Presence of natural lines in the landscape (e.g. natural ridgelines, woodland edges, river corridors, coastal edges) • Visual diversity or contrasts which contribute to the appreciation of the landscape • Memorable/ distinctive views and landmarks, or landscape which contributes to distinctive views and landmarks
Perceptual (Wildness and tranquillity)	Landscape with a strong perceptual value, notably wildness, tranquillity and/or dark skies	• High levels of tranquillity or perceptions of tranquillity, including perceived links to nature, dark skies, presence of wildlife/ birdsong and relative peace and quiet[4] • Presence of wildland and perceptions of relative wildness (resulting from a high degree of perceived naturalness[5], rugged or otherwise challenging terrain, remoteness from public mechanised access and lack of modern artefacts) • Sense of particular remoteness, seclusion or openness • Night skies
Functional	Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape	• Landscapes and landscape elements that contribute to the healthy functioning of the landscape, e.g. natural hydrological systems/ floodplains, areas of undisturbed and healthy soils, areas that form carbon sinks such as peat bogs, woodlands and oceans, areas of diverse landcover (benefits pest regulation), pollinator-

4 More about tranquillity can be found in Landscape Institute Technical Information Note 01/2017 (Revised; Landscape Institute, 2017).

5 Relating to extensive semi-natural vegetation, presence of wildlife and presence of natural processes/ lack of human intervention.

Factor	Definition	Indicator
		rich habitats such as wildflower meadows • Areas that form an important part of a multifunctional Green Infrastructure network • Landscapes and landscape elements that have strong physical or functional links with an adjacent national landscape designation or are important to the appreciation of the designated landscape and its special qualities

Table source: LI TGN 02/21 (Table 1)

3.9.3 GLVIA3 (para 5.19) describes value as 'the relative value that is attached to different landscapes by society'. Table 3-5 below sets out the criteria for assessing the value of designated landscapes used in this LVA and informed by GLVIA3.

Table 3-5: Criteria considered when determining landscape value

Value	Criteria
Very High	• International and National level designated areas (e.g. World Heritage Sites, National Parks, AONBs, Registered Parks and Gardens, Scheduled Monuments, Grade I or II* Listed Buildings, SSSIs, etc) are present within the receptor. • The area is considered to be an important component of the country's character and is experienced by a high number of tourists. • The condition of the landscape and its elements is good and is generally maintained to a high standard. • Rare or distinctive elements and features are key components that contribute to the character of the area/quality of the landscape resource. • The landscape generally has an elevated level of tranquillity and may be valued for its wildness/remoteness.
High	• Regional or county-level designated areas (e.g., areas of great landscape value (AGLV), green belts, country parks, grade II listed buildings, conservation areas, etc.) are present within the receptor. • The area is considered to be an important component of the region or county's character and is experienced by a reasonable proportion of its population. • The condition of the landscape and its elements is good and is generally well-maintained.

Value	Criteria
	• Rare or distinctive elements and features may be present and will contribute to the character of the area/quality of the landscape resource. • The landscape, or areas within it, may have a high level of tranquillity.
Medium	• No designated landscapes are present, but the landscape may be valued locally (e.g. village greens, allotments, public open spaces, etc). • Use of the area is likely to be limited to the local community with informal recreational use/greenspace. • The condition of the landscape and its elements is good to fair, but it has good potential for flora and fauna. • If present, rare or distinctive elements and features are not notable components that contribute to the character of the area. • The landscape generally has a moderate level of tranquillity.
Low	• A landscape of low importance, of low quality and in fair to poor condition, with few features of value or interest. • The landscape has little or no amenity value. • Rare or distinctive elements and features are not present. The landscape has a low potential for biodiversity. • The landscape is of limited tranquillity.
Very Low	• Industrial or contaminated land. • The landscape has no amenity value. • A landscape of very low quality and in poor condition, with very low potential for biodiversity. • The landscape is not considered to be tranquil.

Landscape Susceptibility

3.9.4 Landscape susceptibility describes the ability of a landscape receptor to accommodate change (i.e. the Order Scheme) without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies or strategies. As set out in GLVIA3, susceptibility is the ability of the landscape to accommodate the proposed development without undue consequences for the baseline situation and/or the achievement of landscape planning policies and strategies (GLIVA3 paragraph 5.40).

3.9.5 Table 3-6 below sets out the criteria that have been considered when determining landscape susceptibility. As noted for landscape value, the criteria for determining susceptibility are not considered exhaustive and are applied using professional judgment used in this LVA and informed by GLVIA3.

Table 3-6: Criteria for determining landscape susceptibility

Susceptibility	Criteria
Very High	• The Order Scheme will conflict with relevant or specific national planning policies or strategies. • The landscape is of a very large scale, and/or there is a negligible level of containment, resulting in a significant degree of interaction between landform, topography, vegetation cover, field pattern and built form. • There is no existing reference or context within the receptor to the type of development proposed. • The majority of existing element(s) will be exceedingly difficult or impossible to replace (e.g., ancient woodland, mature trees, etc.). • Detracting features or major infrastructure are absent in the area. • The receptor has a very low level of ability to accept the type of development proposed, and there are very limited opportunities for mitigation.
High	• The Order Scheme will conflict with relevant or specific local planning policies or strategies. • The landscape is large-scale, and/or there is a low level of containment, resulting in a moderate degree of interaction between landform, topography, vegetation cover, field pattern, and built form. • There is little or no existing reference or context within the receptor to the type of development proposed. • The majority of existing element(s) will not be easy to replace (e.g. ancient woodland, mature trees, etc). • Detracting features or major infrastructure are absent in the area or, where present, these have little influence on the character or experience of the landscape. • The receptor has a low level of ability to accept the type of development proposed, and there are limited opportunities for mitigation.
Medium	• Specific local planning policies or strategies will not support the Order Scheme but may be in line with general policy, guidance or strategies. • The landscape is of a medium scale, and/or there is a moderate level of containment, resulting in a minor degree of interaction between landform, topography, vegetation cover, field pattern and built form. • There is some existing reference or context within the receptor to the type of development proposed. • There are limited opportunities for replacement of existing elements. • Detracting features or major infrastructure are present in the area, and these have a noticeable influence on the character or experience of the landscape.

Susceptibility	Criteria
	• The receptor has a medium level of ability to accept the type of development proposed, and there are good opportunities for mitigation.
Low	• The Order Scheme will be in line with local planning policies, strategies or guidance, and the Site may be allocated for the type of development proposed. • The landscape is of small scale and/or has a high level of containment, resulting in only a slight degree of interaction between landform, topography, vegetation cover, field pattern and built form. • There are many existing references within the receptor to the type of development proposed. Few/no existing landscape elements are present (e.g. brownfield sites), or where these are present, they can easily be replaced. • Some existing features are detracting, and/or major infrastructure is present, which has a noticeable influence on the character or experience of the landscape. • The receptor has a high level of ability to accept the type of development proposed, and there are good opportunities for mitigation and enhancement.
Very Low	• The Order Scheme will be in line with local and national planning policies, strategies and guidance, and the Site may be allocated for the type of development proposed. • Due to the scale of the enclosure, the receptor has no interaction with the surrounding landscape. • The Order Scheme will be in keeping with the land use of the Site and the surrounding landscape. • All landscape elements are easily replaceable. • Existing features are detracting, and/or major infrastructure is present, which heavily influences the character or experience of the landscape. • The receptor has a very high level of ability to accept the type of development proposed, and there are very good opportunities for mitigation and enhancement.

Landscape sensitivity

3.9.6 The sensitivity of receptors is assessed by combining judgements on the value (see Table 3-5) attached to the landscape resource and its susceptibility (see Table 3-6) to the type of change proposed, i.e. a judgement about the nature of the Order Scheme and the baseline capacity of the landscape to accept that type of change. The sensitivity of landscape receptors will vary, therefore, depending on the type and nature of the development proposed.

3.9.7 Table 3-7 below illustrates how a combination of the value and susceptibility of the landscape receptor determines sensitivity. The sensitivity of landscape receptors is described using a five-point word scale. Intermediate levels of sensitivity can also be attributed to receptors where relevant.

Table 3-7: Matrix for determining landscape sensitivity

Landscape Sensitivity						
Value of Landscape						
Susceptibility to Change		**Very Low**	**Low**	**Medium**	**High**	**Very High**
	Very Low	Very Low	Low	Low	Medium	Medium
	Low	Low	Low	Medium	Medium	High
	Medium	Low	Medium	Medium	High	High
	High	Medium	Medium	High	High	Very High
	Very High	Medium	High	High	Very High	Very High

3.10 Landscape Magnitude of Impact

3.10.1 The magnitude of the impact of landscape change is influenced by a number of factors, including the extent to which landscape features are lost and/or altered, the introduction of new features into the landscape and the resulting change in the physical and/or perceptual characteristics of the landscape. It is determined by, but not necessarily limited to the following factors as set out in GLVIA3:

- The size and scale of the impact;
- The extent of the geographical area over which change is likely to be felt;
- The duration of the impact and its potential reversibility; and
- The proximity of the landscape receptor to the Site and the nature of the impact.

3.10.2 Consideration has been given to the location of character areas in relation to the Order Scheme as it is recognised that landscape features and elements in close proximity to a proposed development would usually have a much stronger influence on the sense of the landscape character than more distant features. It is, however, acknowledged that more distant features can also have an influence.

3.10.3 The magnitude of the impact on landscape change is described using a five-point word scale. Intermediate levels of magnitude can also be attributed to receptors where relevant. Magnitude is assessed as being Very High, High, Medium, Low or Very Low.

3.10.4 The magnitude of the impact of landscape change has been assessed with reference to the criteria set out in Table 3-8, with professional judgment applied in its determination.

Table 3-8: Criteria considered when determining the magnitude of landscape impact

Magnitude	Criteria	Adverse/Beneficial Descriptor
Very High	The geographical extent of change will influence the landscape at a national level. Impacts will be considered long-term and will either be irreversible or very difficult to reverse in practical terms	**Adverse:** The size and scale of change are considered to be very high due to the total loss of or alteration to existing landscape character or highly distinctive/important features and elements and/or the addition of uncharacteristic conspicuous features and elements, resulting in a complete negative change to key aesthetic or perceptual qualities.
		Beneficial: The size and scale of change are considered to be very high due to the successful establishment or re-establishment of the wider/former landscape character or highly distinctive/important features and elements and/or the addition of characteristic features and elements to a degraded landscape, resulting in a complete positive change to key aesthetic or perceptual qualities.
High	The geographical extent of change will influence the landscape at a regional level. Impacts will be considered long-term and will either be irreversible or very difficult to reverse in practical terms.	**Adverse:** The size and scale of change are considered to be high due to the notable loss of or alteration to existing landscape character or distinctive/important features and elements, and/or the addition of uncharacteristic noticeable features and elements, degrading the integrity of key aesthetic or perceptual qualities.
		Beneficial: The size and scale of change are considered to be high due to the notable increase of or alteration to existing landscape character through the establishment of distinctive/important features and elements and/or the addition of characteristic noticeable features and elements, which enhance the integrity of key aesthetic or

Magnitude	Criteria	Adverse/Beneficial Descriptor
		perceptual qualities.
Medium	The geographical extent of change will influence the landscape at a local level. Impacts will be considered medium-term and potentially reversible, although it may not be practical to do so.	**Adverse:** The size and scale of change are considered to be medium due to the partial loss of or alteration to existing landscape character or features and elements, and/or the addition of uncharacteristic features and elements, resulting in key aesthetic or perceptual qualities out of scale or at odds with the local pattern and landform.
		Beneficial: The size and scale of change are considered to be medium due to the partial increase of or alteration to existing landscape character to establish features and elements, and/or the addition of characteristic features and elements, resulting in key aesthetic or perceptual qualities that are in scale and complement the local pattern and landform.
Low	The geographical extent of change will influence the immediate setting of the Order Scheme. Impacts will be considered short-term and/or potentially reversible and, in practical terms, will easily be achievable.	**Adverse**: The size and scale of change are considered to be low due to minor loss or alteration of existing landscape features and elements, resulting in a discernible negative impact on key aesthetic or perceptual qualities.
		Beneficial: The size and scale of change are considered to be low due to minor increases or alterations of existing landscape features and elements, resulting in a discernible positive impact on key aesthetic or perceptual qualities.
Very Low	The geographical extent of change will influence the	**Adverse**: The size and scale of change to existing landscape features and elements are considered to have a barely discernible negative impact overall.

Magnitude	Criteria	Adverse/Beneficial Descriptor
	Site only. Impacts will be considered short-term/temporary and/or easily reversible and, in practical terms, will very easily be achievable.	**Beneficial:** The size and scale of change to existing landscape features and elements are considered to have a barely discernible positive impact overall.
Neutral	No direct change to the existing landscape or a change that is so inconsequential that it does not alter the existing receptor landscape.	

3.11 Visual Sensitivity

3.11.1 Visual receptors are people and comprise individuals or groups of people who are likely to be affected by the Order Scheme at specific viewpoints or a series of viewpoints. The sensitivity of visual receptors is determined by balancing judgements about the susceptibility of receptors to changes in their views and visual amenity (i.e. by the Order Scheme) with the baseline value attached to the view by the receptor.

3.11.2 Receptors have been selected to represent a range of likely impacts arising as a result of the Order Scheme, taking into account factors, including the number and sensitivity of viewers likely to be affected.

Value of View

3.11.3 A view is valued through formal designation and/or indicators of value attached by people. In determining sensitivity to change of a visual receptor, this appraisal considers the value of views as the attachment to the view likely to be experienced.

3.11.4 Table 3-9 sets out the value attached to visual receptors in order to establish a consistent and objective baseline against which the potential impacts arising as a result of the Order Scheme can be assessed. As noted for the Landscape Value above, the list of factors noted in the criteria below is not considered exhaustive. Professional judgment is applied to determine an appropriate value for each view informed by GLVIA3.

Table 3-9: Criteria considered when determining the value attached to views

Value	Criteria
Very High	• Views from/over/toward landscapes of International and National importance (e.g. World Heritage Sites, National Parks, AONBs, Registered Parks and Gardens, Scheduled Monuments, Grade I or II* Listed Buildings, SSSIs, etc.), particularly where the view contributes to the significance of the asset. • Views from viewpoints within highly popular visitor attractions/tourist destinations. • Protected views.
High	• Views from/over/toward landscapes of Regional or County importance (e.g. Areas of Great Landscape Value (AGLV), Country Parks, Long Distance Trails, Grade II Listed Buildings, Conservation Areas, etc). • Views from viewpoints within moderately popular, well-used visitor attractions/tourist destinations, including long-distance trails, rights of way, etc. • Views to which receptors have a proprietary interest, including residential properties.
Medium	• Views from/over/toward landscapes of local importance, which may be subject to designation (e.g. village greens, allotments, public open spaces, etc.). • Views from landscapes/viewpoints not used by substantial numbers of people, including public rights of way, touring routes, cycle paths, canals, public open spaces, etc.
Low	• Views from/over/toward landscapes with no designations and of at most local importance. • Views from viewpoints which could be more popular or recognised as being destinations in their own right, including infrequently used rights of way. • Views with no cultural associations.
Very Low	• Views from landscapes of no importance, of poor scenic quality or with no sense of tranquillity.

Visual receptor susceptibility

3.11.5 The susceptibility of different receptors to changes in their views and visual amenity is a function of the occupation or activity of people experiencing a view at a particular location and the extent to which their attention is focused on the view and visual amenity they experience.

3.11.6 Table 3-10 sets out the criteria that have been considered when determining the susceptibility of visual receptors to change. As noted for the value of views, the criteria for determining susceptibility are not considered

exhaustive and are applied using professional judgment and informed by GLVIA3.

Table 3-10: Criteria for determining the susceptibility of visual receptors

Susceptibility	Criteria
Very High	• Tourists and visitors to heritage assets or other attractions where views of the surroundings are an important part of the experience.
High	• Occupiers of residential properties with clear views toward the development. • People engaged in outdoor recreation whose attention is likely to be focussed on the landscape and/or particular views or for whom their appreciation of views is an essential factor in the enjoyment of the activity. • People travelling through the landscape on roads, rail or other routes on recognised scenic routes or where there is a distinct awareness of views of their surroundings and their visual amenity.
Medium	• Occupiers of residential properties with oblique or partially screened views. • People at work and in educational institutions for whom the appreciation of setting is essential to the quality of working/school life, with oblique or partially screened views. • People staying in hotels and healthcare institutions who are likely to appreciate views of their surroundings. • People engaged in outdoor recreation or sport, which involves an appreciation of views (including public rights of way, touring routes, cycle paths, public open spaces, etc.) but are not used by substantial numbers of people. • People travelling through the landscape for short periods on roads, rail, canals or other routes who are likely to experience and appreciate views of their surroundings or are passing through the landscape to enjoy the view.
Low	• Occupiers of residential properties with limited views of the development. • People at their place of work where the appreciation of the setting is of limited importance to the quality of working life. • People staying in hotels and healthcare institutions who are unlikely to appreciate views of their surroundings. • People engaged in outdoor recreation or sport which does not involve an appreciation of views. • People travelling through the landscape who have limited views of their surroundings or for whom the appreciation of views is of limited importance to their journey (e.g. on main roads, rail corridors,

Susceptibility	Criteria
	infrequently used public rights of way or footways adjacent to carriageways).
Very Low	• People travelling through the landscape often at high speed (e.g. on motorways and mainline railways). • People who have no views of their surroundings or for whom views of their surroundings are not important.

Visual sensitivity descriptions (value and susceptibly)

3.11.7 Sensitivity is specific to each visual receptor and reflects a balanced judgement on the value attached to the view by the receptor, their visual amenity and its susceptibility to the type of change proposed. The matrix in Table 3-11 Matrix for determining the significance of the impact illustrates how a combination of value and susceptibility of the visual receptor determines sensitivity.

3.11.8 The sensitivity of visual receptors is described using a five-point word scale. Intermediate levels of sensitivity can also be attributed to receptors where relevant. Sensitivity is assessed to be Very High, High, Medium, Low or Very Low.

Table 3-11: Matrix for determining visual sensitivity

Visual Sensitivity						
Value of Landscape						
Susceptibility to Change		**Very Low**	**Low**	**Medium**	**High**	**Very High**
	Very Low	Very Low	Low	Low	Medium	Medium
	Low	Low	Low	Medium	Medium	High
	Medium	Low	Medium	Medium	High	High
	High	Medium	Medium	High	High	Very High
	Very High	Medium	High	High	Very High	Very High

3.12 Magnitude of Visual Impact Criteria

3.12.1 The impact on visual receptors is assessed with regard to the magnitude of impact on the views and visual amenity of people arising as a result of the Order Scheme. The magnitude of visual impact is evaluated in relation to its size or scale, its geographical extent and its duration and reversibility.

3.12.2 The magnitude of visual change is described using a five-point word scale. Intermediate levels of magnitude can also be attributed to receptors where relevant. Magnitude is assessed as being Very Large, Large, Medium, Small, Very Small, or Neutral.

3.12.3 The magnitude of visual impact has been assessed with reference to the criteria set out in Table 3-12 and has professional judgment applied in its determination within the appraisal.

Table 3-12: Criteria for determining the magnitude of visual impact

Magnitude	Criteria	Adverse/Beneficial Descriptor
Very High	The geographical extent of change is considered to be very high due to the adjacent or close proximity of the receptor to the development, the full and/ or direct view and the substantial extent of the view that will change as a result of the development. Impacts will be considered long-term and will either be irreversible or very difficult to reverse in practical terms.	**Adverse**: The scale of change is considered to be very high due to the total loss or major alteration to existing key elements/features/characteristics of views. distance
		Beneficial: The scale of change is considered to be very high due to the total increase or major addition of/to key elements/features/characteristics of views. The Order Scheme removes/mitigates major detractors, creates a new focus and has a defining positive influence on the view.
High	The geographical extent of change is considered to be high due to the near distance proximity of the receptor to the development, the full and/or near direct to a slight angle of view and the substantial extent of the view that will change as a result of the development. Impacts will be considered long-term and will either be irreversible or difficult to reverse in practical terms.	**Adverse**: The scale of change is considered to be high due to the major loss or alteration to existing key elements/features/characteristics of views. The Order Scheme forms a notable detractor, changing the composition of the view. The degree of contrast/integration of the proposals has a negative influence on the baseline situation and nature of the view.
		Beneficial: The scale of change is considered to be high due to the major increase or addition of/to key elements/features/characteristics of views. The Order Scheme removes/substantially mitigates notable detractors and changes the composition of the view. The degree of

Magnitude	Criteria	Adverse/Beneficial Descriptor
		contrast/integration of the proposals has a positive influence on the baseline situation and nature of the view.
Medium	The geographical extent of change is considered to be medium due to the middle distance of the receptor to the development, the partial and/or oblique angle of view and the reasonable extent of the view that will change as a result of the development. Impacts will be considered medium-term and will potentially be reversible, although it may not be practical to do so.	**Adverse**: The scale of change is considered to be medium due to the reasonable extent of loss or alteration to existing key elements/features/characteristics of views. The Order Scheme forms a detractor, changing the composition of the view. The degree of contrast/integration of the proposals has a slightly negative influence on the baseline situation and nature of the view.
		Beneficial: The scale of change is considered to be medium due to the reasonable increase or addition of/to key elements/features/characteristics of views. The Order Scheme partially removes or mitigates detracting influences, changing the composition of the view. The degree of contrast/integration of the proposals has a slightly positive influence on the baseline situation and nature of the view.
Low	The geographical extent of change is considered to be low due to the middle to long distance of the receptor from the development, the glimpsed and/or indirect angle of view and the minimal extent of the view that will change as a result of the development. Impacts will be considered short-term, will potentially be reversible, and, in practical terms, will easily be achievable.	**Adverse**: The scale of change is considered to be low due to the reasonable extent of loss or alteration to existing key elements/features/characteristics of views, the composition of the view, and the degree of contrast/integration of the proposals provides a very limited negative influence on the baseline situation and nature of the view.
		Beneficial: The scale of change is considered to be low due to the reasonable increase or addition of/to key elements/features/characteristics of views. The Order Scheme partially removes or mitigates detracting influences, changing the composition of the view. The degree of contrast/integration of the proposals has a very limited positive influence on the

Magnitude	Criteria	Adverse/Beneficial Descriptor
		baseline situation and nature of the view.
Very Low	The geographical extent of change is considered to be barely perceptible due to the long distance of the receptor from the development, the glimpsed and/or indirect angle of view and the extent of the view that will change as a result of the development. Impacts will be considered short-term or temporary, will easily be reversible, and, in practical terms, will be very easily achievable.	**Adverse**: The size and scale of change are considered to be very low due to the barely perceptible negative extent of loss/addition/alteration of features within the view, the change to the composition of the view, the degree of contrast/integration of the proposal with the baseline situation and the nature of the view.
		Beneficial: The size and scale of change are considered to be very low due to the barely perceptible positive addition/alteration of features within the view, the change to the composition of the view, the degree of contrast/integration of the proposal with the baseline situation and the nature of the view.
Neutral	No direct change to the existing view or a change that is so inconsequential that it does not alter the existing receptor view.	

4. BASELINE INFORMATION

4.1 Existing Landscape Baseline

4.1.1 This section identifies the landscape designations and protected areas. It focuses on landscape and landscape-related designations, landscape character, land use, landscape elements and features and settlement and built elements. Landscape features and elements that would potentially be affected by the Order Scheme are generally limited to those that lie within the relevant boundary of each element which the Order Scheme comprises as per Volume 1, Chapter 1, Table 1-1 of this Report [**NR14**].

Landscape and Landscape-Related Designations

4.1.2 Designated landscapes are areas identified as important at international, national, regional or local levels as defined by statute or in policy documents.

4.1.3 Part of Standedge Tunnel is located within the Peak District National Park (PDNP). However, the wider Scheme proposals are consented as part of PD and all within the tunnel, which runs beneath the park and would have no direct landscape or visual impact within the PDNP. Therefore, no further reference is made to the PDNP or Standedge Tunnel area as part of this appraisal.

4.1.4 The remaining Order Scheme elements Study Areas have no national statutory designations relating to landscape value.

Trees and Woodlands

4.1.5 A detailed tree survey has been completed; for details, refer to Volume 3, Appendix 8A (Arboriculture) of this Report [**NR14**].

4.1.6 The Order Scheme will require the removal of a number of trees and tree groups currently within its footprint. This includes 31 individual trees, 55m² of trees within groups, 41,887m² of tree groups, and 18,438m² of woodland, primarily in BS 5837[6] Categories B and C. No hedgerows are affected. Where trees are only partially within the footprint, decisions on retention were

[6] BS 5837 Trees in relation to design, demolition and construction – Recommendations.

Tree Categorisation: Trees are classified into four categories (A, B, C, U) based on their quality and value:
Category A: High quality and value – ideally retained.
Category B: Moderate quality – retention desirable.
Category C: Low quality – retention optional.
Category U: Poor condition – unsuitable for retention.

based on the extent of Root Protection Area (RPA) encroachment and site conditions that may have limited root growth.

4.1.7 Several trees protected by Tree Protection Orders (TPOs) in Tameside and Oldham are affected by the proposed works. At Abney Road, 64m² of a mixed species group is to be removed. Along Wakefield Road, one to two individual trees are to be removed from groups G11, G9, and T7, with the rest to be cut back as shown on the Tree Protection Plan. In Oldham, 55m² of woodland is to be removed under one TPO, and 10,036m² of Goat Willow woodland plus one tree under a separate TPO. All impacts are subject to on-site confirmation and will be finalised in the Arboricultural Method Statement as part of the Landscape and Ecological Management Plan (LEMP). The LEMP is intended to be the subject of a planning condition and applies to the Order Scheme that require planning permission, as described in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**].

Ancient Woodland

4.1.8 There are no impacts to any veteran trees or areas of ancient woodland, as reported in the arboricultural report for details, refer to Volume 3, Appendix 8A (Arboriculture) of this Report [**NR14**].

Green Belt

4.1.9 Land designated as green belt is aimed at preventing urban sprawl by keeping land permanently open, helping protect the countryside, and moving towards more sustainable urban development patterns. All of the areas of land surrounding the urban areas within the relevant Scheme elements study areas are designated as forming part of the Greenbelt for Merseyside and Greater Manchester. For details showing the extent of green belt in the area, refer to Figure 7.1.1 within Volume 2 of this Report [**NR14**].

4.1.10 The following Order Scheme elements are located within the green belt:

- Printworks Office & Printworks Compound
- Wakefield Road Plant Access (Black Rock sidings), Manchester Road Underbridge (MVL3/10), and Drainage Works
- Heyrod Hall Storage Compound and MVL3/7 Heyrod Hall Overbridge
- Springbank Lane Footbridge (MVL3/8)
- Manchester Road Footbridge Overbridge (MVL3/10a)
- Scout West Laydown
- Scout West Ramp

- Scout West Spoil Point
- Scout East Access and Scout East Carpark
- Scout East Laydown
- Stockport Road Level Crossing
- Heron Lane Compound
- OB Wright Mill Overbridge (MVL3/20)
- Wright's Bridge Overbridge (MVL3/23)
- Diversion of PRoW between MVL3/22 and MVL3/23
- PRoW upgrade (MVL3/29)
- Lineside Fencing Access from Oldham Road
- Uppermill Viaduct (MVL3/31)
- Saddleworth Old Railway Tunnel Site compound (Butterhouse Lane)
- Grandpa Green's1 Site Compound
- Grandpa Greene's 2 (Ward Lane MVL3/36) - Compound
- Diggle compound
- Station Road Overbridge (MVL3/39) and MVL3/39b-UB Underbridge
- Diggle Access and Diversion

Footpaths, PRoW, National Trails and Access

4.1.11 There are several PROWs within the relevant Scheme study areas. However, only those which pass through or within the Order Scheme boundary would likely be impacted by the Order Scheme. These are listed in the below Table 4-1.

Table 4-1: Footpaths, PRoW, National Trails and Accesses within the Order Scheme boundary

Scheme elements	PRoW Route Ref.
Heyrod Hall Overbridge (MVL3/7), Site Compound and Access Works	STA/16/10, STA/16/20
Works to Footbridge off Springbank Lane (MVL3/8)	STA/12/10, STA/12/20
Manchester Road Footbridge Overbridge Works (MVL3/10A)	MOS/116/10, MOS/117/10
Scout East Access	MOS/89/10, MOS/89/20
Scout East Laydown	MOS/89/10, MOS/89/20
Mossley Station Relocation Works	MOS/81/10

Scheme elements	PRoW Route Ref.
Roughtown Road Overbridge Works (MVL3/17)	MOS/77/10
Roughtown Footbridge Works (MVL3/18)	MOS/86/10
Stockport Road Level Crossing and PRoW Diversion Works	MOS/5/10, MOS/5/20, OS/6/10, MOS/66/10, MOS/67/10, MOS/68/10, MOS/69/10, MOS/69/20, MOS/74/10
Heron Lane Compound	278 SADD, MOS/5/20, MOS/6/10, MOS/66/10, MOS/68/10, MOS/69/20, MOS/74/10
Wrights Mill Overbridge Works (MVL3/20)	MOS/5/20
Wright's Bridge Overbridge Works (MVL3/23)	222 SADD
Diversion of PRoW between MVL3/22 and MVL3/23	222 SADD, 218 SADD
Armit Road Compound	280 SADD, 222 SADD
PRoW upgrade works (MVL3/29)	244 SADD
Oldham Road Access and Drainage Works	76 SADD
Uppermill Viaduct Works (MVL3/31)	76 SADD, 103 SADD
Saddleworth Old Railway Tunnel Site compound (Butterhouse Lane)	106 SADD
Ward Lane Overbridge, & Ward Lane Satellite Site (MVL3/36)	75 SADD, 76 SADD
Grandpa Greene's 2 (Ward Lane MVL3/36) - Compound	76 SADD
Diggle compound	75 SADD, 80 SADD, Standedge Trail, Oldham Way, and Pennine Bridleway
Sam Road Carpark	77 SADD, 76 SADD
Diggle Road Overbridge Works (MVL3/39)	65 SADD Pennine Bridleway, 51 SADD, 53 SADD, Standedge Trail, Oldham Way
Diggle Access and Diversion	69 SADD, 65 SADD Pennine Bridleway, 53 SADD

Greenspaces

4.1.12 The following greenspaces have been identified within the Order Scheme corridor:

- Huddersfield Narrow Canal Corridor runs parallel to the railway through Mossley, Greenfield, and Uppermill, providing a linear green / blue route with towpaths, wildlife habitats, and scenic views.
- Micklehurst Loop (Mossley) A former railway line transformed into a greenway, with nearby reservoirs and woodland areas that enhance biodiversity and offer recreational opportunities.
- Brownhill Countryside Centre (Uppermill) A managed nature garden and education centre next to the canal, providing accessible green spaces and community engagement opportunities.
- Diggle Fields and Standedge Cutting, open countryside and moorland near the eastern end of the Order Scheme, leading towards the Standedge Tunnel. This area includes grazing land, footpaths, and ecological features corridor.

Landscape Character

4.1.13 Landscape Character Assessment (LCA) is the process of identifying and describing variations in the character of the landscape. It aims to identify and explain the unique combination of elements and features that make landscapes distinctive. LCAs help us understand various landscapes' qualities and values by mapping and describing Landscape Character Types and Areas. LCAs can be at a national or regional level.

National Landscape Character

4.1.14 National Character Assessment (NCA) profiles are guidance documents that can help communities to inform their decision-making about the places they live in and care for. Each profile includes a description of the natural and cultural features that shape our landscapes, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics and ecosystem services.

4.1.15 At a national scale, the Study Areas are split between the following NCAs:

- NCA Profile: 54 Manchester Pennine Fringe NE397[7]
- NCA Profile: 36 Southern Pennines NE323 [8]
- NCA Profile: 51 Dark Peak NE378[9]

7 NCA Profile: 54 Manchester Pennine Fringe NE397 Natural England January 2013

8 NCA Profile: 36 Southern Pennines NE323 Natural England July 2012

9 NCA Profile: 51 Dark Peak NE378 Natural England November 2012

4.1.16 Due to the scale of the various NCAs in relation to the size and nature of the relevant work elements of the Order Scheme, it is considered that the NCAs are unlikely to be notably affected. As such, these NCAs are not considered further within the appraisal.

Regional Landscape Character

4.1.17 The Greater Manchester Landscape Character and Sensitivity Assessment - Greater Manchester Combined Authority (GMCA), prepared by LUC in August 2018[10], describes the distinctive geographic Landscape Character Areas (LCAs) and key characteristics of their Landscape Character Types (LCTs).

4.1.18 LCTs are broad categories representing generic areas with similar landforms, vegetation, land use, and settlement patterns found in various locations. LCAs are specific geographic areas with unique combinations of LCTs, representing distinct examples of one or more. In summary, LCTs are broad categories, while LCAs are specific geographic areas that exemplify those categories.

4.1.19 The Greater Manchester Landscape Character and Sensitivity Assessment covers nine Greater Manchester local authorities (Bolton MBC, Bury MBC, OMBC, Rochdale MBC, Salford CC, Stockport MBC, TMBC, Trafford MBC and Wigan MBC) as well as the Greater Manchester Combined Authority (GMCA).

4.1.20 The Order Scheme elements and their Study Areas covered by this appraisal are not situated within the PDNP; however, the PDNP Landscape Strategy[11] identifies the LCA Dark Peak – Western Fringe area within the study area.

4.1.21 The following LCAs and LCTs are considered within the Study Area(s), and the relevant characteristics of the LCTs are contained in Table 4-2 and shown in Figures 7.2.1 to 7.2.3 in Volume 2 of the Environmental Report [**NR14**].

4.1.22 The level of sensitivity indicated for the landscape receptors (shown in Table 4-2 below) is as per the Greater Manchester Landscape Character and Sensitivity Assessment 2018 and has been verified using professional judgement in relation to the susceptibility of the LCT to the Order Scheme addressed within the appraisal.

10 greater-manchester-landscape-character-and-sensitivity-report.pdf prepared by LUC in August 2018

[11] Landscape Strategy: Peak District National Park 2019 update to the original 2009 Landscape Strategy and Action Plan

Table 4-2: Regional Landscape Character Area Summary

Landscape Character Area and Landscape Character Type Key Characteristics	Sensitivity (Value & Susceptibility)
GMCA - LCA 33: Matley and Mottram Dark Peak Foothills	
LCT: Pennine Foothills (Dark Peak): • Steep slopes from river valleys to uplands, drained by springs. • Predominantly pastoral farmland for dairying and sheep; some horse paddocks. • Enclosed by hedgerows and gritstone walls; mixed field patterns. • Cloughs feature broadleaved woodlands and industrial heritage sites. • Adjacent to urban areas like Oldham and Mossley; few settlements within. • Characterised by minor lanes and public rights of way, including Tameside Trail. • Elevated points offer views of urban lowlands and connect to Dark Peak moorlands. • Rural character affected by neglect and urban development.	Medium
GMCA - LCA 36: River Tame	
LCT Incised Urban Fringe Valleys • Steep valley sides with wooded slopes and occasional rock outcrops. • A mix of semi-natural vegetation, including riparian woodland and scrub. • Historic mill infrastructure, such as weirs, leats, and millponds, reflecting the area's industrial heritage. • Urban fringe influences, including infrastructure, housing, and recreational land uses. • Linear green corridors that provide biodiversity value and recreational access, often forming part of wider green infrastructure networks.	Medium
GMCA - LCA 30: Shore Edge to Dove Stones Reservoir	
LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak) • Elevated moorland plateaus with expansive views and a strong sense of openness. • Enclosed upland pastures defined by drystone walls and gritstone outcrops.	Medium

Landscape Character Area and Landscape Character Type Key Characteristics	Sensitivity (Value & Susceptibility)
• Heather moorland, rough grassland, and acid grassland dominate the open areas. • Sparse tree cover, with occasional shelterbelts and small woodlands in valleys. • Historic field patterns and isolated farmsteads contribute to the rural character. • Strong visual and ecological links to the adjacent Peak District National Park. • Recreational use is common, with footpaths, bridleways, and access land. • High scenic quality and tranquillity, with limited modern development.	
PDNP - LCA Dark Peak – Western Fringe	
<u>LCT: Valley Pastures with Industry</u> • A low-lying undulating valley topography, rising towards adjacent higher ground • Network of streams and localised damp hollows with millponds and leats • Small to medium-sized pastoral fields enclosed by hedgerows and drystone walls • Trees are dense along watercourses and scattered along hedgerows and around settlements • Dispersed settlement with isolated farmsteads and small clusters of dwellings • Stone-built terraced housing associated with historic mills • Narrow winding lanes, sunken on slopes	Medium

<u>Local Landscape Character</u>

4.1.23 Local-level LCAs have not been prepared for the TMBC area. However, a local-level landscape assessment was produced by OMBC. The Oldham Local Landscape Character Study, prepared by OMBC (2009)[12], which presents LCAs and LCTs identified in the borough.

[12] Oldham Local Landscape Character Study | 2009

4.1.24 The following LCAs and LCTs are considered within the Study Area, and the relevant characteristics of the LCAs are contained in Table 4-3 and shown in Figure 7.1.1 in Volume 2 of the Environmental Report [**NR14**].

4.1.25 The sensitivity for the landscape character areas and types has been established using professional judgement.

Table 4-3: Local Landscape Character Area Summary

Landscape Character Area and Landscape Character Type Key Characteristics	Sensitivity (Value & Susceptibility)
LCA 4 Tame Settled Valley	
Type 4a Rural Valley Sides Steep valley sides with steps, terraces, and deep-sided cloughs reflect the underlying geology and weathering processes. • Ancient broadleaved woodlands on the valley sides and cloughs support important fern, bryophyte, and bird species. • Improved upland inbye pastures include colourful hay meadows and damp areas essential for nature conservation. • Regular-shaped coniferous woodland blocks reduce the natural landscape character in some regions. • The moorland fringe on the upper slopes creates a distinct boundary to the valley and reveals dramatic sheer rock faces. • Gritstone walls form a distinctive field pattern on the valley sides, providing wildlife habitat and historical significance.	The PDNP exists within the LCA, and distinctive LCT elements and features are key components contributing to the area's landscape. Therefore, the landscape value is considered very high. Some existing features detract from the landscape, and major infrastructure significantly influences its character and experience. The Order Scheme will keep with the site's land use and the surrounding landscape. As a result, the susceptibility is considered very low. Overall, sensitivity is considered **Medium.**
Type 4b Urban Settlement • The settlement has a linear pattern constrained by the valley floor and lower south-facing slopes. • Urban centres are characterised by large textile mill buildings from the early Industrial Revolution. • Distinctive vernacular architecture includes textile mills and weavers' cottages, highlighting the area's industrial history. • Rural views of woodlands, pastures, and moorland contrast with the urban landscape.	Distinctive elements and features are present, which contribute to the character of the LCT area. The condition of the landscape and its elements is good and well-maintained, resulting in a high value. Some existing features detract from the landscape, and major infrastructure significantly influences its character and experience. The Order Scheme will be in keeping with the land use of the Site and the surrounding landscape. As a result,

Landscape Character Area and Landscape Character Type Key Characteristics	Sensitivity (Value & Susceptibility)
• A sense of enclosure is created by steep valley sides, closely spaced buildings, and surrounding woodlands.	the susceptibility is considered very low. Overall, sensitivity is considered **Medium.**
LCA 2 Moorland Fringe	
<u>Type 2b Settled Moorland Fringe</u> • Transitional zone between moorland and lowland areas • Gently sloping or undulating topography • Mixed land use: pastoral farming, small woodlands, scattered settlements • Dispersed stone-built farmsteads and hamlets • Irregular field patterns with dry stone walls or hedgerows • Dominated by improved grasslands with patches of rough grazing • Semi-enclosed character with open views to uplands • Historic lanes, field systems, and occasional industrial remnants	Distinctive elements and features are present, which contribute to the character of the LCT area. The condition of the landscape and its elements is good and well-maintained, resulting in a high value. Some existing features detract from the landscape, and major infrastructure significantly influences its character and experience. The Order Scheme will be in keeping with the land use of the Site and the surrounding landscape. As a result, the susceptibility is considered very low. Overall, sensitivity is considered **Medium.**

<u>Landscape Baseline at Site Level</u>

4.1.26 The following policies and guidance notes are applicable to the whole of the Order Scheme.

- NPPF Chapter 12 Achieving Well-designed Places
- NPPF Chapter 15 Conserving and enhancing the natural environment
- PfE Policy JP-Strat13
- PfE Policy JP-G2
- PfE Policy JP-G7
- PfE Policy JP-P1.

4.1.27 Table 4-4 sets out the policy, LCAs and LCTs at Scheme element level. The LCTs and LCAs are broken down into regional and local levels where the information is available to do so. Green belt has also been included.

Table 4-4: Summary of Policy, Landscape Character Areas and Landscape Character Types at Scheme Elements Level

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
Printworks Office & Printworks Compound	LCA 33. Mately and Mottram Dark Peak Foothills LCT Pennine Foothills Dark Peak			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Plevins Site Compound and Replacement Parking (Egmont Street)	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	
Heyrod Hall Storage Compound Heyrod Hall Overbridge (MVL3/7)				UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Springbank Lane Footbridge (MVL3/8)				UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Spring Bank Lane Overbridge (MVL3/9)				UDP Policy N1 UDP Policy C1	Merseyside and Greater Manchester

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
				UDP Policy OL6	
Wakefield Road Compound, Manchester Road Underbridge (MVL3/10), and Drainage Works	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Manchester Road Footbridge Overbridge (MVL3/10A)	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Scout West Laydown	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Scout West Ramp	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Scout West Spoil Point	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1	Merseyside and Greater Manchester

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
				UDP Policy OL6	
Scout East Access and Scout East Carpark	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Scout East Laydown	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Mossley Cottages, Stamford Road Overbridge Works (MVL3/13)				UDP Policy N1 UDP Policy C1 UDP Policy OL6	
Mossley Station Relocation Works				UDP Policy N1 UDP Policy C1 UDP Policy OL6	
Roughtown Road Overbridge (MVL3/17-OB) Works including				UDP Policy N1 UDP Policy C1	

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
New Earth Street Site Compound				UDP Policy OL6	
Springbank Lane Overbridge (MVL3/8)	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	
Stockport Road Level Crossing and PRoW Diversion	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Heron Lane Compound	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Wrights Mill Overbridge works (MVL3/20)				UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Wright's Bridge Works (MVL3/23)	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1	Merseyside and Greater Manchester

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
				UDP Policy OL6	
Diversion of PRoW between MVL3/22 and MVL3/23	LCA 36. River Tame LCT Incised Urban Fringe Valleys			UDP Policy N1 UDP Policy C1 UDP Policy OL6	Merseyside and Greater Manchester
Royal George Underbridge Works (MVL3/25)				UDP Policy N1 UDP Policy C1 UDP Policy OL6 Policy PO9 Policy 22 Policy 1.10 Policy 1.11	
Armit Road Compound	LCA 36. River Tame LCT Incised Urban Fringe Valleys		LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	
Oaklands Road Satellite (MVL3/25) – Parking and limited storage.	LCA 36. River Tame LCT Incised Urban Fringe Valleys		LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	UDP Policy N1 UDP Policy C1	

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
Including Oaklands Road Plant Access				UDP Policy OL6	
New Oldham Road Footbridge (proposed MVL3/27B), Greenfield Station Platform 2 Secondary Means of Escape Works, and Oldham Road Overbridge (MVL3/28) Reconstruction				UDP Policy N1 UDP Policy C1 UDP Policy OL6 Policy PO9 Policy 22 Policy 1.10 Policy 1.11	
PRoW upgrade works (MVL3/29)				Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester
Oldham Road Access and Drainage Works				Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester (only the Oldham Road Access lies within Green belt)

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
Uppermill Viaduct Works (MV3/31)	LCA 36. River Tame LCT Incised Urban Fringe Valleys	LCA Dark Peak Western Fringe LCT Urban	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester
Saddleworth Old Railway Tunnel Site compound (Butterhouse Lane)	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	LCA Dark Peak Western Fringe LCT Valley pastures with industry	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester
Ward Lane Overbridge, & Ward Lane Satellite Site (MVL3/36)	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	LCA Dark Peak Western Fringe LCT Valley pastures with industry	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	
Grandpa Green's 1 Site Compound	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	LCA Dark Peak Western Fringe LCT Valley pastures with industry	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester
Grandpa Greene's 2 (Ward Lane MVL3/36) - Compound	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and	LCA Dark Peak Western Fringe	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Policy PO9 Policy 22 Policy 1.10	Merseyside and Greater Manchester

Scheme Element	Landscape Character Area / Type			Relevant Local Level Planning Policy	Green belt
	Regional Landscape Character		Local Landscape Character		
	Greater Manchester Combined Authority	Peak District National Park	Oldham MBC		
	Enclosed Upland Fringes (Dark Peak)	LCT Valley pastures with industry		Policy 1.11	
Diggle compound	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	LCA Dark Peak Western Fringe LCT Valley pastures with industry	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester
Sam Road Carpark	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	LCA Dark Peak Western Fringe LCT Valley pastures with industry	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	
Diggle Road Overbridge Works (MVL3/39)				Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester
Diggle Access and Diversion	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (ark Peak)	LCA Dark Peak Western Fringe LCT Valley pastures with industry	LCA 2. Moorland Fringe LCT: Type 2b Settled Moorland Fringe	Policy PO9 Policy 22 Policy 1.10 Policy 1.11	Merseyside and Greater Manchester

Summary of Regional Landscape Character

4.1.28 The proposed Order Scheme elements span a range of landscape character areas, reflecting the varied topography and land use across the region. The Peak District National Park (PDNP) encompasses a diverse range of upland and valley landscapes. The Printworks Office and Compound is located within LCA 33: Mately and Mottram Dark Peak Foothills, characterised by the Pennine Foothills (Dark Peak) LCT, where steep slopes and moorland edges define the transitional upland fringe. A significant portion of the Order Scheme, including the Plevins Site Compound, Scout West and East works, Manchester Road structures, and Greenfield Station improvements, falls within LCA 36: River Tame, under the Incised Urban Fringe Valleys LCT. This landscape is marked by steep-sided wooded valleys, historic mill infrastructure, and green corridors that cut through urban areas, offering ecological value and visual contrast.

4.1.29 Further east, several Scheme elements such as the Butterhouse Lane Tunnel Site, Ward Lane Overbridge, and Diggle Compound are situated within LCA 30: Shore Edge to Dove Stones Reservoir, which is defined by the Open Moorlands and Enclosed Upland Fringes (Dark Peak) LCT. This area features open moorland plateaus, gritstone outcrops, and enclosed upland pastures, contributing to the scenic and ecological richness of the landscape.

4.1.30 Within the Greater Manchester Combined Authority (GMCA), the Dark Peak: Western Fringe presents a transitional landscape of undulating valley floors and dispersed settlements. Its Valley Pastures with Industry character type includes pastoral fields enclosed by hedgerows and drystone walls, with historic mill buildings reinforcing its rural identity and medium sensitivity to change.

4.1.31 A more urbanised edge is captured in the Urban LCT, where built development interfaces with moorland and rural landscapes.

4.1.32 Several Scheme elements are located within the Dark Peak Western Fringe, a transitional landscape that bridges the upland moors of the Peak District and the more settled lowlands. The Uppermill Viaduct (MVL3/31) falls within the Urban LCT, reflecting its proximity to built infrastructure and transport corridors.

4.1.33 The remaining Scheme elements, including Saddleworth Old Railway Tunnel Site (Butterhouse Lane), Ward Lane Overbridge and Satellite Site, Grandpa Green's compounds, Diggle compound, Sam Road Carpark, and Diggle Access and Diversion, are all situated within the Valley Pastures with Industry LCT. This character type is defined by gently undulating valley floors, enclosed pastoral fields, and dispersed settlements with historic mill buildings. These areas retain a strong rural identity and are considered to

have medium sensitivity to change, making them important to consider in terms of landscape integration and mitigation.

Summary of Local Landscape Character

4.1.34 In Oldham MBC, LCA 4: Tame Settled Valley is split into two distinct character types. The Rural Valley Sides (Type 4a) are marked by steep slopes, ancient woodlands, hay meadows, and gritstone walls, offering very high landscape value and medium sensitivity.

4.1.35 The Urban Settlement (Type 4b) follows a linear pattern along the valley floor, with historic textile mills and vernacular architecture contributing to a well-maintained and valued landscape.

4.1.36 Additionally, LCA 2: Moorland Fringe with its Type 2b Settled Moorland Fringe character type reflects a mix of rural and semi-rural features, including scattered farms and small settlements transitioning between open moorland and enclosed valleys.

4.2 Existing Visual Baseline

4.2.1 Seventy-two viewpoints were selected for the visual appraisal; these were agreed upon through consultation with Tameside and Oldham local planning authorities. The viewpoint locations are shown in Volume 2, Figure 7.4.1 to 7.4.6 of this Report [**NR14**], and the baseline is described in Table 4-5. The viewpoints have been selected to cover a range of receptors, from a range of distances and directions, focusing on the impact of the Order Scheme.

4.2.2 All viewpoints were carefully refined on site to minimise foreground clutter and obtain the most unobstructed view of the proposed Scheme while providing a representation of the views likely to be experienced by receptors. In some locations, the appraisal of visual impact has grouped receptors likely to experience similar impacts together.

Visual receptor sensitivity descriptions (value and susceptibility)

4.2.3 The sensitivity of visual receptors (people) is important, combining the value of a view and how susceptible these receptors are to the proposed changes, using professional judgment. Table 4-5 provides the primary receptor types identified as likely to experience impacts as a result of the introduction of relevant Scheme elements within their respective study areas.

Table 4-5: Visual Receptor Sensitivity (Vale & Susceptibility)

Type of Visual Receptor	Value and susceptibility	Sensitivity
Road Users	The view is transient, undesignated, with no cultural association and is therefore considered low value. Receptors at this location are recognised as having an incidental, fleeting, appreciation of their surroundings as they travel; therefore, the receptor susceptibility is considered low. Therefore, overall, the sensitivity is considered Low.	Low
Business	The value of the view is considered low, as it is neither designated nor has any amenity value. Additionally, the susceptibility of the view is regarded as low due to the nature of the receptor being a business user or employee. Therefore, overall, the sensitivity is considered Low.	Low
PRoW, footpaths, and bridleways. (Locally designated)	The view is considered to have local importance, resulting in a medium value. The susceptibility of the receptor is deemed medium, as their appreciation of the surroundings is incidental to travelling on the	Medium

Type of Visual Receptor	Value and susceptibility	Sensitivity
	PRoW. Therefore, overall, the sensitivity is considered Medium.	
National Trails	The view is regarded as having high value due to its status as a well-used national trail. Its susceptibility to change is also considered high because people travelling along recognised scenic routes are likely to have a clear awareness of their surroundings and visual amenity.	High
Green/open space user	The view is considered to have local importance as a recreational or destination area. The susceptibility of receptors within this location is deemed high as their appreciation of the view contributes to the amenity experience.	High
Residential	Views from residences / residential receptors are considered high value. The susceptibility of the receptor view is deemed high and, therefore, is assigned a high sensitivity.	High

Visual Receptors and Representative Viewpoints

4.2.4 The following Table 4-6 shows the viewpoint locations and Scheme Elements Study Areas, each viewpoint has a description of the view at baseline and the sensitivity of the primary receptor view.

Table 4-6: Visual Receptor Sensitivity (Value & Susceptibility)

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
Printworks Office & Printworks Compound	VP 1	396774.8	399128.2	Residential	High	View towards north and east from Wakefield Road, Heyrod. Despite the openness of the location, views of the Site from visual receptors are likely limited to close range. Residential receptors are situated adjacent to the Site along Wakefield Road, and road users travelling along Wakefield Road. Long-distance views of the Site are restricted due to surrounding vegetation and topography. Primary views of the Site from the road are open, and from an elevated vantage point, there is an unobstructed view of the Site. A low boundary wall provides minimal screening at the driver's eye level; however, views along the adjacent road network in this area are generally unobstructed. Views from the properties along Wakefield Road are at an oblique angle from the rear of the houses and are heavily filtered by the intervening vegetation.
	VP 2	396797.07	399284.49	Residential	High	View towards the east of 249 Wakefield Road, adjacent to Primrose Wood. Views towards the Site are directly adjacent to the receptor location. However, they are heavily filtered through intervening vegetation and a low-level boundary wall along Wakefield Road. The Site features in the foreground of the view, within a large panoramic vista, including views in the distance of the surrounding hills. These views are contained within a valley corridor.
Plevins Site Compound and Replacement	VP 18	397054.6	401370.45	PRoW users	Medium	View east from PRoW MOS/100/10 towards Scout Tunnel west portal. Mid-distance sequential views (i.e. views experienced while travelling along the route) looking toward the east from PRoW MOS/100/10, views along the route towards the Site are heavily filtered through intervening vegetation. Views of the Site are, therefore, limited and partial, no more than glimpsed at most. Views of

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
Parking (Egmont Street)						the Site are also contained within an expansive landscape view along the Valley. The Site forms a tiny component in the view.
	NVP 1	396736.7	401985.35	PRoW users	Medium	View east towards Plevin's Site from Luzley Road PRoW MOS/140/10. Panoramic views from an elevated vantage point across the valley. Views include long-distance vistas of the moorland and hills beyond. Due to topography and intervening vegetation, views of the Plevins site and access are limited to the existing roof structure, visible above the trees. Due to the site location, views of the Replacement Parking on Egmont Street are only available from directly adjacent to the site along Egnont Road. The site is well contained with vegetation on the boundary, and views into the site are no more than partial at most.
	NVP 3	397749.26	401810.51	Residential	High	View south along Cheshire Street towards Plevins Site. The view is concentrated on the road corridor by terraced houses along the eastern side and a woodland area to the west. The Plevins site entrance is visible at the end of the road, but trees and vegetation on either side of the entrance make visibility difficult beyond the entrance. Visibility to the Plevins site from the terraced houses is likely to be restricted to all but extreme oblique views from the house frontages. However, there is direct adjacent visibility of the proposed access route, which runs along Cheshire Road.
Wakefield Road Compound (Black Rock sidings) and Manchester Road Underbridge (MVL3/10)	VP 10b	397325.49	400200.55	Road users	Low	View North from Heyrod Bridge (MVL3/9). The viewpoint is located within close proximity of the Site, along Spring Bank Lane; the view is constrained to the rail route corridor and is heavily filtered by intervening vegetation. The existing compound is visible as vegetation has been cleared in the Site location. Views from along the road towards the Site are limited by topography and intervening vegetation; views are no more than glimpsed at most. The Site at Manchester Road Underbridge (MVL3/10) is almost imperceptible as it is heavily screened by vegetation and the topography.
	VP 12	397299.07	400505.29	PRoW users	Medium	View south, along Wakefield Road, from PRoW MOS/117/10 Lower Beestow, Millbrook. The viewpoint is located within near distance of the Site, on the junction of PRoW MOS/117/10 and Wakefield Road; the view is constrained to the road corridor and

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						is heavily filtered by intervening vegetation. sequential views from along the road towards the Site are limited by topography and intervening vegetation; views are no more than glimpsed at most due to the boundary vegetation.
Heyrod Hall Storage Compound and Overbridge Works (MVL3/7)	VP 6	397239.13	399669.36	Residential	High	View towards the west from Printworks Road. The viewpoint is located within close proximity of the Site, from Residential properties. The view is constrained to the route corridor and is heavily filtered by intervening vegetation. Views of the Site are, therefore, limited and partial. There are no long-distance views available from this location. Due to the enclosed vegetated nature of the Site.
	VP 7	397132.79	399686.9	PRoW users	Medium	View from MVL3/6 (PRoW STA/13/10) northeast along the track to MVL3/7. The visual envelope for the exiting MVL3/7 overbridge is very limited; there are few visual receptors as the overbridge is set in a railway cutting and surrounded by mature vegetation and trees. Views from Wakefield Road (A635) towards the east are restricted by built form. The access to the overbridge is private, so views were obtained from following the surrounding public footpaths. The only available view of the bridge and proposed compound area was towards the north from the MVL3/6 overbridge (PRoW STA 13/10) The viewpoint is located within close proximity of the Site, along a PRoW. The view is constrained to the rail route corridor and is heavily filtered by intervening vegetation. sequential views from along the PRoW towards the Site are limited by topography and intervention vegetation and are no more than glimpsed at most.
Springbank Footbridge Works (MVL3/8)	VP 8	397382.14	400078.14	Road users	Low	View towards the northwest from Printworks Road, Millbrook. Views of the MVL3/8 are limited due to its location in a railway cutting surrounded by dense vegetation. The Site is located in close proximity to the viewpoint location. However, views of the Site are restricted by woodland vegetation and local topography.
	VP 9	397208.67	400199.51	Residential	High	View towards the east from Wakefield Road/ John Street. The viewpoint is located at a close distance from the Site and looks east towards PRoW STA12/20; however, only the access MVL 3/8 is visible. The view is constrained by built form and local topography and is heavily filtered by intervening vegetation. Views of the Site are, therefore, limited and partial. Long-

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						distance views of the hills beyond are available to receptors from this location. Views facing Wakefield Road from the properties are likely from the upper floors looking down into the views from residences beyond those directly opposite, which are likely to be from upper floors only and extremely oblique.
	VP 10a	397325.49	400200.55	Road users	Low	View South from Heyrod Bridge (MVL3/9) towards MVL3/8. The viewpoint is situated close to the site, along Spring Bank Lane; however, the view is limited to the rail route corridor. Views of MVL3/8 are clear from the bridge; however, due to the typical sequence of views along the route, vegetation obscures the site when viewed from the route. Sequential views from along the road towards the site are restricted by topography and intervening vegetation, offering only brief glimpses at best.
Spring Bank Lane Overbridge (MVL3/9)	VP 9	397208.67	400199.51	PRoW users	Medium	View towards the east from Wakefield Road/ John Street. The viewpoint is located close to the Site and looks east towards PRoW STA12/20; however, only the access MVL 3/8 is visible. MVL3/9 is visible along Wakefield Road to the north. Views of the bridge are partially constrained by built form and local topography and are heavily filtered by intervening vegetation. Views of the Site are, therefore, limited and partial. Long-distance views of the hills beyond are available to receptors from this location. Views from Wakefield Road residential properties are likely from the upper floors only and are extremely oblique, and therefore very constrained.
	VP 11	397317.55	400121.79	PRoW users	Medium	View north from MVL3/8 (PRoW STA/12/20) along the rail track towards MVL3/9 John Street. The viewpoint is located within close proximity of the Site, along PRoW STA/12/20; the view is constrained to the rail route corridor and is heavily filtered by intervening vegetation. Sequential views from along the PRoW towards the Site are limited by topography and intervening vegetation; views are no more than glimpsed at most.
Manchester Road Footbridge	VP 13	397146.63	400495.71	PRoW users	Medium	View towards east from PRoW STA/11/20 Lower Beestow, Millbrook. The viewpoint is located at a mid-distance from the Site, along PRoW STA/11/20; the view is constrained by local topography and is heavily filtered by intervening

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
Overbridge (MVL3 /10a)						vegetation. Views of the Site are, therefore, limited and partial. Long-distance views of the hills beyond are available to receptors from this location.
	VP 14	397227.62	400698.59	Residential	High	View towards the northeast from PRoW MOS/117/10, representative of properties Lower Beestow. Views of the Site are from the near distance, partially filtered through intervening vegetation. Views of the site are, therefore, limited, although the footbridge structure is visible above and partially through the intervening vegetation. Views from residential properties are assumed to be from their frontages and from an oblique angle.
	VP 15	397279.14	400679.2	Residential	High	View northwest from boundary Close/ Manchester Road Manchester Road, Millbrook. Views of the site are from a close distance and heavily filtered through intervening vegetation. Views of the site are, therefore, limited, although the footbridge structure is visible above and partially through the intervening vegetation. Views from residential properties are assumed to be from the road frontage and from an oblique angle.
Scout West Laydown	VP 16	397298.18	401123.98	PRoW users	Medium	Adjacent view towards north from PRoW MOS/197/10 Manchester Road, Micklehurst, OL5 9QN Views of the Site are from a near distance. However, they are partially filtered through intervening vegetation and built form. The Site is located to the west of the W2B section of the rail route, beyond the proposed Scout West Ramp location. The Site is elevated in topographical position above the viewpoint location level, which also hinders visibility. Full views of the Site are limited, and they are no more than glimpsed from the road, by road users at most.
Scout West Ramp	VP 16	397298.18	401123.98	PRoW users	Medium	Adjacent view towards north from PRoW MOS/197/10 Manchester Road, Micklehurst, OL5 9QN Views of the Site are from a near distance. However, they are partially filtered through intervening vegetation and built form. The Site is located to the west of the W2B section of the rail route, beyond the proposed Scout West Ramp location. The Site is elevated in topographical position above the viewpoint location level, which also hinders visibility. Full views of the Site are limited, and they are no more than glimpsed from the road, by road users at most.

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
Scout West Spoil Point	VP 18	397054.6	401370.45	PRoW users	Medium	View east from PRoW MOS/100/10 towards Scout West Spoil Point. Mid-distance sequential views along the route looking toward the east from PRoW MOS/100/10, views along the route towards the Site are heavily filtered through intervening vegetation. Views of the Site are, therefore, limited and partial, no more than glimpsed at most. Views of the Site are also contained within an expansive landscape view along the Valley. The Site forms a tiny component in the view.
Scout East Access and Scout East Carpark	VP 17	397646.4	401172.15	PRoW users	Medium	View looking west from PRoW MOS/41/10. Mid-distance sequential views along the route looking toward the west from PRoW MOS/41/10, views along the route towards the Site are filtered through intervening vegetation. Views of the Site are, therefore, limited and partial.
	VP 18	397054.6	401370.45	PRoW users	Medium	View east from PRoW MOS/100/10 towards Scout Tunnel east portal. Mid-distance sequential views along the route looking toward the east from PRoW MOS/100/10, views along the route towards the Site are heavily filtered through intervening vegetation. Views of the Site are, therefore, limited and partial, no more than glimpsed at most. Views of the Site are also contained within an expansive landscape view along the Valley. The Site forms a tiny component in the view.
	VP 20	397413.69	401660.38	Residential	High	A representative view from the residential area adjacent to Egmont Street and Manchester Road looks south and southwest. Views of the Site are limited due to heavy filtering through intervening vegetation, topography, and built form, especially since the car park is walled. As a result, the Site can only be partially glimpsed. The change in elevation between the road, car park, and the top of the tunnel portal is evident; only the very top of the tunnel portal is visible. Mature, well-established vegetation is present on the embankment, on the portal side, and on top of the tunnel portal. The retaining wall along Manchester Road is a prominent feature, marking the change in land ownership and forming both a long horizontal and vertical structure.
	VP 21	397278.56	401581.36	Residential	High	Panorama towards the east from Andrew Street, Micklehurst. Views of the proposed access route are available in the near distance. However, views from residences are restricted to the frontages of the homes, and the perspective of

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						the Site is partial and heavily filtered through intervening vegetation, topography, and built form. The view includes long-distance vistas of the moorlands, which serve as a backdrop to the valley. Mossley is partially visible from this location within the valley. The vantage point allows for views of the proposed access route to Scout Tunnel East laydown and car park; however, these interventions are not clearly visible. The roofs of the Plevin's Site can be glimpsed in the mid-distance, but they are mostly obscured by intervening trees and vegetation from this viewpoint. This view could be considered of high value due to the clarity of the long-distance views of the moorlands. The properties along Andrew Street at this location have unobstructed views from their frontages.
Scout East Laydown	VP 19	397420.38	401524.43	Residential	High	Representative view of residential area adjacent to Egmont Street and Manchester Road, looking southwest. Views of the Site are from a near distance. However, they are partial as a result of being heavily filtered through intervening vegetation, topography, and built form (the carpark is walled). Views of the Site are, therefore limited, no more than glimpsed at most.
	VP 20	397413.69	401660.38	Residential	High	A representative view from the residential area adjacent to Egmont Street and Manchester Road looks south and southwest. Views of the Site are limited due to heavy filtering through intervening vegetation, topography, and built form, especially since the car park is walled. As a result, the Site can only be partially glimpsed. The change in elevation between the road, the car park, and the top of the tunnel portal is evident; only the very top of the tunnel portal is visible. Mature, well-established vegetation is present on the embankment, on the portal side, and on top of the tunnel portal. The retaining wall along Manchester Road is a prominent feature, marking the change in land ownership and forming both a long horizontal and vertical structure.
Mossley Cottages, Stamford Road	VP 22	397331.19	402001.09	Businesses	Low	View picking up station north and west, from the Gillery Old Brow, Micklehurst. The proposed new station location would be situated to the north of the existing station. Potential receptors include residents, pedestrians, and road users. However, views of the proposed station Site are limited. The location of the proposed new station lies within a valley, with a steep embankment on the west

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
Overbridge Works (MVL3/13)						side. At the proposed entrance to the station, which is situated to the east, both the rail track and Manchester Road are relatively level, providing unobstructed views of the Site. As the railway route continues north, however, Manchester Road dips downward, which restricts west-facing views for receptors beyond the Mill Lane junction. Similarly, views from the eastern boundary of Molley Hall and Park are also limited. Long-distance views are significantly filtered by urban structures and intervening vegetation. Adjacent views of the Site are obscured at street level due to the topography, mature trees, and surrounding buildings. Although views along Stamford Road are clear, visibility of the Site is blocked by the boundary wall on the west side of the carriageway. While some views of the existing station may be visible from the first-floor windows of the Gillery, these views would likely be partial and at an oblique angle.
	VP 23	397379.25	401849.2	Residential	High	View north along the rail track from MVL3/12 PRoW MOS/137/20 representative of Mossley Cottages (rear views). Near distance and adjacent views of the Site from this location are generally contained within the rail corridor route; this is due to the route being within the cutting and heavily influenced by built form. Views of the Site are very close, though from Mossley cottages would be from the rear of the properties and on an oblique angle.
Relocated Mossley Station Works	VP 25	397316.37	402277.68	Residential	High	View towards the north through to south, representative of views from Stamford Rd (Rock Bank) residence frontages. It is assumed that views from these residences are primarily obtained from upper-floor windows. The sightlines towards the station to the south are at an oblique angle, while views of the Site itself are to the north and west. These views are experienced from near and mid-distance, but they are partial because they are heavily filtered by intervening vegetation, topography, and existing structures, including the wall along Stamford Road. As a result, Site views are limited and can only be glimpsed. Residential properties can be seen along Manchester Road from this location. These face the proposed site of the relocated station. Currently, their view is mostly obscured by the wall that runs along Manchester Road; however, views of the site beyond the wall are available. These views for the Manchester Road

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						residential receptors are of the steep vegetated embankment behind the current railway compound.
	VP 26	397502.19	402555.05	Residential	High	View towards the southwest from the junction of Manchester Road/Mill Lane. Views of the Site from the road are restricted by the built environment and topography. Only partial views would be available to road users, and these views would be sequential along the route and fleeting. Residents along Manchester Road would have the clearest views of the relocated station. However, it is important to note that residents of houses opposite the proposed site would have visibility from their upper floors, since the existing wall along Manchester Road would block ground floor views, revealing only the proposed compound and construction site above the wall.
	VP 27	398421.39	402083.02	Road users	Low	View west from Micklehurst Rd, Mossley, Ashton-under-Lyne OL5 9LA. The viewpoint location is representative of long-distance views from the road network; views of the Site are limited to along railway and road corridors; this is a result of the built environment, topography and vegetation. The Site from this location is a minor form within a wider view; only the tops of existing trees are visible from this location.
	VP 29	397370.18	402564.47	PRoW users	Medium	View towards southeast from Brookfields PRoW MOS/81/10 adjacent to Archer Street. Views of the Site from Archer Street residential properties are obscured by the local landform and vegetation, which create a visual barrier. However, Brookfields PRoW MOS/81/10, which leads from Archer Street, crosses this visual screen and offers somewhat clearer views of the proposed compound location. Views of the existing station are limited due to its low position and the intervening vegetation.
Roughtown Road Overbridge Works (MVL3/17) including New	VP 30	397605.48	402782.62	PRoW users	Medium	View along PRoW MOS/77/10 from northeast to southeast towards Roughtown Road. Roughtown Road Overbridge (MVL3/17) is visible and set down from the road within a rail cutting. Visibility is partial due to the position within the cutting and intervening vegetation and trees. This viewpoint is directly adjacent to the site; the work's access is along the existing route.

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Earth Street Site Compound						The new East Street compound, while not within the viewpoint photographic shot, is located to the south of MVL3/17. It is a wooded area situated between the railway and PRoW. The area slopes down from the PRoW to the railway.
	VP 31	397593.57	402705.3	PRoW users	Medium	View along track north towards MVL3/17 from MVL3/16 PRoW MOS/84/20 New Earth Street. The viewpoint is in close proximity to the Site, situated along PRoW MOS/84/20. Views of the intervention Site are screened by the railway-cutting location and the surrounding topography. Additionally, views of the working area are limited due to intervening vegetation. sequential views from along the PRoW towards the Site are restricted due to both the topography and the presence of vegetation. The New Earth Street compound is located to the south of MVL3/17. It is a wooded area situated between the railway and PRoW. The area slopes down from the PRoW to the railway. Views of the site are limited due to the local topography and vegetation; however, the tops of trees are visible from this viewpoint.
Roughtown Road Footbridge works (MVL3/18)	VP 32	397723.05	402832.73	Road users	Low	View north from MVL3/17 to MVL3/18 from Roughtown Road. Views of the intervention Site are screened by the railway-cutting location and the surrounding topography. Sequential views from along the road towards the Site are restricted due to both the topography and the presence of vegetation. The view is open from MVL3/17. However, views by receptors are likely to be fleeting with views focused on the direction of travel.
	VP 33	397703.59	402894.6	PRoW users	Medium	View east from PRoW MOS/72/10 Foxwood Drive, Micklehurst, OL5 0SH The viewpoint is located at a mid-distance from the Site along the public right of way (PRoW) MOS/72/10. Views of the intervention Site are largely obstructed by the railway cutting and the surrounding topography. Only the tops of trees and a small portion of MVL3/18 are visible. Moreover, views of the working area are further limited by intervening vegetation. Sequential views from along the PRoW towards the Site are restricted due to both the landscape's elevation and the presence of trees. Overall, the Site is a negligible feature, partially hidden within a broader view that includes distant vistas of the surrounding hills.
Stockport Road Level Crossing	VP 34	397824.55	403237.76	PRoW users	Medium	View from MOS/73/20 Heron Lane. This viewpoint is located at a close distance, offering open and panoramic views

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
and PRoW Diversion						of the surrounding area. However, the views of the Site itself are partially obstructed by intermittent vegetation and limited by the local topography and its boundaries. From this location, the Site appears as a small, partially hidden feature within a wide panoramic view. Additionally, the area directly adjacent to the level crossing is densely vegetated, making it difficult to perceive the Site from this position.
	VP 35	397609.91	403400.08	PRoW users	Medium	View west from PRoW MOS/169/20, Mossley. This viewpoint is located at a mid-distance from the Site and is largely screened by intermittent vegetation, the topography of the area and its boundaries. Views from residences to the east of the Site are heavily obscured by intervening landscape features and landform, as are those from Mossley Road. The view from this location is a wide panorama, in which the Site is a tiny, partially obscured feature. The area directly adjacent to the level crossing is heavily vegetated, making perception from this location difficult.
	VP 36	397743.26	403594.71	PRoW users	Medium	View from MOS/207/10 (Midge Hill farm) This viewpoint is located at a close distance, offering open and panoramic views of the surrounding area. However, the views of the Site itself are partially obstructed by intermittent vegetation and limited by the local topography and its boundaries. From this location, the Site appears as a small, partially hidden feature within a wide panoramic view. Additionally, the area directly adjacent to the level crossing is densely vegetated, making it difficult to perceive the Site from this position.
	NVP 4	398017.94	403538.17	Residential	High	View West from Vale View/ Spring Mill Drive. The proposed Site is located within agricultural land, adjacent to the River Tame on the western valley side. A network of PRoW boundaries surround the Site, with Oldham Way situated directly to the north of the boundary. However, long-distance views are limited due to the local topography of the valley and the intervening vegetation between potential viewpoints. There are residential receptors situated to the west on Mossley Road. While the viewpoint is elevated, views are restricted to glimpses through intervening vegetation and between buildings (specifically those on Midge Lane). Similar conditions apply to

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						views from Stockport Road; clear sightlines to the Site are rare due to intervening vegetation and buildings.
Heron Lane Compound	VP 35	397609.91	403400.08	PRoW users	Medium	View west from PRoW MOS/169/20, Mossley. This viewpoint is located at a mid-distance from the Site and is largely screened by intermittent vegetation, the topography of the area and its boundaries. Views from residences to the east of the Site are heavily obscured by intervening landscape features and landform, as are those from Mossley Road. The view from this location is a wide panorama, in which the Site is a partially obscured feature. The area directly adjacent to the Site is heavily vegetated, making perception from this location difficult.
	VP36	397743.26	403594.71	PRoW users	Medium	View from PRoW MOS/207/10 (Midge Hill Farm). This viewpoint is located at a close distance, offering open and panoramic views of the surrounding area. However, the views of the Site itself are partially obstructed by intermittent vegetation and limited by the local topography and its boundaries. From this location, the Site appears as a partially hidden feature within a wide panoramic view. Additionally, the area directly adjacent to the level crossing is densely vegetated, making it difficult to perceive the Site from this position.
	VP37	397918.44	403693.08	PRoW users	Medium	View southwest from MOS/66/10 unnamed road, Grasscroft This viewpoint is located at a close distance, offering open and panoramic views of the surrounding area. The Site would be immediately visible to visual receptors. The Site itself is situated on sloped ground and enclosed by vegetation; sequential PRoW views are somewhat hindered outside of the Site boundary.
	NVP 4	398017.94	403538.17	Residential	High	View West from Vale View/ Spring Mill Drive. The proposed Site is located within agricultural land, adjacent to the River Tame on the western valley side. A network of PRoW boundaries surrounds the Site, with Oldham Way situated directly to the north of the boundary. However, long-distance views are limited due to the local topography of the valley and the intervening vegetation between potential viewpoints. There are residential receptors situated to the west on Mossley Road. While the viewpoint is elevated, views are restricted to glimpses through intervening vegetation and between buildings (specifically those on Midge Lane). Similar conditions apply to

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						views from Stockport Road; clear sightlines to the Site are rare due to intervening vegetation and buildings.
Wrights Mill Overbridge Works (MVL3/20)	VP 36	397743.26	403594.71	PRoW users	Medium	View from MOS/207/10 (Midge Hill farm) This viewpoint is located at a close distance, offering open and panoramic views of the surrounding area. However, the views of the Site itself are partially obstructed by intermittent vegetation and limited by the local topography and its boundaries. From this location, the Site (MVL 3/20 OB) is a partially hidden feature within a wide panoramic view. Additionally, the area directly adjacent to the Site is densely vegetated, making it difficult to perceive the Site.
	VP 37	397918.44	403693.08	PRoW users	Medium	View southwest from MOS/66/10 unnamed road, Grasscroft This viewpoint is located at a close distance, offering open and panoramic views of the surrounding area. However, the views of the Site itself are partially obstructed by intermittent vegetation and limited by the local topography and its boundaries. From this location, the Site appears as a small, partially hidden feature within a wide panoramic view. Additionally, the area directly adjacent to the level crossing is densely vegetated, making it difficult to perceive the Site from this position.
Wright's Bridge Overbridge Works (MVL3/23)	VP 39	397976.99	404168	PRoW users	Medium	Views south from Mossley Road (PRoW 218 SADD) This viewpoint offers panoramic views of the Tame River Valley, along with distant vistas towards Uppermill Moor and the Peak District National Park. Views of MVL3/23 are not available from this location; however, the proposed working area and compound would be situated directly behind the residential properties on Armit Road. The viewpoint is at a mid-distance from the Site compound, and views of the Site are partially obstructed by intervening vegetation and limited by the local topography.
	VP 40	398076.8	404306.92	Residential	High	View southeast towards MVL3/23 60 Mossley Road (PRoW 222 SADD). This viewpoint offers panoramic views of the Tame River Valley, along with distant vistas towards Uppermill Moor and the Peak District National Park. Views of MVL3/23 are very limited from this location; the viewpoint is at a mid-distance from the Site compound, and views of the Site are partially obstructed by intervening vegetation and limited by the local topography. Additionally, from this

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						viewpoint, the Site appears as a small, partially concealed feature within a broad panoramic landscape.
	VP 41	398106.29	404129.12	PRoW users	Medium	View towards southwest along the track and toward the west, from PRoW 222 SADD, MVL3/23 overbridge, Low Grove Lane. The viewpoint is in direct proximity to the Site, situated on the bridge structure (along the PRoW). Views of the Site are partially screened by the railway-cutting location and the surrounding topography. Additionally, views of the working area would be limited due to intervening vegetation. Sequential views from along the PRoW towards the Site are restricted due to both the topography and the presence of vegetation.
Diversion of PRoW between MVL3/22 and MVL3/23	VP 39	397976.99	404168	PRoW users	Medium	Views south from Mossley Road (PRoW 218 SADD) This viewpoint offers panoramic views of the Tame River Valley, along with distant vistas towards Uppermill Moor and the Peak District National Park. Views of MVL3/23 Wright's Bridge Overbridge are not available from this location; however, the proposed working area and compound would be situated directly behind the residential properties on Armit Road. The viewpoint is at a mid-distance from the Site compound, and views of the Site are partially obstructed by intervening vegetation and limited by the local topography.
	VP 40	398076.8	404306.92	Residential	High	View southeast towards MVL3/23 60 Mossley Road (PRoW 222 SADD). This viewpoint offers panoramic views of the Tame River Valley, along with distant vistas towards Uppermill Moor and the Peak District National Park. Views of MVL3/23 Wright's Bridge Overbridge are very limited from this location; the viewpoint is at a mid-distance from the Site compound, and views of the Site are partially obstructed by intervening vegetation and limited by the local topography. Additionally, from this viewpoint, the Site appears as a small, partially concealed feature within a broad panoramic landscape.
	VP 41	398106.29	404129.12	PRoW users	Medium	View towards southwest along the track and toward the west, from PRoW 222 SADD, MVL3/23 overbridge, Low Grove Lane, Grasscroft, OL3 7LA. The view is concentrated on the rail route cutting; therefore, views of the surrounding landscape are limited by the topography and vegetation. Views of the site are partial and almost completely obscured from sequential views along the route. Views of Wright's Overbridge (MVL3/23) are immediately obvious due to the position of the Viewpoint location on the PRoW.

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
Royal George Underbridge Works (MVL3/25)	VP 45	398585.23	404304.61	Road users	Low	View north towards MVL3/25 and the compound within the church hall car park. The viewpoint is located at the junction of Oaklands Road and Church Road. It is situated at mid-distance from the Site; however, the structure is only partially visible due to limitations imposed by the route corridor and surrounding vegetation. Views into the church hall car park, proposed as a compound location, are generally open, although mature trees filter the driver's view. Some views of the hall car park are possible from the church, but these are heavily filtered by vegetation.
	VP 51	398739.21	404805.77	PRoW users	Medium	View towards the south (panorama PRoW 211 SADD) (CRoW 2000 – Common Land). Representative of long-distance panoramic views from Open Access Land, including views towards the Uppermill Moor and the Peak District National Park. The Site is barely visible due to the adjacent vegetation and built form.
Armit Road Compound	VP 35	397609.91	403400.08	PRoW users	Medium	View west from PRoW MOS/169/20, Mossley. This viewpoint is located at a mid-distance from the Site and is largely screened by intermittent vegetation, the topography of the area and its boundaries. Views from residences to the east of the Site are heavily obscured by intervening landscape features and landform, as are those from Mossley Road. The view from this location is a wide panorama, in which the Site is an almost obscured feature. The Site forms a tiny part of the overall panorama.
	VP 38	399330.75	405153.19	Residential	High	View west from PRoW 280 SADD (Rear of Armit Road Residences on northern boundary of site). The viewpoint location (VP38) is close to the site and situated on PRoW 28 SADD0. The view is northwest towards the site. Adjacent residential visual receptors (Hollins Crescent) overlook the site and would have clear, unobstructed views of the proposed compound location. Armit Road, on the northern edge of the proposed compound, is also a PRoW (222 SADD). From these nearby visual receptor locations, there is likely to be a significant impact on the views. However, this would only occur during the construction period; the only permanent change would be due to tree removal.
	VP 39	397976.99	404168	PRoW users	Medium	Views south from Mossley Road (PRoW 218 SADD) This viewpoint offers panoramic views of the Tame River Valley, along with distant vistas towards Uppermill Moor and the Peak District National Park. Views of

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						MVL3/23 are not available from this location; however, the proposed working area and compound would be situated directly behind the residential properties on Armit Road. The viewpoint is at a mid-distance from the Site compound, and views of the Site are partially obstructed by intervening vegetation and limited by the local topography.
	VP 40	398076.8	404306.92	Residential	High	View southeast towards MVL3/23 60 Mossley Road (PRoW 222 SADD). This viewpoint offers panoramic views of the Tame River Valley, along with distant vistas towards Uppermill Moor and the Peak District National Park. Views of MVL3/23 are very limited from this location; the viewpoint is at a mid-distance from the Site compound, and views of the Site are partially obstructed by intervening vegetation and limited by the local topography. Additionally, from this viewpoint, the Site appears as a small, partially concealed feature within a broad panoramic landscape. Views from residential receptors are considered important to residents; therefore, they are highly valued. The susceptibility to change is also regarded as high because residents are likely to notice even minor changes due to their familiarity with the view; consequently, the overall sensitivity of these residential areas is regarded as high.
Oaklands Road Satellite Compound (MVL3/25) – Parking and limited storage, including Oaklands Road Plant Access	VP 45	400702.83	407643.06	Road users	Low	View north along Oaklands Road towards MVL3/25. The viewpoint is situated at the junction of Oaklands Road and Church Road. While it is approximately midway from the Site, the proposed Oaklands Road Compound and access Site are not visible due to the limitations caused by the Site's position on the opposite side of the rail route; the embankment acts as an impermeable visual screen, along with surrounding vegetation. Views by road users are generally transient and fleeting in nature; therefore, the value is considered low, as is the susceptibility to change; therefore, the overall sensitivity is considered low.
	VP 46	398829	404537.95	PRoW users	Medium	View towards west from PRoW 10 SADD Oaklands Road Views from PRoW 10 SADD along Oaklands Road towards the Site are limited due to the dense vegetation and the topography of the area. The Site remains concealed until the observer is almost adjacent to it; however, views are available from various points along Oaklands Road. which forms part of the access.

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
	VP 51	398739.21	404805.77	PRoW users	Medium	View towards the south (panorama PRoW 211 SADD) (CRoW 2000 – Common Land). Representative of long-distance panoramic views from Open Access Land, including views towards the Uppermill Moor and the Peak District National Park. The Site location is barely visible due to the adjacent vegetation and built form. The Site forms a tiny feature within an expansive view of the Tame River Valley.
New Oldham Road Footbridge (proposed MVL3/27B), Greenfield Station Platform 2 Secondary Means of Escape Works, and Oldham Road Overbridge (MVL3/28) Reconstruction	VP 47	398940.03	404591.44	Road users	Low	View east along Oldham Road towards Oldham Road bridge. The view is along the road corridor; as a result, views to the north are restricted while views to the south and along the route are partial. Views of the rail route are fleeting. The Greenfield station is not visible from this location, nor is MVL3/28a-OB. Oldham Road bridge is partly glimpsed from this position. Views to the south and east open up through gaps in the trees and vegetation to the Tame Valley. These glimpsed, sequential views are panoramic and extensive and distant. Views by road users are generally transient and fleeting in nature; therefore, the value is considered low, as is the susceptibility to change; therefore, the overall sensitivity is considered low.
	VP 48	399231.69	404858.27	PRoW users	Medium	View south-west from PRoW 117 SADD, adjacent to Ladcastle Road. Despite the elevated position, this view does not allow clear visibility of Greenfield Station or Oldham overbridge. The station is glimpsed only partially through intervening vegetation and is mostly screened by the topography.
	VP 49	399324.07	404873.94	Road users	Low	View south from PRoW 241 SADD and Oldham Road, Uppermill, OL3 6LU Views from this location are restricted to the route corridor due to vegetation and topography. The rail route and road at this location run parallel to each other, and views are confined to the corridor. The Site (proposed compound location) is directly adjacent to the road. However, there are no views of MVL3/27.
	VP 50	398967.98	404521.56	PRoW users	Medium	View towards the east from PRoW 210 SADD 27, along Shaw Hall Bank Road, Grasscroft, OL3 7LD Views of the Site are entirely obscured by topography and vegetation. The PRoW is set down behind a retaining wall, and views of the vegetation above are only partial. The view is considered to have local importance as a recreational and access

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						route, resulting in a medium value. The susceptibility of the receptor is deemed medium, as their appreciation of the surroundings is incidental to their enjoyment while travelling on the PRoW, therefore the overall sensitivity is considered Medium.
PRoW upgrade Works (MVL3/29)	NVP 5	399330.81	405146.96	Road Users	Low	View east from Ladcastle Road, picking up the site to the north on the valley side. The view is expansive from an elevated position on the valley side. Long-distance views include the hills and moors beyond. The topography slopes down towards the valley floor, and the rail route is partially visible from the location where it runs parallel to Ladcastle Road. However, for road users, views are screened by boundary walls and hedgerows. The site is visible in part from this position and from sequential views along Ladcastle Road. The site is an open pastoral field, on a slope, bounded by a dry-stone wall and woodland to the north. Views by road users are generally transient and fleeting in nature; therefore, the value is considered low, as is the susceptibility to change; therefore, the overall sensitivity is considered low.
Lineside Fencing Access from Oldham Road	NVP 5	399330.81	405146.96	Road Users	Low	View east from Ladcastle Road, the view is towards the east, picking up the site to the north on the valley side. The view is expansive from an elevated position on the valley side. Long-distance views include the hills and moors beyond. The topography slopes down towards the valley floor, and the rail route is partially visible from the location where it runs parallel to Ladcastle Road. However, for road users, views are screened by boundary walls and hedgerows. Only the tops of trees in the vicinity of the proposed access are visible from this location. Views by road users are generally transient and fleeting in nature; therefore, the value is considered low, as is the susceptibility to change; therefore, the overall sensitivity is considered low.
Uppermill Viaduct Works (MVL3/31)	VP 52	399538.58	406422.03	Road users	Low	View south-east towards viaduct from Wool Rd A670; the viaduct spans a well-vegetated valley, making visibility of the complete structure and associated work areas difficult. This view is in close proximity to the structure, but the only visible elements are those within the road corridor. The structure is the main focus of the view; however, visibility of the viaduct is partial. Views of the proposed construction access location are clear as they are immediately adjacent to the viewpoint.

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
	VP 53	399519.83	406378.98	PRoW users	Medium	View towards the south from Dobcross new road, Representative of PRoW 76 SADD; the viaduct spans a well-vegetated valley, making visibility of the complete structure and associated work areas difficult. This view is in close proximity to the structure, but the only visible elements are those within the corridor. The structure is the main focus of the view; however, visibility of the viaduct is partial.
	VP 54	399524.39	406269.72	Recreational	High	View towards the east from Mow Halls Lane (PRoW 103 SADD). The viewpoint is located within Brownhill Countryside Centre Park. The viaduct spans a well-vegetated valley, making visibility of the entire structure and associated work areas difficult. This view is close to the structure, but only the elements within the road corridor are visible. The structure is the main focus of the view; however, visibility of the viaduct is only partial. Views of the proposed construction access location are clear, as they are immediately adjacent to the viewpoint. The value of views within the park are considered high due to its use by recreational visitors. The susceptibility to change is also considered high, as this is a green space with valued views; therefore, the sensitivity is considered High.
	VP 55	399526.23	406217.43	Road users	Low	View towards south-east 2 Mow Halls Ln, Uppermill. The viaduct spans a well-vegetated valley, making visibility of the entire structure and associated work areas difficult. This view is close to the structure, but only the elements within the road corridor are visible. The structure is the main focus of the view; however, visibility of the viaduct is only partial. Views of the proposed construction access location are clear, as they are immediately adjacent to the viewpoint.
	VP 56	399550.88	406192.4	Road users	Low	View along Den Lane south 19-12 Den Ln, Uppermill. The viaduct spans a well-vegetated valley, making visibility of the entire structure and associated work areas difficult. This view is close to the structure, but only the elements within the road corridor are visible. The structure is the main focus of the view; however, visibility of the viaduct is only partial. Views of the proposed construction access location are clear, as they are immediately adjacent to the viewpoint.
	VP 57	399461.06	406821.56	PRoW users	High	Long distance view towards the east from (PRoW 122SADD) 42-54 Sandy Ln, Dobcross. The existing viaduct is situated at a long distance from the viewpoint location, which offers panoramic views along the River Valley. The existing Uppermill Viaduct is located in a steep valley, crossing both the River Tame and the Diggle Canal. The viaduct is a central yet minor feature within this panorama;

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						however, its local cultural associations give it significant value, even as a standalone element in a broader view. Views of the viaduct are limited due to mature vegetation, trees, and woodlands, as well as the local topography and built environment. The view is considered to have regional importance as a recreational and access route. The Viaduct serves as a landmark with high value. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
Old Railway Tunnel Site compound (Butterhouse Lane)	NVP 9	399913.83	407130.95	PRoW users	Medium	View east from Huddersfield Road PRoW 106 SADD. This viewpoint is set at a low elevation, looking upwards at the site. The view towards the site, beyond Uppermill School, which is within the foreground, is relatively open with intermittent boundary features and vegetation. The site is well vegetated and forms a feature within the otherwise grazed pastoral landscape.
	NVP 10	400132.43	406661.81	Road users	Low	View North from Butterhouse Lane. This viewpoint is located at a close distance, offering open and panoramic views of the surrounding area. However, the views of the Site itself are partially obstructed by intermittent vegetation and limited by the local topography and its boundaries. From this location, the Site Former Butterhouse Tunnel is a partially hidden feature within a wider panoramic view. The view of the site is mainly of the tops of mature trees.
Ward Lane Overbridge (MVL3/36), & Ward Lane Satellite Compound	VP 59	400463.95	407443.78	Residential	High	View towards the west along Ward Lane, including views from the junction of Ward Lane and Ravenstone Drive. Views of the Ward Lane Overbridge (MVL3/36) are largely restricted due to the local topography, which limits visibility to those along Ward Lane. The Public Right of Way (PRoW) 75 SADD and its junction with Ward Lane are clearly visible. However, Diggle is obscured by vegetation situated between the Diggle land boundary and PRoW 75 SADD. It is assumed that views for residents are primarily from street frontages and at an oblique angle along Ward Lane.

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
	VP 60	400323.45	407674.74	PRoW users	High	View south towards Diggle compound, from PRoW 76 SADD. The views of the Ward Lane Overbridge (MVL3/36) are obstructed by intervening vegetation, built structures, and topography. However, the proposed boundary trees along the Site compound location at Diggle are partially visible above the landform. It is considered that the PRoW and Canal towpath have local importance as recreational and access routes. The Canal serves as a local landmark with high value. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
	VP 61	400233.51	407453.11	PRoW users	High	View north towards MVL3/36 and south-east towards MVL3/35. MVL3/36 overbridge (road) on Ward Lane is barely perceptible to all except close and nearby visual receptors. There are some heavily constrained views from distant receptors, including Harrop Edge to the west of the Site. This is due to the position of the bridge in the vegetated, Tame River Valley. Views are generally contained along the rail route. Views of the proposed Ward Lane Satellite Site are immediately available due to the clear adjacent view from the footpath and the Canal. It is considered that the PRoW and Canal towpath have local importance as recreational and access routes. The Canal serves as a local landmark with high value. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
	NVP 7	399687	407381.93	PRoW users	Medium	View west from the junction of Lark Hill Lane and Long Lane, PRoW 109 SADD. The site of Ward Lane Overbridge (MVL3/36), & Ward Lane Satellite Site compound is barely visible from the location, within the greater panorama. This viewpoint is located at a medium to long distance, offering open and panoramic views of the surrounding area, including the Tame River Valley and hills and Moorlands beyond.
Grandpa Greene's 1 Site Compound	VP 59	400463.95	407443.78	Residential	High	View towards the west along Ward Lane, including views from the junction of Ward Lane and Ravenstone Drive. Views of the Ward Lane Overbridge (MVL3/36) are largely restricted due to the

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						local topography, which limits visibility to those along Ward Lane. The Public Right of Way (PRoW) 75 SADD and its junction with Ward Lane are clearly visible. However, Diggle is obscured by vegetation situated between the Diggle land boundary and PRoW 75 SADD. It is assumed that views for residents are primarily from street frontages and at an oblique angle along Ward Lane.
	VP 60	400323.45	407674.74	PRoW users	High	View south towards Diggle compound, from PRoW 76 SADD. The views of the Ward Lane Overbridge (MVL3/36) are obstructed by intervening vegetation, built structures, and topography. However, the proposed boundary trees along the Site compound location at Diggle are partially visible above the landform. It is considered that the PRoW and Canal towpath have local importance as recreational and access routes. The Canal serves as a local landmark with high value. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered high.
Grandpa Greene's 2 (Ward Lane MVL3/36) - Compound	VP 59	400463.95	407443.78	Residential	High	View towards the west along Ward Lane, including views from the junction of Ward Lane and Ravenstone Drive. Views of the Ward Lane Overbridge (MVL3/36) are largely restricted due to the local topography, which limits visibility to those along Ward Lane. The Public Right of Way (PRoW) 75 SADD and its junction with Ward Lane are clearly visible. However, Diggle is obscured by vegetation situated between the Diggle land boundary and PRoW 75 SADD. It is assumed that views for residents are primarily from street frontages and at an oblique angle along Ward Lane.
	VP 60	400323.45	407674.74	PRoW users	High	View south towards Diggle compound, from PRoW 76 SADD. The views of the Ward Lane Overbridge (MVL3/36) are obstructed by intervening vegetation, built structures, and topography. However, the proposed boundary trees along the Site compound location at Diggle are partially visible above the landform. It is considered that the PRoW and Canal towpath have local importance as recreational and access routes. The Canal serves as a local landmark with high value. The susceptibility of viewers in this area is deemed high, as their

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
	VP 62	400564.36	407385.38	Road users	Low	View west along Ward Lane, Diggle. The mid-distance views of the Ward Lane Overbridge (MVL3/36) are obstructed by intervening vegetation, built structures, and topography. However, the proposed boundary trees along the Site compound location at Diggle are partially visible above the landform. Views of PRoW 80 SADD are partially available.
	VP 63	400638.85	407618.36	Residential	High	View southwest from Lee Side The views from the Ward Lane Overbridge (MVL3/36) are obstructed by surrounding vegetation, built structures, and the topography of the area. However, the proposed boundary trees along the Site compound location at Diggle are partially visible above the landform. Views of PRoW 80 SADD are also partially available. Long-distance views of Harrop Edge can be seen from this location, although the Site itself is a minor feature within the overall view.
	NVP 12	400702.83	407643.06	PRoW users	Medium	View north-west from PRoW 79 SADD (Leeside). This view is representative of the views available from the local PRoW network along the hills and byways of the Tame River Valley. Views are panoramic; however, oftentimes, along sequential views of the Site, are almost imperceptible, beyond the tops of trees. In addition, the site forms a small feature within the larger visual panorama.
Diggle compound	VP 59	400463.95	407443.78	Residential	High	View towards the west along Ward Lane, including views from the junction of Ward Lane, and Ravenstone Drive. Views of the Ward Lane Overbridge (MVL3/36) are largely restricted due to the local topography, which limits visibility to those along Ward Lane. The Public Right of Way (PRoW) 75 SADD and its junction with Ward Lane are clearly visible. However, Diggle is obscured by vegetation situated between the Diggle land boundary and PRoW 75 SADD. It is assumed that views for residents are primarily from street frontages and at an oblique angle along Ward Lane.
	VP 60	400323.45	407674.74	PRoW users	High	View south towards Diggle compound, from PRoW 76 SADD. The views of the Ward Lane Overbridge (MVL3/36) are obstructed by intervening vegetation, built structures, and topography. However, the proposed boundary trees along the Site compound location at Diggle are partially visible above the landform.

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						It is considered that the PRoW and Canal towpath have local importance as recreational and access routes. The Canal serves as a local landmark with high value. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
	VP 62	400564.36	407385.38	Road users	Low	View west along Ward Lane, Diggle. The proposed compound location is positioned between the east of the rail route and the west of PRoW on Leeside. From this vantage point, the site is only partially visible, primarily the treetops and through boundary vegetation in between. The trees on the site stand out in the view and enhance the visual appeal.
	VP 63	400638.85	407618.36	Residential	High	View southwest from Lee Side. The views from the Ward Lane Overbridge (MVL3/36) are obstructed by surrounding vegetation, built structures, and the topography of the area. However, the proposed boundary trees along the Site compound location at Diggle are partially visible above the landform. Views of PRoW 80 SADD are also partially available. Long-distance views of Harrop Edge can be seen from this location, although the Site itself is a minor feature within the overall view.
	VP 64	400763.32	408022.12	PRoW users	Medium	View west from the corner of Leeside and Boat Lane, PRoW 65 SADD (Pennie Bridleway). The viewpoint location is directly adjacent to MVL3/39; however, due to its proximity, only the top of the bridge is visible. The structure of the bridge is obscured by its position within the rail route cutting. Built form and vegetation block long-distance views. MVL3/39a and MVL3/39b are not visible from this viewpoint. While there are views of the surrounding countryside and towards Harrop Edge, these are often framed by vegetation along Station Road Public Right of Way 65 Sadd (Pennie Bridleway) and nearby structures.
	VP 65	400573.06	407907.28	PRoW users	High	View NNE towards MVL3/39 (PRoW 77 SADD) There are several PRoWs that run through the area, including those adjacent to the Huddersfield Narrow Canal in the River Tame Valley. The views along these routes are transient, meaning they change as one moves along them. Heavily filtered views of the canal corridor can be seen from the PRoWs, but

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						these views are also transient. To the east of the Site, specifically from Leeside, there are no visible views of the Site itself. Additionally, there are some restricted views from distant locations, such as Lee Cross to the east of the Site. This limitation is due to the positioning of a bridge in the vegetated Tame River Valley. Overall, views towards the rail route are generally confined.
	VP 66	400782.64	408137.16	PRoW users	High	View south from the tunnel portal (PRoW 65 SADD) The Visual envelope of the bridge is small, limited by local topography, built form and intervening vegetation. Several PRoW bisect the area, including National trails (Standedge Trail, Oldham Way and Pennine Bridleway). Close views of the bridge are open and unhindered. Additionally, there are some restricted views from distant locations, such as Lee Cross to the east of the Site. This limitation is due to the positioning of a bridge in the vegetated Tame River Valley. Overall, views along the rail route are generally confined. It is considered that the PRoW, including national trails, has importance as recreational and access routes. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
	NVP 7	399687	407381.93	PRoW users	Medium	View west from the junction of Lark Hill Lane and Long Lane, PRoW 109 SADD. Views are panoramic; however, along sequential views of the Diggle Site, they are almost imperceptible, beyond the tops of trees. In addition, the site forms a small feature within the larger visual panorama. This viewpoint is located at a medium to long distance, offering open and panoramic views of the surrounding area, including the Tame River Valley and hills and Moorlands beyond.
	NVP 11	400708.67	408065.72	Road users	Low	View south along the rail route from Station Road MVL 3/39 Overbridge. The view for road users (driver level view) from this location is generally obscured by the sides of the bridge. Views above the bridge sides run along the route and reveal partial site locations such as The Diggle compound, Sam Road carpark, and MVK3/39. However, none of these site views are clear due to intervening features and vegetation. The area's topography also limits more than partial views of the sites.

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
	NVP 12	400702.83	407643.06	PRoW users	Medium	View north-west from PRoW 79 SADD (Leeside). This view is representative of the views available from the local PRoW network along the hills and byways of the Tame River Valley. Views are panoramic; however, oftentimes, along sequential views of the Diggle Site, are almost imperceptible, beyond the tops of trees. In addition, the site forms a small feature within the larger visual panorama.
Sam Road Carpark	VP 65	400573.06	407907.28	PRoW users;	High	View NNE towards MVL3/39 (PRoW 77 SADD) The Site is currently used as a car park, partially by contractors, residents, and visitors to the canal. It provides access to the canal and the towpath (Standedge Tunnel, Diggle Portal). The area is surrounded by large, mature trees and some lower-level self-seeded vegetation, which filters visibility of the Site even from adjacent areas. Views of the Site are available from the PRoW to the west on Heather Way, as well as to the north from Clydesdale Rise and Sam Road. However, views from the east and south (towards the Site) are filtered and partial due to the surrounding vegetation and topography. The Site is well integrated into the semi-urban environment, with residential houses, railways, and the canal all in close proximity. It is considered that the PRoW and Canal towpath have local importance as recreational and access routes. The Canal serves as a local landmark with high value. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
	VP 67	400627.29	407999.41	Road users	Low	View towards northeast from Sam Rd, Diggle (adjacent to the start of PRoW 76 SADD). MVL3/39 is in midstance from the viewpoint; however, only filtered views of the structure are available. Views of MVL3/39a and MVL3/39b are obscured by intervening vegetation and local topography, as the structure is set within a deep rail route cutting.
	NVP 11	400708.67	408065.72	Road users	Low	View south along the rail route from Station Road MVL 3/39 Overbridge. The view for road users (driver level view) from this location is generally obscured by the sides of the bridge. Views above the bridge sides run along the route and reveal partial site locations such as The Diggle compound, Sam Road carpark, and

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						MVK3/39. However, none of these site views are clear due to intervening features and vegetation. The area's topography also limits more than partial views of the sites.
	NVP 12	400702.83	407643.06	PRoW users	Medium	View north-west from PRoW 79 SADD (Leeside). This view is representative of the views available from the local PRoW network along the hills and byways of the Tame River Valley. Views are panoramic; however, often times, sequential views towards the Site are almost imperceptible, beyond the tops of trees. In addition, the site forms a small feature within the larger visual panorama.
Diggle road Overbridge Works (MVL3/39)	VP 64	400763.32	408022.12	PRoW users	Medium	View west from the corner of Leeside and Boat Lane, PRoW 65 SADD (Pennie Bridleway). The viewpoint location is directly adjacent to MVL3/39; however, due to its proximity, only the top of the bridge is visible. The structure of the bridge is obscured by its position within the rail route cutting. Built form and vegetation block long-distance views. MVL3/39a and MVL3/39b are not visible from this viewpoint. While there are views of the surrounding countryside and towards Harrop Edge, these are often framed by vegetation along Station Road Public Right of Way 65 Sadd (Pennie Bridleway) and nearby structures.
	VP 66	400782.64	408137.16	PRoW users	High	View south from the tunnel portal (PRoW 65 SADD) The Visual envelope of the bridge is small, limited by local topography, built form and intervening vegetation. Several PRoW bisect the area, including National Trails (Standedge Trail, Oldham Way and Pennine Bridleway). Close views of the bridge are open and unhindered. It is considered that the PRoW and Canal towpath have local importance as recreational and access routes. The canal serves as a local landmark with high value. The susceptibility of viewers in this area is deemed high, as their appreciation of the view significantly enhances their overall experience of the amenity. Therefore, the receptor sensitivity is considered High.
	VP 67	400627.29	407999.41	Road users	Low	View towards northeast from Sam Rd, Diggle (adjacent to the start of PRoW 76 SADD). MVL3/39 is in the mid-distance from the viewpoint; however, only filtered views of the partial structure are available. Views of MVL3/39a and MVL3/39b are

Scheme Element	View - point Ref.	Easting (OSGB36)	Northing (OSGB36)	Primary Receptor Type	Sensitivity	Description of the view (Baseline)
						obscured by intervening vegetation and local topography, as the structure is set within a deep rail route cutting.
	VP 70	400719.41	408502.18	PRoW users	Medium	View to the east from Ridge Lane (end of PRoW 70 SADD. From this location, MVL3/39 and MVL3/39a&b are obscured. However, the view looking west reveals the Site for the temporary construction access. The proposed route is partially hidden by the local topography and surrounding vegetation. This Site is also a minor feature within the broader panorama visible from this location, particularly when viewed from Harrop Green.
Diggle Access and Diversion	VP 70	400719.41	408502.18	PRoW users	Medium	View to the east from Ridge Lane (end of PRoW 70 SADD. From this location, MVL3/39 and MVL3/39a&b are obscured. However, the view looking west reveals the Site for the temporary construction access. The proposed route is partially obscured in places by the local topography and surrounding vegetation. However, the extent of the Site is prominent within the view from Ridge Lane, which includes partial but clear views of Harrop Court Road and Boat Lane. Views from this location are of scenic quality and panoramic, taking in the existing pastoral upland landscape. Vegetation along boundaries and topography obscures a complete view of the Site.
	VP 71	401208.12	408484.69	PRoW and Road users	Medium	View northwest from Boat Lane (towards PRoW 66 SADD) The view is observed from the proposed site location along Boat Lane. The view is generally open and offers long-distance, panoramic vistas. The proposed route is partly concealed by local topography and surrounding vegetation. The distant views from this location are likely to be transient along PRoW and road routes. The topography is undulating, and there is intermittent boundary vegetation which filters some views of the site and, in places, partially obscures the entire site.

5. APPRAISAL OF IMPACTS

5.1 Potential Construction Impacts

5.1.1 The range of typical construction impacts that may arise due to the type of construction activities associated with the Order Scheme elements on landscape and visual receptors are set out in this section.

5.1.2 Loss of trees and vegetation as a result of construction phase impacts would result in temporary adverse impacts on nearby sensitive receptors. Receptors may include people in their homes and pedestrians, schools, businesses, cyclists or the range of vehicular users on the public highway close to the Order Scheme.

5.1.3 Any visual impacts or disruption due to construction is generally a localised issue mainly impacting people in very close proximity to where construction works are taking place. The exact construction techniques are currently unknown however, it is anticipated that the following operations will take place:

- temporary presence of storage areas and construction compounds, including the provision of temporary fencing and lighting.
- temporary and permanent loss of on-site vegetation to facilitate works, i.e. trees, hedgerow, scrub, grass.
- temporary presence and use of on-site vehicles and equipment, including heavy machinery and the movement of materials to and from the Order Scheme; and
- other general construction activity.

5.1.4 The majority of these impacts are temporary, and therefore no specific mitigation measures have currently been proposed with respect to the visual amenity for the construction phase, but ‘good construction practices’ will be implemented, which would likely include the erection of hoardings around site compounds to screen, where possible, the construction works.to screen, where possible, the construction works.

5.1.5 For tree protection and removal, an Arboricultural Method Statement (AMS) has been produced within Volume 3, Appendix 8A of this Report [**NR14**]. This will be updated during detailed design prior to the works commencing on site, along with proposed accompanying contractor Construction Method Statements. These will ensure that a Tree Protection Plan is produced and implemented, and that the method statement fully covers all working methods within the root protection zones, as well as details of how the works will endeavour to retain trees (refer to Volume 1, Chapter 8 Arboriculture of this Report [**NR14**]).

Potential Operational Impacts

5.1.6 Once the proposed works have been constructed, the permanent features associated with the proposals have the potential to cause permanent changes to the patterns and structure of the landscape as a result of the introduction of new features and activities (e.g. land use and operational and maintenance activities). However, impacts are likely to be restricted to a small visual envelope around the Order Scheme due to embedded design works minimising devegetation wherever possible. The predicted operational impacts would be associated with the day-to-day use of the Order Scheme, including:

- New structures visible or partially visible from outside of the Order Scheme boundary.
- Tree loss.
- New boundary treatments, including fencing; and
- Reinstatement and mitigation planting.

6. LANDSCAPE AND VISUAL IMPACTS

6.1 Landscape Impacts

6.1.1 During construction, impacts are expected to be temporary and largely associated with ground disturbance, vegetation clearance, and the presence of construction infrastructure.

6.1.2 In the operational phase, permanent changes to the landscape will result from the completed development, with impacts influenced by the scale, design, and integration of the Order Scheme within its setting. Table 6-1 and **Table 6-2** provide further details on construction and operational impacts, and highlight potential opportunities for mitigation and enhancement, including landscape restoration and planting, which may reduce the magnitude of impacts over time.

Construction Phase - Regional Landscape Character and Landscape Types Appraisal at Scheme Element Level summary.

6.1.3 During the construction phase, the majority of works involve the establishment of temporary compounds, access routes, bridge reconstructions, and associated infrastructure upgrades. These include key elements such as:

- Printworks Office & Compound (LCA 33)
- Plevins Site Compound and Egmont Street Parking (LCA 36)

- Wakefield Road Plant Access, Scout West/East Laydowns, MVL3/10A Footbridge, and MVL3/18 Footbridge (LCA 36)
- Uppermill Viaduct (MVL3/31) and Butterhouse Lane Compound (LCA 30 and Dark Peak Western Fringe)
- Grandpa Green's 1 & 2, Diggle Compound, and Sam Road Carpark (LCA 30 and Dark Peak Western Fringe)

6.1.4 Across all locations, the sensitivity of the landscape receptors is assessed as medium. The magnitude of change during construction is generally low, reflecting the temporary and reversible nature of the interventions. While there will be some loss of vegetation and introduction of construction elements, these are localised and do not significantly alter the broader landscape character.

6.1.5 Notably, the MVL3/23 Wright's Bridge and Ward Lane Overbridge (MVL3/36) involve the removal or reconstruction of listed or historic structures, but the landscape impact remains limited due to the confined spatial extent and mitigation measures.

Operational Phase - Regional Landscape Character and Landscape Types Appraisal at Scheme Element Level summary.

6.1.6 Upon completion, all temporary features will be removed. Reinstatement planting will be implemented which when established in the longer term (10+ years) will provide a similar function in the landscape as presently. The magnitude of change during operation is assessed as very low or neutral across all elements. The reinstated landscape will closely resemble the baseline condition, with minimal long-term alteration to character, pattern, or function.

6.1.7 In some cases, such as the Plevins Site Compound, the removal of large commercial structures may result in a slight beneficial impact. However, overall, the operational impacts are considered barely perceptible, with no significant residual impacts on landscape character.

Construction Phase - Local Landscape Character and Landscape Types Appraisal at Scheme Element Level summary.

6.1.8 During construction, the landscape sensitivity across all receptors is assessed as medium. The majority of impacts are associated with:

- Armit Road Compound
- Oaklands Road Compound (MVL3/25)
- MVL3/31 Uppermill Viaduct
- Butterhouse Lane Compound

- Ward Lane Overbridge (MVL3/36) and Satellite Site
- Grandpa Greene's 1 & 2 Compounds
- Diggle Compound and Sam Road Carpark
- Diggle Access and Diversion

6.1.9 Construction activities typically involve vegetation clearance, earthworks, and the introduction of temporary infrastructure such as fencing and plant. These changes are localised, temporary, and reversible, with a low or very low magnitude of impact across most elements. The Ward Lane Overbridge and Sam Road Carpark are considered to have a neutral impact due to the minimal alteration of landscape character.

Operational Phase - Local Landscape Character and Landscape Types Appraisal at Scheme Element Level summary.

6.1.10 Post-construction, reinstatement and mitigation planting will be implemented across all sites. The operational impacts are consistently assessed as very low or neutral, indicating that the landscape will return to a condition closely resembling the baseline in the longer term (10+ years). No significant long-term changes to landscape character, pattern, or function are anticipated.

Schedule of Regional Landscape Impacts

6.1.12 The following Table 6-1 and Table 6-2 outline the anticipated landscape impacts arising from the proposed development across both the construction and operational phases. It identifies key activities and their potential effects on landscape character, features, and quality over time.

Table 6-1: Table of Regional Landscape Character and Landscape Types Appraisal at Scheme Element Level

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Printworks Office & Printworks Compound	LCA 33. Mately and Mottram Dark Peak Foothills LCT Pennine Foothills Dark Peak	Medium	Works proposed include the introduction of two temporary site compounds with associated earthworks at Printworks Road, north of Stalybridge Tunnel, with upgrades to the existing road access and upgraded drainage infrastructure. These would form new incongruous features in the landscape. However, these works would be temporary. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. In addition, there would be no overall change to the openness or function of the Greenbelt. The extent of change will influence the immediate	Following construction, temporary features would be removed. The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting will be designed which would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	
Plevins Site Compound and Replacement Parking (Egmont Street)	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Works proposed include the construction of a site compound, involving the substantial demolition of existing commercial buildings, at Plevins Depot, east of the Huddersfield Narrow Canal. Construction activities will lead to a temporary reduction in landscape elements such as trees and vegetation, which contribute to the local landscape patterns and character. Temporary construction plant would also be introduced into the landscape, along with fencing. These impacts are temporary and reversible. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially	Following construction demolition, temporary features would be removed. The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. The removal of the building would remove a large roof structure and a landscape area. which could be viewed as beneficial. Reinstatement and mitigation planting will be designed which would take time to re-establish following the construction phase. Overall, the extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	impact overall. Therefore, the magnitude of change is considered Very Low
Wakefield Road Compound Manchester Road Underbridge (MVL3/10), and Drainage Works	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	The proposed works include an upgrade to the existing vehicular access at Wakefield Road and the creation of a compound area north of the Springbank Lane Overbridge (MVL3/9) and west of Mossley Wastewater Treatment Works. These works are considered temporary and reversible. In addition, there would be no overall change to the openness or function of the Greenbelt. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in	Following construction, temporary features would be removed. The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	
Manchester Road Footbridge Overbridge Works (MVL3/10A)	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	The proposed works involve the reconstruction of the Manchester Road Footbridge (MVL3/10A) to facilitate OLE installations underneath the bridge. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. Additionally, there would be no overall change to the openness or function of the Greenbelt. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Overall, the features and elements would remain similar to the baseline. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			Therefore, the magnitude of change is considered Low.	
Scout West Laydown	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting will be designed which would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
Scout West Ramp	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
Scout West Spoil Point	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			Therefore, the magnitude of change is considered Low.	Therefore, the magnitude of change is considered Very Low.
Scout East Access and Scout East Carpark	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
Scout East Laydown	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are expected to be short-term and	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			potentially reversible, and practically, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
Roughtown Road Overbridge Works (MVL3/18)	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	The proposed works include the reconstruction of the footbridge off Roughtown Road (MVL3/18), located 70 metres north of Roughtown Road overbridge (MVL3/17). Temporary construction plant would also be introduced into the landscape. These impacts are temporary and reversible. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.	Following completion of the works, the landscape would return to a similar state to baseline. Therefore, it is considered that the change is so inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Stockport Road Level Crossing Closure and PRoW Diversion	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	The proposed works include the Stockport Road Level crossing to be located to the west of Heron Lane, which is to be closed, with the existing footpath and PROW to be diverted to the north via the Heron Lane underbridge MVL3/19. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape, nor would the re-routed PRoW. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
Heron Lane Compound	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low
Wright's Bridge Overbridge Works (MVL3/23)	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	The proposed works include demolition of the Grade II Listed Wrights overbridge (MVL3/23), which carries a Public Right of Way between Low Grove Lane and Mossley Road (PROW to be diverted under the TWAO powers). Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	Therefore, the magnitude of change is considered Very Low
Diversion of PRoW between MVL3/22 and MVL3/23	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			Therefore, the magnitude of change is considered Low.	
Armit Road Compound	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction of a site compound located at Armit Road, and associated earthworks. Construction activities will lead to a temporary reduction in landscape elements such as trees and vegetation, which contribute to the local landscape patterns and character. Temporary construction plant would also be introduced into the landscape, along with fencing. These impacts are temporary and reversible. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.	Following completion of the works, the landscape would return to a similar state to baseline. Therefore, it is considered that the change is so inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.
Oaklands Road Compound (MVL3/25) – Parking and limited storage. Including Oaklands Road Plant Access	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
Uppermill Viaduct Works (MVL3/31)	LCA 36. River Tame LCT Incised Urban Fringe Valleys	Medium	The proposed works involve the Grade II Listed Uppermill Viaduct (MVL3/31), including strengthening the spandrels, installing GRP handrails, and adding OLE portal attachments on the piers. Additionally, temporary site compounds and access routes will be established at the base viaduct. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	
	LCA Dark Peak Western Fringe LCT Urban LCA Dark Peak Western Fringe LCT Valley pastures with industry	Medium	The proposed works involve the Grade II Listed Uppermill Viaduct (MVL3/31), including strengthening the spandrels, installing GRP handrails, and adding OLE portal attachments on the piers. Additionally, temporary site compounds and access routes will be established at the base viaduct. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	
Saddleworth Old Railway Tunnel Site compound (Butterhouse Lane)	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak) LCA Dark Peak Western Fringe LCT Urban	Medium	Temporary site compound area at the former Butterhouse Tunnel to the south of Diggle. Construction activity would necessitate a reduction in landscape elements (trees and other vegetation) that make up localised landscape patterns and contribute to the localised landscape character. Construction impacts would be temporary and reversible. In addition, there would be no overall change to the openness or function of the Greenbelt. The extent of changes will mainly affect the immediate area and are expected to be short-term and manageable. Overall, the modifications are minimal and will not significantly disturb the landscape character.	Following completion of the works, the landscape would return to a similar state to baseline. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			Therefore, the magnitude of change is considered Low.	
	LCA Dark Peak Western Fringe LCT Valley pastures with industry LCA Dark Peak Western Fringe LCT Valley pastures with industry	Medium	Temporary site compound area at the former Butterhouse Tunnel to the south of Diggle. Construction activity would necessitate a reduction in landscape elements (trees and other vegetation) that make up localised landscape patterns and contribute to the localised landscape character. Construction impacts would be temporary and reversible. In addition, there would be no overall change to the openness or function of the Greenbelt. The extent of changes will mainly affect the immediate area and are expected to be short-term and manageable. Overall, the modifications are minimal and will not significantly disturb the landscape character. Therefore, the magnitude of change is considered Low.	Following completion of the works, the landscape would return to a similar state to baseline. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
Ward Lane Overbridge and Compound Works (MVL3/36)	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and		Reconstruction of Ward Lane overbridge (MVL3/36) located north of the Ravenstone Drive footbridge (MVL3/35).	Following completion of the works, the landscape would return to a similar state to baseline. Therefore, it is

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	Enclosed Upland Fringes (Dark Peak)		A temporary utilities bridge is required during the reconstruction of Ward Lane Overbridge (MVL3/36), adjacent to the bridge alongside an associated site compound. Creation of temporary site compounds to the south-west, west, north-west and north-east of Ward Lane Overbridge to support construction in the area. No direct change to the existing landscape or a change that is so inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.	considered that the change is so inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.
Grandpa Green's 1 Site Compound	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the	The loss of trees and hedges would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall.
	LCA Dark Peak Western Fringe LCT Valley pastures with industry LCA Dark Peak Western Fringe LCT Valley pastures with industry	Medium		

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	Therefore, the magnitude of change is considered Very Low.
Grandpa Green's 2 (Ward Lane MVL3/36) - Compound	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and hedges would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
	LCA Dark Peak Western Fringe LCT Valley pastures with industry LCA Dark Peak Western Fringe LCT Urban	Medium		
Diggle compound	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and	Medium	Construction activities would require reducing landscape elements such as trees and other	The loss of trees and other soft landscape elements would not noticeably alter the character of

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	Enclosed Upland Fringes (Dark Peak)		vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.
	LCA Dark Peak Western Fringe LCT Valley pastures with industry LCA Dark Peak Western Fringe LCT Valley pastures with industry	Medium		
Sam Road Carpark	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	Medium	Construction activities will lead to a temporary reduction in landscape elements such as trees and vegetation, which contribute to the local landscape patterns	Following completion of the works, the landscape would return to a similar state to baseline. Therefore, it is considered that the change is so

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	LCA Dark Peak Western Fringe LCT Valley pastures with industry		and character. Temporary construction plant would also be introduced into the landscape, along with fencing. These impacts are temporary and reversible. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low.	inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.
Diggle Access and Diversion	LCA 30. Shore Edge to Dove Stones Reservoir LCT Open Moorlands and Enclosed Upland Fringes (Dark Peak)	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall.
	LCA Dark Peak Western Fringe LCT Valley pastures with industry	Medium		

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	Therefore, the magnitude of change is considered Very Low

Table 6-2: Table of Local Landscape Character and Landscape Types Appraisal at Scheme Element Level

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Armit Road Compound	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Medium	Construction of a site compound located at Armit Road, and associated earthworks. Construction activities will lead to a temporary reduction in landscape elements such as trees and vegetation, which contribute to the local landscape patterns and character. Temporary construction plant would also be introduced into the landscape, along with fencing. These impacts are temporary and reversible. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low	Following completion of the works, the landscape would return to a similar state to baseline. Therefore, it is considered that the change is so inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.
Oaklands Road Compound (MVL3/25) – Parking and limited storage. Including Oaklands Road Plant Access	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			Therefore, the magnitude of change is considered Low.	Therefore, the magnitude of change is considered Very Low
Uppermill Viaduct Works	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Medium	The proposed works involve the Grade II Listed Uppermill Viaduct (MVL3/31), including strengthening the spandrels, installing GRP handrails, and adding OLE portal attachments on the piers. Additionally, temporary site compounds and access routes will be established at the base viaduct. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low
Saddleworth Old Railway Tunnel Site compound (Butterhouse Lane)	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Medium	Temporary site compound area at the former Butterhouse Tunnel to the south of Diggle. Construction activity would necessitate a reduction in landscape elements (trees and other vegetation) that make up localised landscape patterns and contribute to the	Following completion of the works, the landscape would return to a similar state to baseline. Therefore, it is considered that the change is so inconsequential that it does not alter the existing receptor landscape.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			localised landscape character. Construction impacts would be temporary and reversible. In addition, there would be no overall change to the openness or function of the Greenbelt. The extent of changes will mainly affect the immediate area and is expected to be short-term and manageable. Overall, the modifications are minimal and will not significantly disturb the landscape character. Therefore, the magnitude of change is considered Low.	Therefore, the magnitude of change is considered Neutral.
Ward Lane Overbridge and Compound Works	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Medium	Reconstructing Ward Lane overbridge (MVL3/36), which is situated north of the Ravenstone Drive footbridge (MVL3/35). A temporary utilities bridge is required during the reconstruction of Ward Lane Overbridge (MVL3/36), adjacent to the bridge alongside an associated site compound. Creation of temporary site compounds to the south-west, west, north-west and north-east of Ward Lane Overbridge to support construction in the area. No direct change to the existing landscape or a change that is so inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.	Following completion of the works, the landscape would return to a similar state to baseline. Reinstatement and mitigation planting would take time to re-establish following the construction phase. Therefore, it is considered that the change is so inconsequential that it does not alter the existing receptor landscape. Therefore, the magnitude of change is considered Neutral.
Grandpa Greene's 1 Site Compound	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Medium	Construction activities would require reducing landscape elements such as trees and other	The loss of trees and other soft landscape elements would not noticeably alter the character

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low
Grandpa Greene's 2 (Ward Lane MVL3/36) - Compound	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Medium	Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Diggle compound	LCA 4. Tame Settled Valley LCT 4a Rural Valley Sides	Medium	The establishment of temporary site compounds in Diggle to serve construction. This includes an existing parking area at Sam Road, with earthworks to provide access to the railway line, and the expansion of an existing site compound area on the opposite side of the railway from the parking area. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low
Sam Road Carpark	LCA 4. Tame Settled Valley LCT Type 4b Urban Settlement	Medium	Construction activities will lead to a temporary reduction in landscape elements such as trees and vegetation, which contribute to the local landscape patterns and character. Temporary construction plant would also be introduced into the landscape, along with fencing. These impacts are temporary and reversible. The extent of change will be limited to the site itself. The anticipated changes to existing landscape	Following completion of the works, the landscape would return to a similar state to baseline. Reinstatement and mitigation planting would take time to re-establish following the construction phase. Therefore, it is considered that the change is so inconsequential that it does not alter the existing receptor landscape.

Relevant works element	Landscape Receptor	Sensitivity	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
			features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low	Therefore, the magnitude of change is considered Neutral.
Diggle Access and Diversion	LCA 2. Moorland Fringe LCT: Type 2b Settled Moorland Fringe	Medium	Construction of a new access road and associated earthworks to provide a temporary diversion to the northeast of Standedge Tunnel's western portal. Construction activities would require reducing landscape elements such as trees and other vegetation that form localised landscape patterns and contribute to the area's character. The extent of change will influence the immediate surroundings of the Order Scheme. Impacts are anticipated to be short-term and potentially reversible, and in practical terms, they will be easily manageable. In addition, there would be no overall change to the openness or function of the Greenbelt. In summary, the changes observed are minimal and do not significantly disrupt the overall landscape. Therefore, the magnitude of change is considered Low.	The loss of trees and other soft landscape elements would not noticeably alter the character of the landscape. Reinstatement and mitigation planting would take time to re-establish following the construction phase. The extent of change will be limited to the site itself. The anticipated changes to existing landscape features and elements are considered to have a minimal, barely noticeable negative impact overall. Therefore, the magnitude of change is considered Very Low

6.2 Visual Impacts

6.2.1 The visual impacts associated with the Order Scheme will vary across the construction and operational phases. During construction, temporary visual effects are anticipated due to the presence of machinery, site compounds, stockpiles, and construction activities, which may introduce movement, noise, and visual disruption into the landscape. These impacts are expected to be most pronounced during the initial site clearance and structural works, gradually reducing as the site becomes more established.

6.2.2 In the operational phase, the completed development will result in permanent changes to the visual baseline. The degree of visual impact will depend on the scale, form, and materials of the built elements, as well as the effectiveness of any proposed mitigation measures such as planting, screening, or design integration. Over time, as landscape mitigation matures, the visual effects are expected to reduce in magnitude, particularly where planting is used to soften or screen views. Further details are provided in Table 6-3.

Summary of Construction Phase Visual Impacts

6.2.3 The construction phase of the Order Scheme introduces a wide range of temporary but often significant visual impacts across the study area. The most pronounced impacts are categorised as Very Large Adverse, particularly where compounds and access points are located in close proximity to sensitive receptors. These include the Scout East Access and Carpark (VP21), Relocated Mossley Station and Site Compound (VP25, VP26), Wrights Mill OB VL3/22 (VP41), Roughtown Road Overbridge and Compound (VP30, VP31), and Armit Road Compound (VP38). In these locations, the removal of mature vegetation, introduction of construction plant, fencing, and temporary infrastructure significantly alters the visual baseline. The compounds become dominant features in the view, particularly for nearby residential receptors. NVP4 and NVP8 also experience Very Large Adverse impacts due to their direct exposure to large-scale construction activity and limited screening.

6.2.4 Large Adverse impacts are recorded at the Printworks Office and Compound (VP1, VP2), where vegetation clearance and compound infrastructure are highly visible from nearby residences. Similarly, Manchester Road Footbridge (MVL3/10a) (VP14), Scout East Laydown (VP19), Mossley Cottages and Pipebridge (MVL3/13) (VP22, VP23), Heron Lane Compound (VP37),, Ward Lane Overbridge (VP60, VP61), Diggle Access and Diversion (VP71) experience significant visual disruption due to tree removal and the introduction of incongruous construction features. The Royal George Underbridge (VP45) and Grandpa Greene’s 2 Compound (VP60) also fall

into this category, where the scale and proximity of works result in a strong visual presence.

6.2.5 Medium Adverse impacts are widespread and include Scheme elements such as the Wakefield Road Plant Access and Manchester Road Underbridge (VP10b, VP12), Heyrod Hall Storage Compound (VP6, VP7), Springbank Lane Footbridge and Overbridge (MVL3/8 and MVL3/9) (VP10a, VP11), Scout West Laydown and Ramp (VP16), Scout East Access (VP20), Stamford Road Bridge MVL3/13) (VP15), Wright Mill Overbridge (MVL3/20) (VP35 and VP36), Heron Lane Compound (VP36), Oaklands Road Compound (VP46), Uppermill Viaduct (MVL3/31) (VP52, VP54–VP56), Diggle Compound (VP64, VP62, VP59), Diggle Road Overbridge (VP64, VP66), Sam Road Carpark (VP67) and Diggle Access and Diversion (VP70). These impacts are characterised by noticeable changes to the view, including vegetation clearance, construction access, and the presence of temporary compounds. While some mitigation is provided by topography and retained vegetation, the proximity of receptors and the scale of intervention contribute to a moderate level of visual disruption. NVP9 and NVP10 also fall into this category due to their exposure to visible construction activity and tree loss.

6.2.6 Small Adverse impacts are associated with Scheme elements such as the Springbank Lane Footbridge (MVL3/8) (VP8, VP9), Manchester Road Footbridge (MVL3/10a) (VP13), Scout East Access (VP17, VP18), Relocated Mossley Station (VP27), Wright's Bridge (MVL3/23) and PRoW Diversion (VP33, VP39), Royal George Underbridge (VP51), MVL3/29 PRoW Upgrade (NVP5), Uppermill Viaduct (VP53), Grandpa Greene's Compounds 1 and 2 (VP59, VP60), Sam Road Carpark (VP65), and Diggle Road (VP70). These impacts are generally minor and often mitigated by distance, intervening vegetation, or the transient nature of the view. NVP11 and NVP12 also fall within this category, where visibility is limited and receptor sensitivity is low.

6.2.7 Very Small Adverse impacts are recorded at the Plevins Site Compound and Replacement Parking (VP18, NVP1, NVP3), MVL3/18 Roughtown Road Footbridge (VP32), the PRoW Diversion between MVL3/22 and MVL3/23 (VP40), Heron Lane Compound and Stockport Road Level Crossing Closure (VP34 to 36), Armit Road Compound (VP35, VP39, VP40), MVL3/25 Oaklands Road Satellite Compound (VP45), Oaklands Road OB works (MVL3/28 and MVL39) (VP47 – 50), Ward Lane Overbridge (MVL3/36) (VP59, VP60, NVP7, NVP12), Uppermill Viaduct (VP57), and Diggle Compound (NVP7, NVP11, NVP12). These locations experience barely perceptible changes, often due to effective screening, low sensitivity, or the minor scale of construction activity.

6.2.8 Finally, Neutral impacts are recorded at locations such as Grandpa Greene's 2 Compound (VP62, VP63) and Ward Lane Overbridge (MVL3/36) (NVP12),

where construction activity is either not visible or fully screened, resulting in no discernible change to the baseline view

Summary of Operational Phase Visual Impacts

6.2.9 During the operational phase, the most noticeable and enduring visual changes are associated with the relocated Mossley Station and Site Compound, which cause a Medium Adverse impact at VP25, VP26, and VP29. the Order Scheme introduces a new station building, platforms, footbridge, and lighting infrastructure, replacing a previously vegetated and underused area. The removal of mature trees will permanently change the vegetative landscape, making built elements more visible. While the architectural design is sympathetic to the local vernacular and mitigation planting is planned, the station becomes a new focal point in the view, especially for receptors along Manchester Road and adjacent PRoWs. The installation of lighting, even though designed to reduce glare, further alters the night-time character.

6.2.10 Small Adverse impacts are observed at several Scheme elements where permanent vegetation loss and minor infrastructure remain visible. These include the Plevins Site Compound and Replacement Parking (VP18, NVP1), where tree removal has slightly opened up views, though the enclosed nature of the site limits the extent of change. At the Wakefield Road Plant Access and Manchester Road Underbridge (VP10b, VP12), and Manchester Road Footbridge (MVL3/10a) (VP14), the removal of trees and minor structural changes are visible but softened by topography and mitigation planting. Similarly, Spring Bank Lane Overbridge (MVL3/9) (VP11, VP10a), Roughtwon Road Overbridge (MVL3/17) (VP30-21), Wrights Mill Overbridge (MVL3/20_ (VP36) experience minor but lasting changes due to the introduction of new built elements and the loss of screening vegetation. The Mossley Cottages and Pipebridge (VP22, VP23) also fall into this category, where the inability to fully replace removed trees results in a subtle but permanent change to the view.

6.2.11 Very Small Adverse impacts are recorded at Heyrod Hall Storage Compound and Bridge (VP6 and VP7), Wright's Bridge (MVL3/23) (VP41), and the Wickens Bridge PRoW Upgrade Works (NVP5), where the removal of trees and minor infrastructure changes are barely perceptible due to effective screening and the limited role of vegetation in the original view. Saddleworth Old Railway Tunnel Site Compound (NVP9, NVP10) and Oldham Road Overbridge (MVL3/39) (VP66) also fall into this category, where views are expected to return to near-baseline conditions, with only slight residual effects from vegetation loss.

6.2.12 The majority of Scheme elements result in Neutral impacts during the operational phase. These include the Printworks Office and Compound

(VP1, VP2), where the compound area is restored and the new access is screened by topography and planting. The MVL3/8 Footbridge (VP8, VP9), Manchester Road Footbridge (MVL3/10a) (VP13, VP15), and Roughtown Road Footbridge (MVL3/18) (VP32-33) return to baseline conditions following demobilisation and replanting. The Scout West and East Laydown, Ramp, and Access (VP16–VP21, NVP6), Wrights Overbridge (MVL3/23) (VP39), Heron Lane Compound (VP34-36, NVP4), Ward Lane Overbridge (MVL3/36) and Grandpa Greene's Compounds (VP59–VP63, NVP12), and MVL3/31 Uppermill Viaduct (VP52–VP57)) also experience no significant long-term change, with mitigation planting effectively restoring the visual baseline. Similarly, Armit Road Compound (VP35, VP38–VP40), Oaklands Road Satellite Compound (VP45, VP46, VP51), and New Oldham Road Footbridge and Greenfield Station Works (VP47–VP50) are returned to their original condition, with minimal residual effects. The Sam Road Carpark (VP65, VP67, NVP11, NVP12), Diggle Road OB (VP66) and Diggle Compound and Access (VP60, VP64, VP65, VP70, VP71, NVP7, NVP11) also fall into this category, where views are largely unchanged or restored through mitigation.

Appraisal of Visual Impacts

6.2.14 Table 6-3 below presents a schedule of likely visual impacts associated with the proposed development across both the construction and operational phases.

Table 6-3: Appraisal of Visual Impacts

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Printworks Office & Printworks Compound	VP 1	The proposed Scheme elements works include the construction of two temporary site compounds with associated earthworks at Printworks Road, north of Stalybridge Tunnel, with upgrades to the existing road access and upgraded drainage infrastructure. The impacts are expected to arise from the clearance of established vegetation, scattered throughout the site, including a small, wooded area on the Printworks compound Site; and the introduction of new compound features and construction movements. However, views from the road network are likely to be brief and temporary. Views from the adjacent residence on Wakefield Road are likely to be from the facing gable end, and therefore limited to upper floors only. Other views from the residence are likely to be limited as a result of being from extreme oblique angles. The compound and office area is anticipated to have a significant influence on the view; therefore, it is concluded that the magnitude of the impact is **Large Adverse**.	After the construction of the Order Scheme, the compound area would be restored to its original condition, including replanting. Although trees and vegetation would be permanently removed, once the mitigation replanting is established, the views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The permanent new access would be obscured from view as a result of the topography and intervening landscape features, such as the wall on Wakefield Road and mitigation planting. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	VP 2	The Order Scheme elements include the construction of two temporary site compounds with associated earthworks at Printworks Road, north of Stalybridge Tunnel, with upgrades to the existing road access and upgraded drainage infrastructure The impacts are expected to arise from the clearance of established vegetation, scattered throughout the site, including a small, wooded area on the Printworks compound Site; and the introduction of new compound features and construction movements. However, views are likely to be limited and softened by the extension of boundary walls and existing vegetation. During construction, the Order Scheme would have a noticeable influence on the surroundings. The compound and office area are anticipated to have a significant influence on the view; therefore, it is concluded that the magnitude of the impact is **Large Adverse**.	After construction of the Order Scheme, the compound area would be restored to its original condition, including replanting. Although trees and vegetation would be permanently removed, once the mitigation replanting is established, the views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The permanent new access would be barely visible from the view as a result of the topography and intervening landscape features, such as the wall on Wakefield Road and mitigation planting. The overall magnitude of impact is considered to be Neutral.
Plevins Site Compound and Replacement Parking (Egmont Street)	VP 18	The Order Scheme elements include the construction of a site compound, involving the substantial demolition of existing commercial buildings, at Plevin Mossley Depot, east of the Huddersfield Narrow Canal, and establishment of a site compound in an area of previously developed land to the northeast of the Scout East Ramp Works on Egmont Street. Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that despite the removal of trees, views of the Site	Following the construction of the Order Scheme, there will be a permanent removal of adjacent trees; however, due to the enclosed nature of the site, views are expected to revert to a state similar to the baseline. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity. Therefore, the overall magnitude of impact is considered to be Small Adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	NVP 1	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that despite the removal of trees, views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	Following the construction of the Order Scheme, there will be a permanent removal of adjacent trees; however, due to the enclosed nature of the site, views are expected to revert to a state similar to the baseline. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity along Therefore, the overall magnitude of impact is considered to be Small Adverse.
	NVP 3	Due to the restricted views of the site, it is unlikely that the change to the existing view would be deemed more minimal, indicating that it does not significantly alter the current receptor view. However, there would likely be temporary changes	Following the construction of the Order Scheme, there will be a permanent removal of adjacent trees; however, due to the enclosed nature of the site, views are expected to revert to a state similar to the baseline. The change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		during the construction period along the proposed access route. Overall, it is considered that the size and scale of change are very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	Therefore, the overall magnitude of impact is considered to be Neutral.
Wakefield Road Compound and Manchester Road Underbridge works (MVL3/10A)	VP 10b	The Order Scheme elements include upgrade works to the existing vehicular access at Wakefield Road, and the creation of a compound area north of the Springbank Lane Overbridge (MVL3/9) and west of Mossley Wastewater Treatment Works. Installation of replacement handrails and fencing at the Grade II Listed Manchester Road Underbridge (MVL3/10), and installation of drainage to the north on Lower Beestow, including localised resurfacing of PROW ref. MOS/117/710. Views for road users are likely to be glimpsed from sequential locations near this viewpoint. Given the extent of permanent tree removal, it is probable that the adjacent receptors' views from Spring Bank Lane and Wakefield Road would experience visual impact. However, views of the compound would likely be heavily filtered, similar to existing baseline views, but they may be more noticeable to nearby receptors. The Site at Manchester Road Underbridge	Following the construction of the Order Scheme, there would be permanent removal of adjacent trees; after mitigation and establishment of planting views are expected to return to a state similar to the baseline. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity. Therefore, the overall magnitude of impact is considered to be Small Adverse

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		(MVL3/10) is almost imperceptible as it is heavily screened by vegetation and the topography, and therefore, no change would be likely perceived as a result of construction. Overall, it is considered that it is likely that during construction, as a result of the close receptor location to the Wakefield Plant Access, and permanent tree removal opening up views, the Order Scheme would have a noticeable visual impact. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	
	VP 12	Views for PRoW users are likely to be glimpsed from sequential locations near this viewpoint. Given the extent of permanent tree removal, it is probable that adjacent passing receptors' sequential views from Wakefield Road would experience visual impact. However, views of the compound would likely be heavily filtered, glimpsed and fleeting, similar to existing baseline views. Overall, it is considered that it is likely that during construction, as a result of the close receptor location and permanent tree removal opening up views, the Order Scheme would have a noticeable visual impact. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Following the construction of the Order Scheme, there would be permanent removal of adjacent trees; following mitigation and the establishment of restoration planting, views are expected to return to a state similar to the baseline. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity. Therefore, the overall magnitude of impact is considered to be Small Adverse.
Heyrod Hall Storage Compound and Heyrod Hall	VP 6	The Order Scheme elements include the reconstruction of the Grade II Listed Heyrod Hall overbridge (MVL3/7) and earthworks to create a	Following the construction of the Order Scheme, despite the permanent removal of adjacent trees and those along the access, views are expected to return to a state similar to the baseline. The change to the baseline view is deemed negligible

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Overbridge Works (MVL3/7)		suitable surface for an associated temporary storage site compound, as well as an upgraded access route from Printworks Road to serve the site compound. Permanent removal of trees would likely be required to facilitate access to the proposed temporary compound area and would, therefore, introduce movement and open views up within the vicinity of the proposed compound location. Adjacent residential receptors are likely to experience change through the removal of trees and the introduction of temporary working features and plant. Views from STA 16/20 restricted byway towards the proposed compound are limited by intervening vegetation and the topography, as the Site is elevated above the level of the footpath path location. It is likely that retaining trees, where possible, would reduce the visual impact of the Order Scheme and compound location during construction. However, during construction, as a result of the close receptor location, the Order Scheme would have a noticeable visual impact. Therefore, it is concluded that the overall magnitude of the impact is **Medium Adverse**.	or barely perceptible influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Very Small Adverse.
	VP 7	It is considered that the impact on mature vegetation and trees would likely be perceived from this location; however, the opening up of views could likely be mitigated by retaining vegetation along the boundary and throughout construction through the use of solid hoarding. However, during construction, as a result of the close receptor location, the Order Scheme would	Following the construction of the Order Scheme, despite the permanent removal of adjacent trees and those along the access, views are expected to return to a state similar to the baseline. The change to the baseline view is deemed negligible or barely perceptible influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Very Small adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		have a noticeable visual impact. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	
Springbank Footbridge Overbridge Works (MVL3/8)	VP 8	The Order Scheme elements include minor refurbishment and parapet extensions in the form of replacement copers at the Grade II Listed footbridge off Springbank Lane (MVL3/8). New construction features would be introduced within the view, and there would be movement and noise within the vicinity of the Order Scheme element. It is considered that the Order Scheme and temporary access would form an unobtrusive influence in the view. Therefore, it is concluded that the magnitude of the impact is considered to be Small Adverse.	After construction the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 9	From this location, the views would be mid-distance and would contribute to a raised view looking down towards the Site, which includes views extending to the hills in the distance. It is considered that the introduction of construction access, movement, and plant would have a visual impact; however, views of the Site during construction are likely heavily filtered by the intervening vegetation and obscured in part by topography. Consequently, the Order Scheme is deemed to have a minimal visual impact, leading to the conclusion that the magnitude of the impact is considered to be Small Adverse.	After the construction of the Order Scheme, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	VP 10a	Although the viewpoint location is in close proximity to the Site, views are constrained to the route for vehicle users. Looking from the bridge toward MVL3/8 in the south, along the rail corridor, views of the construction works would be likely. This is also the case for sequential views along Spring Bank Lane which is intended as access for works to MVL3/8 and MVL3/9. It is considered that the introduction of construction access, movement, and plant would have a visual impact; however, the local topography limits views of the MVL3/8 and MVL3/9 bridges. Nonetheless, during construction, due to the close receptor location, the Order Scheme would have a noticeable visual impact. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Following the construction of the Order Scheme, views are expected to return to a state similar to the baseline. The change to the baseline view as a result of the Order Scheme is deemed an unobtrusive influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Small Adverse.
Spring Bank Lane Overbridge (MVL3/9)	VP 9	Proposed Scheme elements include the Grade II Listed Springbank Lane Overbridge (MVL3/9) bridge strengthening, parapet raising and approach wall strengthening. Along with the permanent removal of a small number of trees adjacent to the structure and access would likely be required to facilitate access and construction. Visual impacts are expected to arise from vegetation clearance, around MVL3/9 and the east access, and the introduction of new compound features. However, from this location, the views would be mid-distance, which includes views extending to the hills in the distance. Views of the Site during construction are likely heavily	After construction, although a small number of trees along the temporary access would be removed, the receptor views are expected to return to a state similar to the baseline as the remaining canopy closes over. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		filtered by the intervening vegetation and obscured in part by topography. Thus, the Order Scheme is deemed to have a minimal visual impact, leading to the conclusion that the magnitude of the impact is considered to be Small Adverse	
	VP 11	Although the viewpoint location is in close proximity to the Site, views are constrained looking north along the rail corridor towards MVL3/9, views of the construction works, and tree removal would be likely. This is also the case for sequential views along PRoW STA/12/20. It is considered that the impact on mature vegetation and trees would be obvious from this location, particularly along the rail corridor, and from sequential views. It is likely that during construction, as a result of the close receptor location and permanent tree removal opening up views, the Order Scheme would have a noticeable visual impact. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Following the construction of the Order Scheme, there would be permanent removal of adjacent trees; following mitigation and over time views are expected to return to a state similar to the baseline. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity along PRoW STA/12/20. Therefore, the overall magnitude of impact is considered to be Small Adverse.
Manchester Road Footbridge Works (MVL3/10a)	VP 13	The Order Scheme elements involve reconstruction of the Manchester Road Footbridge (MVL3/10A), which is required to facilitate OLE installations underneath the bridge. Visual impacts are expected to arise as a result of minor associated vegetation removal along the proposed access between MVL3/10 and MVL3/10a. However, from this location, the views would be mid-distance and elevated, looking down towards	After construction, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		the Site. As a result of this angle of view and intervening vegetation, views during construction are likely to be heavily filtered by and obscured in part by topography. Therefore, the Order Scheme is deemed likely to be an unobtrusive influence in the view, leading to the conclusion that the magnitude of the impact is Small Adverse.	
	VP 14	Views of the Manchester Road Footbridge (MVL3/10a) are likely to be heavily obscured by intervening vegetation; however, due to the proposed adjacent temporary compound and construction access, trees at the frontage of the properties would be retained, with only limited vegetation clearance around the structure of MVL3/10a. Although remaining vegetation may soften and filter the views somewhat, it is likely that the overall impact of the proposals would negatively affect the baseline situation and the nature of the view. Consequently, due to the likely significant loss of trees around the structure and adjacent to the existing rail route. Therefore, the Order Scheme is considered to have a **Large Adverse** magnitude of impact.	Following the construction of the Order Scheme, there would be permanent removal of adjacent trees; following mitigation and the establishment of restoration planting, views are expected to return to a state similar to the baseline. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity. Therefore, the overall magnitude of impact is considered to be Small Adverse.
	VP 15	Views of the Manchester Road Footbridge (MVL3/10a) are likely to be heavily filtered by intervening vegetation; however, as a result of the proposed adjacent temporary compound and construction access, trees at the frontage of the properties would be retained, with only limited	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		vegetation clearance around the structure of MVL3/10a. It is likely that during construction, as a result of the close receptor location, the Order Scheme would have a noticeable visual impact; however, the likely restricted view from properties would partially mitigate the impact. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	The overall magnitude of impact is considered to be Neutral.
Scout West Laydown	VP 16	Views of the proposed laydown area are likely to be filtered through intervening vegetation, localised topography and built form. Visual receptors are likely to be travelling through the area, either as PRoW users or along the road route within a vehicle. Therefore, views of the Site are likely to be transient. It is likely that there would be woodland clearance along the western side of the rail route before the Scout southern tunnel portal, and that this would have a pronounced local visual impact upon adjacent receptors. Particularly in conjunction with the construction of the Scout West Access Ramp, as views would be potentially more open as a result of the tree clearance, the laydown area would contain new construction features, which would be a detractor, changing the composition of the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Medium Adverse**.	After the construction of the Order Scheme, although woodland along the western side of the rail route before would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Scout West Ramp	VP 16	Visual impacts are expected to arise from the removal of vegetation along the proposed Scout Tunnel West Pedestrian Access. From this location, the views would be close-up and from a vantage point at a lower elevation than the W2B intervention Site. Due to this viewing angle and the intervening vegetation, views during construction are likely to open up following the removal of trees. Although remaining vegetation may soften and filter the views somewhat, it is likely that the overall impact of the proposals would negatively affect the baseline situation and the nature of the view. Consequently, due to the likely significant loss of trees along the Manchester Road axis and adjacent to the existing rail route, and the high level of visual change. Therefore, the Order Scheme is considered to have a **Large Adverse** magnitude of impact.	After the construction of the Order Scheme, although trees and woodland would have been permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Scout West Spoil Point	VP 18	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that despite the removal of trees, views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		the impact is considered to be Very Small Adverse.	
Scout East Access and Scout East Carpark	VP 17	The Order Scheme elements include the construction of a Road Rail Access Point with associated ramp and earthworks, including new access point onto Manchester Road in Mossley to the north of the Scout Tunnel Site Compounds Works. Visual impacts are expected to arise from the removal of vegetation along the proposed Scout Tunnel East Access and around the Scout Tunnel East car park area. From this location, the views would be from a medium distance and at lower elevation than the W2B intervention Site. Due to this viewing angle and the intervening vegetation, views during construction and the existing eastern tunnel portal are likely to be opened up following the removal of trees. However, the remaining vegetation would soften and filter the views, so it is therefore considered likely that the overall impact of the proposals would have a very limited negative impact on the baseline situation and the nature of the view. The Order Scheme is considered to have a Small Adverse magnitude of impact.	After construction, although trees and woodland would have been permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 18	Visual impacts are expected to arise from the removal of vegetation along the proposed Scout Tunnel East Access. From this location, the views would be from a medium distance and from a vantage point below the W2B intervention Site. Due to this viewing angle and the intervening vegetation, views during construction are likely to	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		be opened up following the removal of trees. However, the remaining vegetation would soften and filter the views, so it is therefore considered likely that the overall impact of the proposals would have a very limited negative impact on the baseline situation and the nature of the view. The Order Scheme is considered to have a Small Adverse magnitude of impact.	The overall magnitude of impact is considered to be Neutral.
	VP 20	The removal of trees is likely to have a permanent impact by opening up views for the visual receptors located across Manchester Road. Residential properties along Manchester Road would have unobstructed views from both ground and first-floor frontages. The impacts of tree removal and construction would be highly visible due to the location and prominence of the Site. Consequently, it is considered likely that visual effects would be noticeable during the construction period. The Order Scheme elements would introduce a new feature to the landscape, and the scale of change is therefore considered medium due to the loss of trees and vegetation within the view also the opening up of views to the railway line). The Order Scheme is viewed as a detractor, which would negatively impact the composition of the view. The anticipated impacts are considered temporary and could potentially be reversed with mitigation planting. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	After construction, the intervention proposed access track) would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	VP 21	Views of the Scout East Access would be very close and as a result of the proximity of the proposed adjacent temporary compound and construction access, permanent tree removal would be required. It is considered likely that residential receptor views immediately adjacent to the compound would experience visual effects. the Order Scheme forms a major detractor, creating a new focus that has a defining negative influence on the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Very Large Adverse**.	After the construction of the Order Scheme, the intervention proposed (access track) would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be **Neutral**.
Scout East Laydown	VP 19	The removal of trees is likely to have a permanent impact by opening up views for the visual receptors located opposite the Site on Manchester Road. Residential properties along Manchester Road would have clear views from both ground and first-floor frontages. The impacts of tree removal and construction would be highly visible due to the location and prominence of the Site. The effects would be evident during the construction period. After construction, the land is expected to return to woodland subject to confirmation. It is likely that the proposed intervention location including the compound and associated work) would be immediately visible to adjacent visual receptors. The visual impact is expected to be significant for adjacent receptors during construction, primarily due to tree removal and land reprofiling. Topography, intervening vegetation, and structures may obstruct distant	Following the construction of the Order Scheme, the intervention proposed laydown would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be **Neutral**.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		views. Consequently, due to the likely significant loss of trees and the high level of visual change, the Order Scheme is considered to have a **Large Adverse** magnitude of impact.	
	VP 20	The removal of trees is likely to have a permanent impact by opening up views for the visual receptors located across Manchester Road. Residential properties along Manchester Road would have unobstructed views from both ground and first-floor frontages. The impacts of tree removal and construction would be highly visible due to the location and prominence of the Site. Consequently, it is considered likely that visual effects would be noticeable during the construction period. After construction, the land is expected to return to woodland subject to confirmation. The Order Scheme element would introduce a new feature to the landscape, and the scale of change is therefore considered medium due to the loss of trees and vegetation within the view also the opening up of views to the railway line. the Order Scheme is viewed as a detractor, which would negatively impact the composition of the view. The anticipated impacts are considered temporary and could potentially be reversed with mitigation planting. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	After construction, the intervention proposed access track would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
Mossley Cottages, Stamford Road Bridge Works (MVL3/13)	VP 22	Works proposed to divert the utilities pipe-bridge (MVL3/12a) into Stamford Road Bridge (MVL3/13), including highways excavation The removal of trees along the cutting adjacent to Old Brow Court would be apparent from this visual report location. Views towards Mossley Cottage would be opened up, resulting in a change in the view. This change is due to construction works in this area, alongside those on MVL3/13 and the existing Mossley station. The overall impact on views would be somewhat reduced by the baseline condition of other views, which are mainly road or urban. It is likely that residential receptors immediately neighbouring the compound would experience visual effects, and because of the close proximity to the compound, this would have a significant influence on their view. Therefore, it is concluded that the magnitude of the impact is considered to be **Large Adverse**.	Following the construction of the Order Scheme, there would be permanent removal of adjacent trees; following mitigation and the establishment of restoration planting, views are expected to return to a state similar to the baseline. However, it is unlikely that the trees in this location would be able to be replaced The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity. Therefore, the overall magnitude of impact is considered to be Small Adverse.
	VP 23	The removal of trees along the cutting adjacent to Old Brow Court would be evident from this visual report location; views towards Mossley Cottage would be opened up, resulting in a change in the view. Construction works in this area, along with those on MVL3/13 and the existing Mossley station, would contribute to this change. The visual impact would be somewhat mitigated by the baseline condition of other views, which are predominantly road and urban scenery. It is considered likely that residential receptors immediately adjacent to the compound would	Following the construction of the Order Scheme, there would be permanent removal of adjacent trees; following mitigation and establishment of planting, views are expected to return to a state similar to the baseline. However, it is unlikely that the trees in this location would be able to be replaced The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity. Therefore, the overall magnitude of impact is considered to be Small Adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		experience visual effects, and due to the close proximity to the compound, this would have a pronounced influence on their view. Therefore, it is concluded that the magnitude of the impact is considered to be **Large Adverse**.	
Relocated Mossley Station Works	VP 25	Mossley Station is to be relocated approximately 300 metres north of the existing Mossley Station, on land which is currently vacant west of Manchester Road. The works will include station platforms, a new station building, footbridge and lift shafts, as well as temporary site compounds on either side of the relocated station site to serve construction. The works will also include a new road access layout, parking areas, a new bus stop on Manchester Road and a new pedestrian and vehicular access route between the car park of the existing Mossley Station and the relocated station, as well as associated utilities works. A new pedestrian crossing will be constructed on Manchester Road, near the station entrance. The view for residential receptors along Stamford Road is limited, mainly to the oblique angle and local topography. The residential receptors are located above the existing Site; therefore, views of the construction works are likely to be minimal. It is probable that even with the introduction of the construction plant and features, the change would be minor. The size and scale of change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. However, for residential receptors along	Following completion of the Order Scheme, the relocated Mossley Station will be operational and visible from receptors along Manchester Road. Views of the new station infrastructure will be partially screened by the retained boundary wall, which provides a degree of visual containment at street level. The architectural design, including the selection of materials and colour palette, has been developed to ensure compatibility with the surrounding built form and landscape character, thereby helping to mitigate potential visual intrusion. Although views into the station are somewhat restricted, the introduction of new infrastructure will result in a perceptible change from the baseline condition. The permanent removal of adjacent trees will alter the existing vegetative structure, reducing natural screening and increasing the prominence of built elements within the view. While restoration planting is proposed as part of the mitigation strategy, it is acknowledged that the original tree cover cannot be fully reinstated due to spatial constraints and in addition, new lighting will be introduced as part of the station infrastructure. While the surrounding area is already well-lit due to its urban context, the proposed lighting will be designed to minimise glare and reduce light spill, ensuring it remains sensitive to nearby residential receptors and the surrounding landscape character. Lighting design will follow best practice guidance to limit adverse visual effects, particularly during evening and nighttime hours. The magnitude of change to the baseline view is assessed as medium, primarily due to the loss of mature vegetation, the introduction of new built form, and the addition of lighting infrastructure. the Order Scheme acts as a visual detractor, modifying the composition and character of the view. However, the potential impact is moderated by the application of high-quality design principles and integration with the existing urban fabric. The proposed development may offer a more coherent and visually acceptable outcome in the long term,

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Manchester Road, views of the proposed compound and construction area would be immediately available, though partially screened from ground floor views. Views of access, movement, plant and construction would form a major detractor, creating a new focus that has a defining negative influence on the view. Therefore, it is concluded that the magnitude of the impact is **Very Large Adverse.**	particularly following the establishment of mitigation planting. Therefore, the overall magnitude of visual impact is **Medium Adverse**.
	VP 26	The view for road receptors is limited, mainly to the road corridor and local topography. Therefore, views of the construction works, and vegetation removal are likely to be minimal. It is probable that even with the introduction of the construction plant and movement, the change would be perceptible to receptors. The Order Scheme elements would introduce a new feature to the landscape, and the scale of change is therefore considered medium due to the loss of trees and vegetation within the view, as well as the addition of the new station. The Order Scheme is viewed as a detractor, which would negatively impact the composition of the view. However, for residential receptors along Manchester Road, views of the proposed compound and construction area would be immediately available, though partially screened from ground floor views. Views of access, movement, plant and construction would form a major detractor, creating a new focus that has a defining negative influence on the view.	Following completion of the Order Scheme, the relocated Mossley Station will be operational and visible from receptors along Manchester Road. Views of the new station infrastructure will be partially screened by the retained boundary wall, which provides a degree of visual containment at street level. The architectural design, including the selection of materials and colour palette, has been developed to reflect the local vernacular and reduce visual prominence within the surrounding townscape. Although views into the station are somewhat restricted, the introduction of new infrastructure will result in a perceptible change from the baseline condition. The permanent removal of adjacent trees will alter the existing vegetative structure, reducing natural screening and increasing the visibility of built elements. While restoration planting is proposed as part of the mitigation strategy, it is acknowledged that the original tree cover cannot be fully reinstated due to spatial and operational constraints. Consequently, the relocated station is anticipated to become a new and permanent feature within the local view. Residential receptors along Manchester Road will experience varying degrees of visibility. Ground floor views from properties opposite the Site are expected to be largely screened by the existing boundary wall, with visibility generally limited to the upper floors. Views of the proposed compound and construction site may be partially visible above the wall during the construction phase. In addition, new lighting will be introduced as part of the station infrastructure. While the surrounding area is already well-lit due to its urban context, the proposed lighting will be designed to minimise glare and reduce light spill, ensuring it remains sensitive to nearby residential receptors and

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Therefore, it is concluded that the magnitude of the impact is considered to be Very Large Adverse.	the surrounding landscape character. Lighting design will follow best practice guidance to limit adverse visual effects, particularly during evening and nighttime hours. The magnitude of change to the baseline view is assessed as medium, primarily due to the loss of mature vegetation and the introduction of new built form. The Order Scheme is considered to act as a visual detractor, altering the composition and character of the view. However, the impact is moderated by the application of high-quality design principles and the integration of the station into the existing built environment. The proposed development may result in a more coherent and visually acceptable outcome over time, particularly following the establishment of mitigation planting. Therefore, the overall magnitude of visual impact is considered to be **Medium** Adverse.
	VP 27	The view for road receptors is limited, mainly to the road corridor and local topography. Therefore, views of the construction works are likely to be minimal. It is probable that even with the introduction of the construction plant and movement, the change would be minor. The size and scale of change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely to be no direct change to the existing view or a change that is so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be neutral.
	VP 29	The views of the construction site will be directly adjacent to the receptor location. Due to the proximity of the proposed temporary compound and construction access, it is likely that the receptor views immediately next to the compound will experience visual effects. However, retaining vegetation along Archer Street will help minimise the visual impact of the construction to sequential views along the Public Right of Way (PRoW).	Following construction of the Order Scheme, the permanent removal of adjacent trees will result in a notable alteration to the existing vegetative structure. While restoration planting is proposed as part of the mitigation strategy, it is unlikely that the original tree cover in this location can be fully reinstated due to spatial and operational limitations. As a result, the relocated Mossley Station is expected to become a new and permanent feature within the local view. Retained vegetation will continue to provide some degree of visual filtering, particularly for receptors along the adjacent Public Right of Way (PRoW) and Manchester Road. However, the introduction of new built form will alter the

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Overall, the scale of change, caused by the removal of existing trees and the introduction of new features such as construction compounds, plant equipment, access routes, and movement of existing trees, alters the composition of the view. This change is considered detrimental; however, the impact is mitigated by the retention of some trees. Therefore, it is concluded that the magnitude of the impact is considered to be Large Adverse.	composition and character of sequential views along these routes. The degree of visual change is particularly influenced by the loss of mature trees, which currently contribute to the screening and landscape character of the area. In addition, new lighting will be introduced as part of the station infrastructure. While the surrounding area is already well-lit due to its urban context, the proposed lighting will be designed to minimise glare and reduce light spill, ensuring it remains sensitive to nearby residential receptors and the surrounding landscape character. Lighting design will follow best practice guidance to limit adverse visual effects, particularly during evening and nighttime hours. In addition, new lighting will be introduced as part of the station infrastructure. While the scale of change is assessed as medium, reflecting both the extent of vegetation loss and the introduction of the relocated station infrastructure. the Order Scheme is considered to act as a visual detractor, modifying the baseline view and reducing the perceived naturalness of the setting. While the design seeks to integrate the new station into the existing built form, the degree of integration is limited, resulting in a slightly negative influence on the baseline condition. Therefore, the overall magnitude of visual impact is considered to be **Medium.**
Roughtown Road Overbridge Works (MVL3/17) including New Earth Street Site Compound	VP 30	The Order Scheme elements works include the establishment of a site compound on the western side of MVL3/16 New Earth Street Footbridge to support construction in the area, and works to raise the parapets to 1.5 metres at the Grade II Listed Roughtown Road overbridge (MVL3/17) Views of the construction and Site would be very close, and as a result of the proximity of the proposed adjacent temporary compound and construction access, permanent tree removal would be required. It is considered likely that receptor views immediately adjacent to the compound would experience visual effects. The Order Scheme	Following construction, there would be a permanent removal of adjacent trees; following mitigation and the establishment of restoration planting, views are expected to return to a state similar to the baseline. The change to the baseline view caused by the removal of trees and proposed works to MVL 3/17 is regarded as an unobtrusive influence, indicating that it does not significantly alter receptor views in this area, due to the mitigation planting and that the bridge was present at baseline and that it would remain following construction despite changes to its structure following the works). Therefore, the overall magnitude of impact is considered to be Small Adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		forms a major detractor, creating a new focus that has a defining negative influence on the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Very Large Adverse**.	
	VP 31	Views of the construction and Site would be very close, and as a result of the proximity of the proposed adjacent temporary works and construction access, some minor permanent vegetation removal would be required. It is considered likely that the receptor views are immediately adjacent to the compound. Following the construction of the Order Scheme, there would be a permanent removal of adjacent trees; after mitigation and establishment of planting, views are expected to return to a state similar to the baseline. However, it is likely that the relocated station would become a new feature within the view. The change to the baseline view caused by the introduction of the Order Scheme is regarded as an unobtrusive influence, indicating that it does not significantly alter receptor views in this area, due to the local topography obstructing views and the significance of the Order Scheme within the overall panorama. Therefore, the overall magnitude of impact of works to MVL3/17 is considered to be Small Adverse. However, when considered along with the compound area. The Order Scheme forms a major detractor, creating a new focus that has a defining negative influence on the view.	Following the construction of the Order Scheme, there would be a permanent removal of adjacent trees; after mitigation and establishment of planting views are expected to return to a state similar to the baseline. The change to the baseline view caused by the removal of trees and proposed works to MVL 3/17 is regarded as an unobtrusive influence, indicating that it does not significantly alter receptor views in this area, due to the mitigation planting and that the bridge was present at baseline and that it would remain following construction despite changes to its structure following the works). Therefore, the overall magnitude of impact is considered to be Small Adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Therefore, it is concluded that the magnitude of the impact is considered to be **Very Large Adverse**.	
Roughtown Road Footbridge Works (MVL3/18)	VP 32	The Order Scheme elements works proposed include the construction of the footbridge off Roughtown Road (MVL3/18), located 70 metres to the north of Roughtown Road overbridge (MVL3/17). Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After construction, although trees and vegetation would be permanently removed, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 33	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this	After the construction of the Order Scheme, although trees and vegetation would be permanently removed the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		location or sequential views in the vicinity. Therefore, the overall magnitude of impact is considered to be Small Adverse.	
Stockport Road Level Crossing and PRoW Diversion	VP 34	The Stockport Road level crossing located to the west of Heron Lane is proposed to be closed, with the existing footpath and PROW to be diverted to the north via the Heron Lane underbridge MVL3/19. Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The permanent route is on the eastern side of the railway, set below the embankment. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 35	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The permanent route is on the eastern side of the railway route, set below the	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		embankment. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	The overall magnitude of impact is considered to be Neutral.
	VP 36	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The permanent route is on the eastern side of the railway route, set below the embankment. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	NVP 4	The residential receptors most likely to experience a change in their views are located on Vale View to the east of the Site. The elevated position of the Site makes it visible from residential frontages,	After the construction of the Order Scheme, the compound and construction plant would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		with views only partially filtered by intervening vegetation. There is likely to be a visual impact on residential receptors along Vale View facing the Site. There would likely be visual impact from the introduction of new incongruous features within the predominantly pastoral areas. Along with the temporary loss of fields, there would be permanent tree loss, which is a key landscape element within the river valley. It is considered likely that residential receptors immediately adjacent to the compound would experience visual effects, and due to the close proximity to the compound, this would have a pronounced influence on their view. Therefore, it is concluded that the magnitude of the impact is considered to be **Large Adverse**.	change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Heron Lane Compound	VP 35	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The permanent route is on the eastern side of the railway route, set below the embankment. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	VP36	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The permanent route is on the eastern side of the railway route, set below the embankment. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity along Therefore, the overall magnitude of impact is considered to be Small Adverse.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP37 (A)	Views of the construction and Site would be very close and as a result of the proximity of the proposed adjacent temporary compound and construction access, permanent tree removal would be required. It is considered likely that receptor views immediately adjacent to the compound would experience visual effects. the Order Scheme forms a major detractor, creating a new focus that has a defining negative influence on the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Very Large Adverse**.	After the construction of the Order Scheme, the compound and construction plant would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	NVP 4	The residential receptors most likely to experience a change in their views are located on Vale View to the east of the Site. The elevated position of the Site makes it visible from residential frontages, with views only partially filtered by intervening vegetation. There is likely to be a visual impact on residential receptors along Vale View facing the Site. There would likely be visual impact from the introduction of new incongruous features within the predominantly pastoral areas. Along with the temporary loss of fields, there would be permanent tree loss, which is a key landscape element within the river valley. The Order Scheme elements would introduce a new feature to the landscape, and the scale of change is therefore considered medium due to the loss of trees and vegetation within the view also the addition of the new station). the Order Scheme is viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	After construction, the compound and construction plant would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Wrights Mill Overbridge Works (MVL3/20)	VP 36	The proposed works for the Order Scheme element includes the reconstruction of the Grade II Listed Wright Mill overbridge (MVL3/20) to the east of the Midge Hill farm buildings. The Wright Mill Overbridge Reconstruction requires a satellite site compound adjacent to the structure, minor permanent tree removal would be required. Views of the Site are limited by topography and intervening vegetation; this, along with the size of	Following construction, there would be permanent removal of adjacent trees; following mitigation and the establishment of restoration planting, views are expected to return to a state similar to the baseline. The change to the baseline view as a result of the introduction of the Order Scheme is deemed as an unobtrusive influence in the view, indicating that it does not significantly alter receptor views in this location or sequential views in the vicinity along Therefore, the overall magnitude of impact is considered to be Small Adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		the Site within the visual panorama, means that views of the Site during construction would be very restricted. The construction compound Heron Lane) would be located on the eastern side of the railway route, set below the embankment. The construction works and elements are viewed as a detractor, which would negatively impact the composition of the view. The anticipated impacts are considered temporary and could potentially be reversed with mitigation planting. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	
	VP 37	Views of the construction and Site would be very close, and as a result of the proximity of the proposed adjacent temporary compound and construction access, minor permanent tree removal would be required. It is considered likely that receptor views immediately adjacent to the compound would experience visual effects. The Order Scheme forms a major detractor, creating a new focus that has a defining negative influence on the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Very Large Adverse**.	After the construction of the Order Scheme, the compound and construction plant would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Wright's Bridge Overbridge Works (MVL3/23)	VP 39	Demolition of the Grade II Listed Wrights overbridge (MVL3/23) which carries a Public Right of Way between Low Grove Lane and Mossley Road PROW to be diverted under the TWAO powers. Views of the Site are limited by topography and intervening vegetation; this, along	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	The overall magnitude of impact is considered to be Neutral.
	VP 40	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Neutral.
	VP 41	Permanent removal of trees would likely be required to facilitate access to the proposed temporary compound area and would, therefore,	Following the construction of the Order Scheme, despite the permanent removal of adjacent trees, views are expected to return to a state similar to the baseline. The change to the baseline view is deemed negligible or barely perceptible

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		introduce movement and open views up within the vicinity of the proposed compound location. Adjacent residential receptors are likely to experience change through the removal of trees and the introduction of temporary working features and plant. Views from MVL 3/23 towards the proposed compound are limited by intervening vegetation and the topography, as the Site is elevated above the level of the footpath location. It is likely that retaining trees, where possible, would reduce the visual impact of the Order Scheme and compound location during construction. However, during construction, as a result of the close receptor location, the Order Scheme would have a noticeable visual impact. Therefore, it is concluded that the overall magnitude of the impact is **Medium Adverse**.	influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Very Small Adverse.
Diversion of PRoW between MVL3/22 and MVL3/23	VP 39	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. Therefore, views of the construction works are likely to be minimal. It is probable that even with the introduction of the construction plant and features, the change would be minor. The size and scale of change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Therefore, the overall magnitude of impact is considered to be Small Adverse.	
	VP 40	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. Likely changes to views from works to reconstruct the bridge Grade II listed structure and Diversion of PRoW between MVL3/22 and MVL3/23. The PRoW is a PRoW Regional trail. Vegetation clearance is required to enable construction. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 41	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. Likely changes to views from works to reconstruct the bridge Grade II listed structure and Diversion of PRoW between MVL3/22 and MVL3/23. The PRoW is a PRoW Regional trail. Vegetation clearance is required to enable construction.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. The change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Views of the construction and Site would be very close, and as a result of the proximity of the MVL3/23- bridge. It is considered likely that receptor views immediately adjacent to the compound would experience visual effects. the Order Scheme forms a major detractor, creating a new focus that has a defining negative influence on the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Very Large Adverse**.	
Royal George Underbridge Works (MVL3/25)	VP 45	Reconstruction of the Grade II Listed Royal George Underbridge (MVL3/25) at Oaklands Road and establishment of a temporary site compound utilising the existing parking area for the Friezland Church Hall. MVL3/25 Royal George Underbridge is partially visible from this location; however, it is likely that due to works and the introduction of construction plant, the construction works would become a prominent visual change for road users. The view is constrained mainly to the road corridor, which would intensify the visual change to the driver's view. It is considered likely that road users immediately adjacent to MVL3/25 and the compound would experience visual effects, and as a result of the near distance to the compound, this would form a pronounced influence on the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Large Adverse**.	After the construction of the Order Scheme, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	VP 51	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Neutral.
Armit Road Compound	VP 35	The Order Scheme elements include the construction of a site compound located away from NR land at Armit Road, and associated earthworks. Minimal permanent tree removal would be required. Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view.	After construction, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	VP 38	Views of the construction and Site would be very close, and as a result of the proximity of the proposed adjacent temporary compound and construction access, minimal permanent tree removal would be required. It is considered likely that receptor views immediately adjacent to the compound would experience visual effects. The Order Scheme forms a major detractor, creating a new focus that has a defining negative influence on the view. Therefore, it is concluded that the magnitude of the impact is considered to be **Very Large Adverse**.	After the construction of the Order Scheme, the compound and construction plant would have been removed, and although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 39	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		the impact is considered to be Very Small Adverse.	
	VP 40	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Oaklands Road Compound – Parking and limited storage, including Oaklands Road Plant Access	VP 45	The Order Scheme works proposed include earthworks, de-vegetation and resurfacing to establish a larger site compound area at Oaklands Road, including the widening of an existing vehicular access as well as the creation of a new second vehicular access from Oaklands Road. This site compound will be located to the north of the George Street Underbridge and south of the Shaw Hall Bank Road Footway the 'Oaklands Road Site Compound Works'. Views of the Site are limited by topography, the intervening rail route, and vegetation; there would likely be some removal of trees, though this would have a low impact due to the small visual change that would be observed from this viewpoint, and views of the	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Site during construction would be very restricted. The scale of change is considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	VP 46	Views of the site are limited by topography, the road corridor, and vegetation; trees and vegetation would likely be removed. However, in general, views of the site during construction would be very restricted. Although due to the proximity, there would be visibility of construction traffic, movement, and the compound through the trees. The construction works and elements are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	After construction, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a condition similar to the baseline. Construction materials and plants would be removed along with temporary features and hardstanding. The anticipated impacts are considered temporary and could potentially be reversed through mitigation planting. Therefore, the change to the existing view is regarded as minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 51	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
New Oldham Road Footbridge (MVL3/27B), Greenfield Station Platform 2 Secondary Means of Escape Works, and Oldham Road Overbridge MVL3/28) Reconstruction	VP 47	Reconstruction of the Grade II Listed Oldham Road overbridge (MVL3/28) adjacent to Greenfield Station with a reinforced concrete portal structure and approach containment, and widening to the low mileage side to improve the highways alignment and provide additional footway width. Construction of a new Oldham Road footbridge (MVL3/28A) adjacent to the existing Oldham Road overbridge (MVL3/28) and Greenfield Station, and a new secondary means of escape staircase from Greenfield Station Platform 2 to the proposed new footbridge Views of the Site are limited by topography and vegetation; there would likely be some removal of trees, though this would have a low impact due to the small visual change that would be observed from this viewpoint. Views of the Site during construction would be very restricted. The scale of change is considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view.	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	VP 48	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 49	Views of the Site are limited by topography and vegetation; there would likely be some removal of trees, though this would have a low impact due to the small visual change that would be observed from this viewpoint, and views of the Site during construction would be very restricted. The scale of change is considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		the impact is considered to be Very Small Adverse.	
	VP 50	Views of the Site are limited by topography and vegetation; there would likely be some removal of trees, though this would have a low impact due to the small visual change that would be observed from this viewpoint, and views of the Site during construction would be very restricted. The scale of change is considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
PRoW Upgrade Works (MVL3/29)	NVP 5	Works proposed to upgrade the footpath between Oldham Road and Ladcastle Road, passing under MVL3/29 Wickens Underbridge, to provide an alternative footpath route following the closure of Moorgate Halt Level Crossing under the TWAO powers, as well as a site compound to the north west of Wickens Underbridge to support the works in the area. Visual impacts are expected to arise as a result of associated vegetation removal adjacent to the existing PRoW 244 SADD, which runs through the site. However, from this location, the views would be mid-distance and elevated, looking down towards the Site. As a result of this angle of view and intervening vegetation, views during	After the completion of the Order Scheme, following demobilisation, the receptor views are expected to revert to a state similar to the baseline. Replanting would occur along the existing footprint to replace the trees lost; upon establishment, views would again resemble the baseline. The scale of change is considered very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is very small and adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		construction are likely to be partially screened in part by topography. Therefore, the Order Scheme is deemed likely to be an unobtrusive influence in the view, leading to the conclusion that the magnitude of the impact is considered to be Small Adverse.	
Lineside Fencing Access from Oldham Road	NVP 5	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Uppermill Viaduct Works (MVL3/31)	VP 52	Works to the Grade II Listed Uppermill Viaduct (MVL3/31) including spandrel strengthening, installation of GRP handrails, and OLE portal attachments on the piers, as well as the establishment of temporary site compounds and access routes at the base of the viaduct. Creation of a temporary site compound with access works at the former Uppermill Station. Views of the site are limited by topography and intervening vegetation; therefore, views of the	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		structural works during construction would be very restricted. However, given the prominence of the structure and the works, the construction works and elements are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	
	VP 53	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. Therefore, views of the construction works are likely to be minimal. It is probable that even with the introduction of the construction plant and features, the change would be minor. The size and scale of change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	After construction, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 54	Views of the Site are limited by topography and intervening vegetation; therefore, views of the structural works during construction would be very restricted. The construction access would be located on the eastern side of the road route, adjacent to the road so that it would be clearly visible. The construction works and access are viewed as	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	The overall magnitude of impact is considered to be Neutral.
	VP 55	Views of the Site are limited by topography and intervening vegetation; therefore, views of the structural works during construction would be very restricted. The construction access would be located on the eastern side of the road route, adjacent to the road so that it would be clearly visible. The construction works and access are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 56	Views of the Site are limited by topography and intervening vegetation; therefore, views of the structural works during construction would be very restricted. The construction access would be located on the eastern side of the road route, adjacent to the road, so that it would be clearly visible. The construction works and access are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 57	Views of the Site are limited by topography and vegetation; there would likely be some removal of	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		trees, though this would have a low impact due to the small visual change that would be observed from this viewpoint, and views of the Site during construction would be very restricted. The scale of change is considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Saddleworth Old Railway Tunnel Site compound Butterhouse Lane)	NVP 9	The Order Scheme elements element include the creation of a temporary site compound area at the former Butterhouse Tunnel to the south of Diggle. The introduction of the compound at the Former Butterhouse Tunnel would also include the clearance of vegetation from the site. As well as the introduction of new construction, plant, access, and movement. Given the site location and prominence within the view, these changes are likely to be highly visible to receptors along the PRoW and from their sequential views. The compound and vegetation removal would create a new, incongruous feature within the view. The construction works and access are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Following construction, despite the permanent removal of adjacent trees, views are expected to return to a state similar to the baseline. The change to the baseline view is deemed negligible or barely perceptible influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Very Small Adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	NVP 10	The compound at the Former Butterhouse Tunnel would include the clearance of vegetation from the site. As well as introducing new construction, plant, access, and movement. Given the site location and prominence of the trees within the view, these changes are likely to be highly visible to receptors along the PRoW and from their sequential views. The compound and vegetation removal would create a new, incongruous feature within the view. The construction works and access are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Following the construction of the Order Scheme, despite the permanent removal of adjacent trees, views are expected to return to a state similar to the baseline. The change to the baseline view is deemed negligible or barely perceptible influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Very Small Adverse.
Ward Lane Overbridge and Compound Works (MVL3/36)	VP 59	The works proposed include reconstruction of Ward Lane overbridge (MVL3/36) located north of the Ravenstone Drive footbridge MVL3/35). A temporary utilities bridge is required during the reconstruction of Ward Lane Overbridge (MVL3/36), adjacent to the bridge alongside an associated site compound. Views of the Site are limited by topography and vegetation; there would likely be minor removal of trees, though this would have a low impact due to the small visual change observed from this viewpoint, and views of the Site during construction would be very restricted. The scale of change is considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	VP 60	Views of the Site are limited by topography and vegetation; there would likely be minor removal of trees, though this would have a low impact due to the small visual change observed from this viewpoint, and views of the Site during construction would be very restricted. The scale of change is considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 61	It is considered likely that receptors along the PRoW and canal would experience visual effects, partly due to the proximity to the compound. The compound would significantly influence the view and detract from the towpath and canal aesthetic. Construction movement and plant would be visible. There would be very minor permanent tree removal adjacent to the MVL3/36. Therefore, it is concluded that the magnitude of the impact is considered to be **Large Adverse**.	The compound would be removed after construction, and the area would be returned to its previous configuration. Where trees have been removed, these would be replaced; however, given the limited tree removal, the impact from the permanent loss of trees is unlikely to affect the view in the long term, as the trees are a minor component. Therefore, the change to the existing view is considered minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	NVP 7	Views of the Site are limited by topography and intervening vegetation; this, along with the size of the Site within the visual panorama, means that views of the Site during construction would be very restricted. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	After the construction of the Order Scheme, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Grandpa Greene's 1 Site Compound	VP 59	The view for residential receptors is limited, mainly to the oblique angle and local topography. The residential receptors are located above the existing Site. Therefore, views of the construction works are likely to be minimal. It is probable that the change would be minor even with the introduction of the construction plant and features. Only minor tree removal is proposed within this area, around the existing bridge structure. The size and scale of change are considered very low due to the barely perceptible negative extent of alterations within the view compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely to be no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
	VP 60	Views of the construction works are likely to be limited due to vegetation and built form; only minor tree removal is proposed within this area, around the existing bridge structure. and therefore, views of the construction works are expected to be minimal. It is probable that even with the introduction of construction plant and features, the change would be minor. The size and scale of the change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	After the construction of the Order Scheme, receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Grandpa Greene's 2 Ward Lane (MVL3/36) - Compound	VP 59	The view for residential receptors is limited, mainly to the oblique angle and local topography. The residential receptors are located above the existing Site. Therefore, views of the construction works are likely to be minimal. It is probable that the change would be minor even with the introduction of the construction plant and features. The size and scale of change are considered very low due to the barely perceptible negative extent of alterations within the view compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely to be no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 60	Large-scale permanent tree removal has been proposed within this area, likely opening up views of Grandpa Green's 2 Site. Receptors would likely experience visual changes from the baseline through the introduction of construction plans, construction movement, and fencing. The	Following the construction of the Order Scheme, there would be a permanent removal of adjacent trees; after mitigation and establishment, views are expected to return to a state similar to the baseline. The change to the baseline view caused by the removal of trees and proposed works are regarded as an unobtrusive influence, indicating that it does not

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		proximity of the receptors indicates that visual mitigation for PRoW/Canal users would be unlikely. The compound would form a pronounced influence on the view and detract from the towpath and canal aesthetic. The construction movement and plant would be visible. There would be minor permanent tree removal adjacent to the MVL3/36. Therefore, it is concluded that the magnitude of the impact is considered to be **Large Adverse**.	significantly alter receptor views in this area, due to the mitigation planting and that the bridge was present at baseline and that it would remain following construction despite changes to its structure following the works). Therefore, the overall magnitude of impact is considered to be Small Adverse.
	VP 62	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. Road users may catch no more than glimpses along the road in sequential views. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 63	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. Road users may catch no more than glimpses along the road in sequential views. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		overall magnitude of impact is considered to be Neutral.	
	NVP 12	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. PRoW users may catch no more than glimpses along the route in sequential views, and the tree removal would be partially visible. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.
Diggle compound	VP 59	The Order Scheme elements element include the establishment of temporary site compounds in Diggle to serve construction. This includes an existing parking area at Sam Road, with earthworks to provide an access to the railway line, and the expansion of an existing site compound area on the opposite side of the railway from the parking area. Large-scale permanent tree removal has been proposed within the site is likely to open up views of Diggle Compound. Receptors would likely experience visual changes from the baseline through the introduction of construction plans, construction movement, and fencing. However,	After construction, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		the visual restriction would limit the impact on views for receptors. Tree removal generally would only be perceived above the landform and through gaps in vegetation. The construction works and access are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	
	VP 60	Large-scale permanent tree removal has been proposed within the Diggle compound and Grandpa Green's 2 Site. Receptors would likely experience visual changes from the baseline through the introduction of construction plans, construction movement, and fencing. The location of the Diggle site beyond Grandpa Greene's 2 and the rail corridor means that the intervening features would somewhat mitigate the impact. However, it is considered overall that the compound would form a pronounced influence on the view and detract from the towpath and canal aesthetic. The construction movement and plant would be visible. Therefore, it is concluded that the magnitude of the impact is considered to be **Large Adverse**.	Following the construction of the Order Scheme, there would be a permanent removal of adjacent trees; after mitigation and establishment, views are expected to return to a state similar to the baseline. The change to the baseline view caused by the removal of trees and proposed works are regarded as an unobtrusive influence, indicating that it does not significantly alter receptor views in this area, due to the mitigation planting. Therefore, the overall magnitude of impact is considered to be Small Adverse.
	VP 62	The receptor view is likely to undergo a significant visual impact. The works proposed required extensive tree removal, and this has the potential to open up views to other adjacent visual receptors, particularly those within the valley route corridor. Vegetation clearance could open up	Following the construction of the Order Scheme, there would be a permanent removal of adjacent trees; after mitigation and establishment of planting views are expected to return to a state similar to the baseline. The change to the baseline view caused by the removal of trees and proposed works are regarded as an unobtrusive influence, indicating that it does not significantly alter receptor views in this area, due to the mitigation planting.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		views of the hitherto screened railway and infrastructure. Construction movement should be considered regarding indirect effects. The construction works, tree removal, and access are viewed as a detractor, which negatively impacts the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Therefore, the overall magnitude of impact is considered to be Small Adverse.
	VP 63	The receptor view is likely to undergo a significant visual impact. The works proposed required extensive tree removal, and this has the potential to open up views to other adjacent visual receptors, particularly those within the valley route corridor. Vegetation clearance could open up views of the hitherto screened railway and infrastructure. Construction movement should be considered regarding indirect effects. The construction works, tree removal and access are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Following the construction of the Order Scheme, there would be a permanent removal of adjacent trees; after mitigation and establishment of planting views are expected to return to a state similar to the baseline. The change to the baseline view caused by the removal of trees and proposed works are regarded as an unobtrusive influence, indicating that it does not significantly alter receptor views in this area, due to the mitigation planting. Therefore, the overall magnitude of impact is considered to be Small Adverse.
	VP 64	Views of the construction works are likely to be limited due to vegetation and built form; tree removal is indicated for this area, though its overall impact on this view is considered low, and therefore, views of the construction works are expected to be minimal. It is probable that even with the introduction of construction plant and features, the change would be minor. The size	After the construction of the Order Scheme, receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		and scale of the change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	
	VP 65	Views of the construction works are likely to be limited due to vegetation and built form; tree removal is indicated for this area, though its overall impact on this view is considered low, and therefore, views of the construction works are expected to be minimal. It is probable that even with the introduction of construction plant and features, the change would be minor. The size and scale of the change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	After the construction of the Order Scheme, receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 66	Removing trees would likely be necessary to facilitate access and construction, and new features would be introduced within the view. There would also be movement and noise near the Order Schemeelement. Elements. The magnitude of change is somewhat mitigated by the distance of the receptor from the site, the local topography, and the intervening vegetation. However, retaining trees where possible at the location would reduce the visual impact of the Order Scheme during construction.	Following construction, despite the permanent removal of adjacent trees, views are expected to return to a state similar to the baseline. The change to the baseline view is deemed negligible or barely perceptible influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Very Small Adverse.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		It is considered that the Order Scheme and temporary access would form an unobtrusive influence in the view; therefore, it is concluded that the magnitude of the impact is considered to be Small Adverse.	
	NVP 7	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. PRoW users may catch no more than glimpses along the route in sequential views, and the tree removal would be partially visible. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.
	NVP 11	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. Road users may catch no more than glimpses along the route in sequential views, and the tree removal would be partially visible. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	NVP 12	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. PRoW users may catch no more than glimpses along the route in sequential views, and the tree removal would be partially visible. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.
Sam Road Carpark	VP 65	The proposed scheme element compound would be partially visible to residents in the immediate vicinity, due to tree and vegetation removal and the introduction of incongruous features such as fencing and construction equipment. This would lead to a permanent visual and landscape change, as the removal of mature vegetation and trees may open up views of the railways to adjacent residential receptors. Visitors to Standedge Tunnel	After the construction of the Order Scheme, receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		are also likely to be impacted. Tree removal must be followed by careful replanting to reduce vegetation loss and tree cover loss. The impact is somewhat lessened by the existing compound and construction features already on site. Still, it is likely to have a cumulative local impact that worsens the visual quality of the area. It is considered that the Order Scheme and temporary access would form an unobtrusive influence in the view; therefore, it is concluded that the magnitude of the impact is considered to be Small Adverse.	
	VP 67	Views of the site are limited by topography, the road corridor, and vegetation; trees and vegetation would likely be removed. However, in general, views of the site during construction would be very restricted. Although due to the proximity, there would be visibility of construction traffic, movement, and the compound through the trees. The construction works and elements are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a condition similar to the baseline. Construction materials and plants would be removed along with temporary features and hardstanding. The anticipated impacts are temporary and could be reversed through mitigation planting. Therefore, the change to the existing view is considered minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	NVP 11	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. Road users may catch no more than glimpses along the route in sequential views, and the tree removal would be partially visible. The size and scale of	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	
	NVP 12	Views of the construction area are almost completely obscured, and the visual impact is likely to be barely perceptible due to the local topography and intervening vegetation. PRoW users may catch no more than glimpses along the route in sequential views, and the tree removal would be partially visible. The size and scale of change are considered to be very low due to the barely perceptible negative impact of the loss and alteration of features within the view, the change to the composition of the view, the degree of contrast or integration of the proposal with the baseline situation, and the nature of the view. Therefore, it is concluded that the magnitude of the impact is considered to be Very Small Adverse.	Following the construction, it is unlikely that change would be more than barely perceptible to visual receptors within this location. This is a result of the constrained view and the impact of the change on the views. There is likely no direct change to the existing view or a change so inconsequential that it does not alter the existing receptor view. The overall magnitude of impact is considered to be Neutral.
Diggle Road Overbridge Works (MVL3/39)	VP 64	The Order Scheme element proposals include the reconstruction of span 1 on the Diggle Road overbridge (MVL3/39) on Station Road in Diggle, approximately 90 metres south of Standedge Tunnel, and concrete saddling to the masonry arch to strengthen the canal tunnel structure	After the construction of the Order Scheme, although trees and vegetation would be permanently removed, once mitigation replanting is established, the receptor views are expected to return to a condition similar to the baseline. Construction materials and plants would be removed along with temporary features and hardstanding. The anticipated impacts are temporary and could be reversed through mitigation planting. Therefore, the change to the existing view is

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		(MVL3/39A) for construction traffic. Replacement of the existing Bywash underbridge (MVL3/39B), located adjacent to the Standedge Tunnel western portal, with a box culvert system. Views of the site are limited by topography, the road corridor, and vegetation; trees and vegetation would likely be removed. However, in general, views of the site during construction would be very restricted. Although due to the proximity, there would be visibility of construction traffic, movement, and the compound through the trees. The construction works and elements are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	considered minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 66	Views of the site are limited by topography, the road corridor, and vegetation; trees and vegetation would likely be removed. However, in general, views of the site during construction would be very restricted. Although due to the proximity, there would be visibility of construction traffic, movement, and the compound through the trees. The construction works and elements are viewed as a detractor, which would negatively impact the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	Following the Order Scheme's construction, despite the permanent removal of adjacent trees, views are expected to return to a state similar to the baseline. The change to the baseline view is deemed negligible or barely perceptible influence in the view, indicating that it does not significantly alter the current receptor view. Therefore, the overall magnitude of impact is considered to be Very Small Adverse.
	VP 67	Views of the construction works are likely to be limited due to vegetation and built form; tree removal is indicated for this area, though its	After the construction of the Order Scheme, receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		overall impact on this view is considered low, and therefore, views of the construction works are expected to be minimal. It is probable that even with the introduction of construction plant and features, the change would be minor. The size and scale of the change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
	VP 70	Views of the construction works are likely to be limited due to vegetation and built form; tree removal is indicated for this area, though its overall impact on this view is considered low, and therefore, views of the construction works are expected to be minimal. It is probable that even with the introduction of construction plant and features, the change would be minor. The size and scale of the change are considered very low due to the barely perceptible negative extent of alterations within the view when compared to the baseline. Therefore, the overall magnitude of impact is considered to be Small Adverse.	After the construction of the Order Scheme, receptor views are expected to return to a state similar to the baseline. Construction materials and plant would be removed along with temporary features and hardstanding. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.
Diggle Access and Diversion	VP 70	Construction of a new access road and associated earthworks to provide a temporary diversion to the northeast of Standedge Tunnel's western portal. No tree or vegetation removal has been proposed as part of the Order Scheme element works.	After the construction of the Order Scheme, despite some vegetation being removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		The route is proposed along the existing routes of Harrop Court Road and Boat Lane, along with a new section which joins the two existing routes. This viewpoint location receptors would likely have a partial but clear view of the proposed access. In particular, the section which links the Harrop Court Road and Boat Lane. The route follows existing field patterns, likely reducing the visual impact; however, the access route would form a new visual feature in the landscape. The impact on the view is likely adverse; however, the Order Scheme would form a small part of the overall panoramic view. It is considered that the degree of integration of the proposals would have a slightly negative influence on the baseline situation and nature of the view. Therefore, it is concluded that the magnitude of the impact is **Medium Adverse**.	The overall magnitude of impact is considered to be Neutral.
	VP 71	The route is proposed along the existing routes of Harrop Court Road and Boat Lane, along with a new section which joins the two existing routes. This viewpoint location receptors would likely have a partial but clear view of the proposed access. In particular, the section which links the Harrop Court Road and Boat Lane. The route follows existing field patterns, likely reducing the visual impact; however, the access route would form a new visual feature in the landscape. The impact on the view is likely to be adverse, and the geographical extent of change is considered high due to the near-distance proximity of the receptor. It is considered that the Order Scheme forms a	After the construction of the Order Scheme, despite some vegetation being removed, once mitigation replanting is established, the receptor views are expected to return to a state similar to the baseline. Therefore, the change to the existing view is deemed minimal, indicating that it does not significantly alter the current receptor view. The overall magnitude of impact is considered to be Neutral.

Scheme elements	View-point Ref.	Magnitude of Impact (Construction)	Magnitude of Impact (Operation)
		notable detractor, changing the composition of the view. Therefore, it is concluded that the magnitude of the impact is **Large Adverse**.	

7. MITIGATION AND COSIDERATION OF CONTROL MEASURES

Mitigation Overview

7.1.1 Landscape mitigation is primarily concerned with mitigating the likely impacts of the Proposed Scheme on landscape and visual receptors. Measures to mitigate non-significant adverse effects on landscape and visual receptors have been included where appropriate to minimise the overall impact of the Proposed Scheme. Landscape mitigation also concerns integrating the Proposed Scheme into the surrounding landscape and, where possible, enhancing biodiversity.

7.1.2 Substantial optioneering has been carried out to identify suitable designs for all relevant works elements of the Order Scheme, considering local planning policies and published landscape character assessments, to minimise visual and landscape impacts, including reducing the loss of trees and woodland through the mitigation hierarchy. Additionally, embedded mitigation has been incorporated into the final designs (see Figures 7.3.1 to 7.3.20 of Volume 2 of this Report [**NR14**]), which will help preserve the existing landscape character and visual amenity where possible.

7.1.3 Further mitigation will be achieved through the LEMP for the elements of the Order Scheme that require planning permission. The management of Landscape and Visual Amenity is appropriately protected, including a requirement that a LEMP must be submitted to and approved by the relevant LPAs, as per a planning condition included in the Request for Deemed Planning Permission [**NR12**].

7.1.4 A final and detailed landscaping plan will be included as part of the written LEMP submission. The Principal Contractor will implement the approved LEMP as part of the overall detailed design.

7.1.5 The LEMP will detail both hard and soft landscaping elements, specifying locations for landscaping to compensate for the loss of mature vegetation, provide habitat connectivity, and seamlessly integrate the Order Scheme elements into the surrounding landscape. It will also outline the aims and objectives of the Biodiversity Strategy and will be secured through a planning condition included in the Request for Deemed Planning [**NR12**].

7.1.6 Works will be also conducted in compliance with Network Rail's Environmental Minimum Requirements document (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]).

Embedded Mitigation (Construction)

7.1.7 Embedded mitigation measures applied to mitigate impacts during the construction phase include:

- The construction programme would be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts;
- Areas would not be cleared for construction until as close as possible to the works commencing;
- As far as practicable, construction plant and materials storage areas would be appropriately sited to minimise their landscape and visual impact;
- Construction sites would be kept tidy (e.g. free of litter and debris);
- Work during hours of darkness would be avoided as far as practicable, and where necessary, directed lighting would be used to minimise light pollution/glare. Lighting levels would be kept to the minimum necessary for security and safety;
- The construction would be managed such that the loss of any existing woodland, trees, shrubs and hedgerows, including within proposed construction compounds, is minimised;
- Root Protection Areas (RPAs) would be identified for trees being retained. Where this is not possible, the details of each tree would be required to determine an appropriate course of action.
- All existing trees and shrubs not affected by the construction of the permanent works would be fenced off with a suitable type of temporary fencing in accordance with BS5837: Trees in Relation to Design, Demolition and Construction. Fencing would extend to the drip line of the tree canopies (unless otherwise agreed by an arboricultural advisor) and would be erected prior to any construction activities in that area and shall remain for the entire period of construction in that area.
- Topsoiling, reseeding and planting would be undertaken as soon as practicable after sections of work are complete

Embedded Mitigation (Operation)

7.1.8 Embedded mitigation measures applied to mitigate impacts during operation would include:

- Mitigation tree, hedge, and shrub planting would be provided to replace lost vegetation, as specified in the LEMP;
- Replacement tree planting would be provided to align with the focus on no net loss;
- Species-rich and amenity grassland would cover areas of bare earth created during construction and integrate the Proposed Scheme into the landscape;

- Planting proposals would use predominantly native species present in the surrounding landscape in order to aid the integration of the Proposed Scheme into the landscape character, and
- Feathered and Light Standard trees would be incorporated into woodland planted mixes to ensure variance in height, contributing to a more natural aesthetic and a greater degree of screening whilst planting is established.

Additional Mitigation

7.1.9 Additional mitigation measures applied to mitigate impacts during operation would include:

- Increasing the variety of trees and shrubs in adjacent tree belts to enhance resilience against pests, diseases, and climate change.
- Establishing native mixed broadleaf woodlands to improve visual amenity and landscape.
- Ensuring the implementation, maintenance, and ongoing management of the mitigation measures to maintain their effectiveness over time.

7.1.10 These strategies aim to minimise adverse effects on the landscape and views, while promoting biodiversity where possible in the area.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Policy Summary

8.1.1 The Order Scheme aligns closely with key planning and environmental policies at national, regional, and local levels. Nationally, it supports the NPPF's goals of sustainable development by promoting high-quality design (Chapter 12) and enhancing natural environments (Chapter 15). Regionally, the Order Scheme reflects the Places for Everyone policies by integrating green infrastructure (JP-Strat13, JP-G2). Despite the loss of mature woodland and TPO trees as part of the Order Scheme, there are several areas where mature woodland has been avoided in design (refer to Volume 1, Chapter 14 of this Report [**NR14**]. Furthermore, Network Rail is committed to achieving 10% Biodiversity Net Gain as part of the Transpennine Route Upgrade which will include restoring and enhancing woodland. Therefore, the Order Scheme reflects the protecting and enhancing trees and woodlands (JP-G7), and ensuring sustainable, climate-resilient development (JP-P1) policies as part of Places for Everyone.

8.1.2 Locally, it aligns with Oldham and Tameside's policies by safeguarding natural and built heritage (Policies 1.10, 1.11), respecting local distinctiveness (Policy PO9), and protecting designated open spaces (Policy 22). As before, despite tree loss across the Order Scheme Network Rail is committed to 10% Net Gain across the Order Scheme, including restoring areas where vegetation has been lost. Additionally, no designated open space will be permanently removed as a result of the Order Scheme.

8.1.3 Permanent Scheme elements including new Mossley station, upgrading at Greenfield station and structural improvements to overbridges and underbridges which enhance public realm quality are all in line with the National Planning Policy Framework (NPPF) Chapter 12, Places for Everyone (PfE) Policy JP-P1, and local policies Oldham PO9 and Tameside 1.11.

8.1.4 Temporary compounds and laydown areas at locations such as Scout West and Diggle will be managed with environmental safeguards, supporting NPPF Chapter 15, PfE JP-G7, and local policies protecting OPOL and biodiversity (Oldham Policy 22 and Tameside 1.10).

8.1.5 The Green Belt designation covering certain Order Scheme elements is seen as not affecting the overall openness or function of the Green Belt, as these elements are relatively small interventions along an existing rail route.

8.2 Visual Impact Conclusion

8.2.1 Following completion of the Order Scheme, the majority of visual impacts are assessed as Neutral, with views expected to return to a condition similar to

the baseline due to the removal of temporary construction features, with the establishment of mitigation planting taking place in the longer term (10 + years). These include most compounds, access routes, and bridge works, where residual effects are minimal or imperceptible.

8.2.2 Very Small Adverse impacts remain in a few locations, such as at Heyrod Hall, Wright's Bridge, and the Uppermill Tunnel area, where permanent vegetation loss results in barely perceptible changes. Small Adverse impacts are more widespread and typically occur where permanent tree removal or minor infrastructure remains visible, such as at the Plevins Site, Wakefield Road Access, and several overbridges.

8.2.3 The most notable residual impacts are at the relocated Mossley Station, where the introduction of new infrastructure, lighting, and the loss of mature vegetation result in a Medium Adverse impact. Despite high-quality design and mitigation, the station becomes a new and permanent feature in the view, altering the local landscape character for receptors along Manchester Road and adjacent PRoWs.

8.3 Landscape Impact Conclusion

8.3.1 The proposed Scheme will result in short-term, localised, and reversible landscape impacts during the construction phase. These are primarily associated with vegetation clearance and the presence of temporary infrastructure. However, due to the temporary nature, limited spatial extent, and mitigation measures, the residual impacts on landscape character are considered to be:

- Negligible to minor adverse during construction
- Neutral to negligible during operation

8.3.2 No significant residual landscape impacts are anticipated. The Order Scheme is considered to be well-integrated within the existing landscape framework, with no long-term harm to the character, quality, or function of the identified Landscape Character Areas and Landscape Character Types.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

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CONTENTS

1. INTRODUCTION 3
1.1 Terms of reference 3
1.2 The Site 3
1.3 The Order Scheme 4
1.4 Scope of works 5
2. METHODOLOGY 6
2.1 General 6
2.2 Planning policy and definition of veteran trees 6
2.3 Statutory protection 8
2.4 Spatial scope 9
2.5 Survey 9
2.6 Data gathering 9
2.7 Limitations to survey 10
3. EXISTING TREE INFORMATION 12
3.1 Existing land use 12
3.2 Existing trees 12
3.3 Ancient woodland, veteran trees and woodland priority habitats 13
3.4 Tree Preservation Orders and Conservation Areas 13
4. ARBORICULTURAL IMAPCTS 15
4.1 General 15
4.2 Root protection areas 15
4.3 Arboricultural impacts and mitigation 16
4.4 Arboricultural impacts - TPO trees and Conservation Area trees 18
4.5 Arboricultural impacts – veteran trees and Ancient Woodland 19
4.6 Preliminary management recommendations 19
5. MITIGATION AND OUTLINE ARBORICULTURAL METHOD STATEMENT .. 20

5.1 General 20
5.2 Pre-commencement operations and site briefings 20
5.3 Work package plans and task briefing sheets 21
5.4 Site supervision 21
5.5 Tree Protection Plans (TPPs) 23
5.6 Construction Exclusion Zone (CEZ) 23
5.7 Hand excavations within RPAs 24
5.8 Root pruning 24
5.9 In situ concrete 24
5.10 Tree protective barriers 24
5.11 Ground protection matting 25
5.12 Compound areas 26
5.13 Tree works 26
5.14 Tree works schedule 26
ANNEX A – KEY & BS5837:2012 SURVEY TABLE 28
ANNEX B – TREE SURVEY SCHEDULE 32
ANNEX C – GLOSSARY OF TERMS 81

1. INTRODUCTION

1.1 Terms of reference

1.1.1 AtkinsRéalis has been appointed by Network Rail Infrastructure Ltd to undertake a tree survey in accordance with the British Standard BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' for the Stalybridge to Diggle (Saddleworth) Enhancements Order.

1.1.2 A Transport and Works Act Order (TWAO) is required to authorise elements of the Transpennine Route Upgrade Project W2B - Stalybridge to Diggle (Saddleworth) Enhancements Order (hereafter referred to as the "the Order Scheme"), which forms part of the wider Transpennine Route Upgrade (TRU) W2 programme.

1.1.3 The survey data captured follows BS5837:2012 guidance as set out in Annex A of this report. The survey data is presented in a schedule in Annex B. A glossary of relevant terms is included in Annex C.

1.1.4 This report is an Arboricultural Impact Assessment (AIA) which is Appendix 8A to this Environmental Report [**NR14**] that has been produced for the Order Scheme. The survey focuses on the trees within the extents of the Site. It reports on the impacts on the recorded trees from the Order Scheme and is supplemented by the production of Tree Protection Plans (TPPs), which are included within Volume 2, Figures 8.1.1 – 8.1.20 of this Report [**NR14**].

1.1.5 It also confirms whether any of the recorded trees could be classified as veteran specimens. The veteran classification includes trees which might also be classified as ancient.

1.2 The Site

1.2.1 The proposed Order Scheme is the section of TRU from Stalybridge Tunnel (at Ordnance Survey National Grid Reference (OSNGR) SJ96249876), through to the western portal of Standedge Tunnel (at OSGR SE00760814). The Site is shown on the Site Location Plan in Figures 1.1.1 to 1.1.6 within Volume 2 of this Report [**NR14**]. The Site extends for approximately 16 km and crosses two local authority areas: Tameside Metropolitan Borough Council and Oldham Metropolitan Borough Council. A short section of the route, contained within Standedge Tunnel, runs beneath the Peak District National Park Authority.

1.2.2 The topography of the area is characterised by the steep-sided River Tame valley, which the existing railway line follows. The route of the Scheme follows the western bank of the River Tame passing through wooded countryside, the town of Mossley and the villages of Greenfield

and Uppermill. The villages in this area comprise predominantly residential areas with some light industrial use. Scattered sites of industrial use are also present across the area, with Huddersfield Narrow Canal, a Site of Special Scientific Interest (SSSI), located between Stalybridge and Tollemache Arms lock (approximately 1.5 km north of Mossley) running to the east of the existing railway line. The canal crosses under the existing railway line in the north of the Scheme at the Uppermill Viaduct.

1.2.3 Approximately 2 km north of Uppermill Viaduct is the village of Diggle on the urban-rural fringe. The western portal of Standedge Tunnel is the eastern extremity of the Scheme that are the focus of the assessment at OSNGR SE00760813. The Peak District Moors Special Protection Area (SPA) and South Pennine Moors Special Area of Conservation (SAC) (which include Dark Peak SSSI) are located approximately 960 m to the east of the existing railway line.

1.3 The Order Scheme

1.3.1 The development proposals for the TRU programme of works are largely located within the existing railway corridor and are focused on works required to be undertaken by Network Rail for the electrification of the existing railway line and line speed improvements. Accordingly, the development for the TRU programme of works will, in the main, be on operational land within Network Rail's existing control or ownership and will be undertaken using permitted development rights pursuant to the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended) (GPDO). However, to facilitate the full package of upgrades to the existing railway required by the TRU programme of works, some of the works will need to be constructed on land outside of operational rail land and cannot be constructed under PDR. Accordingly, it is these works that will require a TWAO and form the Order Scheme.

1.3.2 Certain works to be authorised by the TWAO comprise elements that will require planning permission and so, accordingly, a request for deemed planning permission [**NR12**] under Section 90(2A) of the Town and Country Planning Act 1990 is submitted in parallel to the TWAO.

1.3.3 The TRU programme of works is situated from Stalybridge Tunnel in the west, through to the eastern portal of Standedge Tunnel and extends for a distance of approximately 16 kilometres. The Scheme includes interventions situated at approximately 43No. separate locations along the length of the route, which when combined total approximately 3 km. These have been used to determine tree removals and these removals are presented on the TPPs.

1.3.4 The relevant works elements proposed for the Order Scheme are described in more detail in Volume 1, Chapter 1, Table 1-1 and Volume 1, Chapter 3 of this Report [**NR14**].

1.3.5 Timescales for the commencement and duration of construction works for the Order Scheme are to be confirmed. However, at present the Scheme is expected to begin construction in 2026 before coming into operation in 2030.

1.4 Scope of works

1.4.1 This report presents arboricultural information the scope of which includes:

- The preparation of a tree survey plan showing all trees surveyed within the Order Scheme extents including root protection areas.
- The preparation of a tree schedule of all trees surveyed.
- The preparation of Tree Protection Plans showing those trees to be removed and retained, including the provision of preliminary protection measures for retained trees removal and retention plan.
- The preparation of an AIA which incorporates the survey schedule and associated TPPs.

1.4.2 This report has been prepared by an Arboriculturist with over 20 years' experience, who is a Professional Member of the Arboricultural Association with a Level 6 qualification in Arboriculture.

2. METHODOLOGY

2.1 General

2.1.1 This tree survey has been undertaken in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations. The standard gives recommendations and guidance on the relationship between trees and the design, demolition and construction process, setting out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

2.1.2 BS5837:2012 does not set explicit parameters for measuring the sensitivity of an arboricultural resource; nor does it assess the magnitude of impact of a Scheme on trees (other than by providing a record of the number or area of trees that would need to be removed to facilitate the development as presented at time of submission). Rather, the British Standard provides parameters which enable the Arboriculturist to assess the quality of all the trees and other arboricultural features that may be affected by the Scheme that is proposed.

2.1.3 Whilst the BS categories are open to varied interpretation, the guidelines in the cascade chart of BS 5837:2012 (see insert A.1 in Annex A of this report) provide details on how to determine tree qualities and can be used to inform the design process to retain those trees of higher quality where possible.

2.2 Planning policy and definition of veteran trees

2.2.1 The definition of veteran trees for the purposes of this assessment follows the core standing advice and planning policy.

2.2.2 The 'Standing Advice' on ancient woodland, ancient trees and veteran trees[1] provides guiding principles for the classification of ancient and veteran trees. These principles are also covered within the Forestry Commission and Natural England (NE) guidance.

2.2.3 The standing advice clearly defines veteran trees as:

> "All ancient trees are veteran trees, but not all veteran trees are ancient. A veteran tree may not be very old, but it has decay features, such as branch death and hollowing. These features contribute to its biodiversity, cultural and heritage value".

2.2.4 There is a degree of ambiguity in its definition but it does provide clear guiding principles, namely that veteran trees have:

- Decay features, such as branch death and hollowing; and

[1] Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK

- These features contribute to its biodiversity, cultural and heritage value.

2.2.5 The definition of ancient trees supplements this by focusing the definition of veteran trees arguably (but not definitively) on:

- Great age;
- Size;
- Condition;
- Biodiversity value as a result of significant wood decay and the habitat created from the ageing process; and
- Cultural and heritage value.

2.2.6 Very few trees of any species become ancient.

2.2.7 As such this assessment has proceeded on the basis that the classification of veteran trees should take account of the specific features of trees (size and condition) alongside their biodiversity, cultural and heritage value.

2.2.8 The relevant planning policy is detailed within the National Planning Policy Framework (December 2024). The NPPF provides a joint definition of an ancient or veteran tree:

> **Ancient or veteran tree**: 'a tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage'.

2.2.9 This definition extends that within the standing advice to include additional criteria:

- Exceptional biodiversity, cultural or heritage value;
- Old relative to other trees of the same species.

2.2.10 Therefore, in line with this policy veteran trees have been classified in accordance with:

- Size.
- Condition (decay features, such as branch death and hollowing, plus associated species).
- Exceptional biodiversity value as a result of significant wood decay and the habit created from the ageing process.
- Exceptional cultural and heritage value.
- Old relative to other trees of the same species.

2.2.11 Further guidance to assist in classifying trees as old for their species based on stem size criteria was obtained from Figure 1.3 'Chart of girth in relation to age and developmental classification of trees' from the Ancient and other veteran trees: further guidance on management (Lonsdale, 2013) (ATF_book.pdf). This lists tree species against ascending girth measurements to help define whether a tree is locally notable; veteran/notable; ancient or late ancient.

2.2.12 This chart is not definitive and further criteria as detailed previously is also used in the classification of the trees as veteran or locally notable.

2.2.13 Locally notable trees for the purposes of this assessment include those that can be defined as mature and standing out locally because of large size in comparison to other trees in locality or given the presence of veteran habitat features, but do not meet the criteria to be deemed a veteran tree in line with the approach adopted.

2.2.14 The Woodland Trust's Ancient Tree Inventory (Ancient Tree Inventory - Woodland Trust) was also accessed (January 2025) to identify if any trees with the Site extents have been registered on the Trust's inventory as veterans or ancient specimens. This is a material consideration as part of this assessment. However, it does not imply the Arboriculturist agrees with their classification, as the approach may have differed to that applied by the Arboriculturist and author of this report.

2.2.15 The NPPF (para 193c December 2024) states 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.'

2.2.16 Further planning policy in relation to trees is covered within the Landscape Chapter 7 of the ES.

2.3 Statutory protection

2.3.1 Trees may be protected through a Tree Preservation Order (TPO) or through being located within a Conservation Area. The law on TPOs is in Part VIII of the Town and Country Planning Act 1990 as amended and in the Town and Country Planning (Tree Preservation) (England) Regulations 2012. A TPO is made by a local authority in respect of a tree(s) as the tree is considered to bring amenity value to the surrounding area. A TPO makes it an offence to cut down, uproot, lop, top, wilfully damage or wilfully destroy a protected tree without authorisation.

2.3.2 The TPO and Conservation Area information has been supplied by Tameside Metropolitan Borough Council and Oldham Council. The relevant information has been included within the TPPs, this includes TPOs and Conservation Areas outside of the Site extents, but have been included for reference.

2.4 Spatial scope

2.4.1 The survey works focused on trees within the Site extents.

2.4.2 This AIA is targeted at the impacts on the trees. It does not cover the subsequent impacts such tree removal would have on ecological or landscape receptors which are outlined in specialist documentation provided by these professional disciplines.

2.4.3 The TPPs (see Volume 2, Figures 8.1.1 – 8.1.20 of this Report [**NR14**]) illustrate the trees that have been surveyed.

2.5 Survey

2.5.1 The approach to the survey involved a ground-level walked assessment by qualified and experienced Arboriculturists, where access permitted.

2.5.2 The locations of individual trees and the start and end points of groups were, where possible, plotted using proprietary GIS data capture software on Trimble hand-held mobile mappers. These locations were verified using available aerial imagery and topographical survey data showing tree locations.

2.5.3 The extents of groups not surveyed as part of ground level walked assessments were plotted using available aerial imagery.

2.5.4 The arboricultural features were numbered sequentially from 001: individual trees recorded were prefixed with a ‘T’ (e.g. T001), groups of trees with a ‘G’, woodlands with a ‘W’ and hedgerows with a ‘H’.

2.5.5 No numbered tree tags were used for the survey, but where already fixed to trees these were noted within the survey schedule.

2.6 Data gathering

2.6.1 Data was collected following the guidance of BS5837:2012, as outlined in Annex A of this report. The purpose of the tree categorisation method applied by the Arboriculturist was to identity the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained if development is to occur.

2.6.2 For a tree or hedgerow to qualify under any given category, it should fall within the scope of that category’s definition as defined in Annex A of this report (categories U, A, B, C) and, for trees in categories A to C, it should qualify under one or more of the three subcategories (1, 2, 3). Subcategories 1, 2 and 3 are intended to reflect arboricultural and landscape qualities, and cultural values, respectively.

2.6.3 Trees were recorded as individual specimens or as groups, woodlands, or hedgerows. Where trees were not recorded as an individual specimen,

the tree survey data within the schedule is based on what is a reasonable average measurement of the trees/shrubs within the group extents or it's taken from one of the largest specimens within the group.

2.6.4 This level of survey meets the requirements of BS5837:2012, which states that 'trees growing as groups or woodland should be identified and assessed as such'. The standard defines the term group as 'trees that form cohesive arboricultural features either aerodynamically (e.g., trees that provide companion shelter), visually (e.g. avenues or screens) or culturally including for biodiversity (e.g. parkland or wood pasture)'.

2.6.5 Crown spreads of the surveyed trees were given as an average measurement where the tree's crowns were balanced or where recorded as a group, woodland or hedgerow. If there was a notable difference in crown spread to a cardinal point, these were recorded. The average measurement was taken from the cardinal point relevant to the direction of the Order Scheme.

2.6.6 This level of survey is deemed sufficient by the Arboriculturist to establish the extent of the crown spread in the direction of the Order Scheme. All crown spread measurements should be taken from the tree survey schedules (see Annex B). The method of measuring diameters is defined in Annex A of this report and has been applied where access permitted.

2.7 Limitations to survey

2.7.1 Where access permitted, trees were identified and inspected from ground level only and were not climbed. No invasive examination techniques (such as increment boring, or internal decay detection) were carried out and as such no assessment of the internal condition of the wood of these trees can be given.

2.7.2 Where trees have not been surveyed as part of ground-level walked assessments this is due to the trees being within areas not readily accessible or due to site access limitations. No trackside surveys were undertaken. The tree data in these areas, where within or adjacent to the Site, have been estimated using available imagery and supplementary information taken from points of safety. These trees were largely recorded as groups, in line with the BS5837 guidance on what constitutes a 'group' of trees (see section 2.6 above). Therefore, an outline of the groups was plotted using available aerial imagery to capture the combined crown extents of the groups, meaning the use of exact measurements was not required.

2.7.3 The tree survey undertaken is not intended to be a tree risk management survey targeting safety-related issues. However, where specific hazards have been identified these have been recorded and management recommendations provided. These are detailed within the tree survey schedules (see Annex B).

2.7.4 Validity, accuracy, and findings of the tree locations will relate directly to the accuracy of the supplied topographical survey data, available aerial imagery and the GIS data capture software used by AtkinsRéalis. As such the accuracy of the tree locations is potentially open to discrepancies and their locations should be checked via measured survey prior to construction.

2.7.5 Where tree groups have been illustrated as an outline this covers the extents of the tree group. It does not always illustrate individual trees within the groups. Where individual trees were identified they were plotted separately.

2.7.6 The report does not comment on possible effects of trees on neighbouring properties, including in relation to subsidence or heave, or with regard to possible hazards presented by trees surveyed.

2.7.7 Trees are living organisms subject to changes outside human control. Trees and their environment alter with the seasons, and it is as well to inspect trees whilst in full leaf and when out of leaf. Following harsh or unexpected weather conditions, or heavy storms it is also prudent to inspect trees. Changes to ground water conditions will affect the root growth of a tree. Such changes are not always the result of human influence and other factors may be involved.

3. EXISTING TREE INFORMATION

3.1 Existing land use

3.1.1 Upon exiting Stalybridge Tunnel eastern portal the route of the Scheme follows the western bank of the River Tame passing through wooded countryside, the town of Mossley and the villages of Greenfield and Uppermill.

3.1.2 The topography of the area is characterised by a steep sided River Tame valley which the existing railway line follows. The villages in this area comprise predominantly residential areas with some light industrial use. Scattered, isolated industrial uses are also present across the area, with Huddersfield Narrow Canal and Dark Peak Site of Special Scientific Interest (SSSI) located between Stalybridge and Tollemache Arms lock (1.5km north of Mossley) running to the east of the existing railway line. The Canal crosses under the existing railway line in the north of the Order Scheme boundary at the Uppermill Viaduct.

3.1.3 Approximately 2 km north of Uppermill Viaduct is the village of Diggle on the urban-rural fringe. The Peak District Moors Special Protection Area (SPA) and South Pennine Moors Special Area of Conservation (SAC) (which include the Dark Peak SSSI sites) are located to the northeast of the existing railway line. To the north of the village of Diggle, the route of the Order Scheme enters Standedge Tunnel which is situated within the South Pennine Moors SAC, the Peak District Moors (South Pennine Moors Phase 1) SPA and the South Pennine Moors Phase 2 SPA. The primary reasons for their designations are: breeding birds, European dry heaths, blanket bogs, and old sessile oak woods with Ilex and Blechnum. Other qualifying features include Northern Atlantic wet heaths with Erica tetralix and transition mires and quaking bogs.

3.2 Existing trees

3.2.1 The existing trees are a mixture of species and age classifications. 934 arboricultural features were recorded as part of the survey, of which 16no. were classified Category A; 289 no. as Category B; 608 no. as Category C and 21 no. as Category U.

3.2.2 The trees categorised under BS criteria as being ‘Category A’ are trees “of high quality with an estimated remaining life expectancy of at least 40 years”. All the classified individual high quality trees were prominent mature trees growing adjacent to the railway corridor. These trees included mature common oak, lime and beech specimens. The retention of trees has been considered as a priority as part of the Order Scheme and all are currently shown for retention except for T052, a mature beech specimen growing within the trackside embankment. There are no feasible mitigation measures to retain this tree at the time of writing this report.

3.2.3 The trees categorised under BS criteria as being Category B' are trees "of moderate quality with an estimated remaining life expectancy of at least 20 years". These trees were a mixture of species including ash, beech, oak and sycamore, forming part of formal and informal groups, and occasional sporadic trees growing on or close to the boundaries of the Site.

3.2.4 Trees categorised under BS criteria as being 'Category C' are trees "of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm". These trees generally were generally part of formal and informal groups.

3.2.5 Trees categorised under BS criteria as being 'Category U' are trees "in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years" – and recommended for removal where deemed to be posing an unacceptable to risk to adjacent people or property.

3.2.6 In the main the recorded trees form part of long linear groups of mixed tree species growing on or close to the boundaries of the Site. This includes trackside vegetation.

3.2.7 The survey schedule provided in Annex B provides all the information on the recorded trees and includes preliminary management recommendations. These recommendations being in relation to tree risk management operations, including if the Scheme were to proceed and where this would bring people or property in closer proximity to the trees.

3.3 Ancient woodland, veteran trees and woodland priority habitats

3.3.1 No irreplaceable habitats were recorded within the Site extents during the desk study, including ancient woodland or veteran trees.

3.3.2 No veteran trees were recorded by the Arboriculturists' during the site surveys.

3.3.3 A search for priority habitats found 30 parcels of deciduous woodland are present within the Site extents.

3.4 Tree Preservation Orders and Conservation Areas

3.4.1 Tameside Metropolitan Borough Council and Oldham Metropolitan Borough Council have provided mapping and associate TPO references of those trees within and adjacent to the Site extents. A total of 578 TPO references have been provided. They have also confirmed the presence of any Conservation Areas within and adjacent to the Site extents. This mapping data has been overlaid onto the TPPs to confirm those impacted upon by the Order Scheme.

3.4.2 There is a total of 3No. Conservation Areas across the route of the Scheme:

- Stalybridge Town Centre Conservation Area
- Uppermill (Near Greenfield), Oldham Conservation Area
- Marsden Tunnel End Conservation Area

3.4.3 Certain works that are being undertaken using Permitted Development Rights on operational rail land have exemptions to cover Network Rail operations where these may impact TPOs or trees within a Conservation Area. However, Network Rail policy to is liaise with and/or inform local authorities when work is required in these areas.

3.4.4 All impacts to TPO trees and trees within a Conservation Area are covered in section 4 of this report.

4. ARBORICULTURAL IMAPCTS

4.1 General

4.1.1 This report determines the impact of the Order Scheme on the recorded tree stock.

4.1.2 The report is supplemented by the TPPs (Volume 2, Figures 8.1.1 – 8.1.20 of this Report [**NR14**]) that illustrate the working areas and subsequent removals that would be required to facilitate the Order Scheme.

4.1.3 The TPPs are drawing numbers 167037-NWR-2BC-MVL3-DRG-L-EN-000001—000020 and are shown in Figures 8.1.1 to 8.1.20 of Volume 2 of this document [**NR14**].

4.1.4 The impacts have been based on review of the recorded tree data and how the proposals would encroach into areas around or between the trees and the Order Scheme. The impacts have been assessed only within the Deemed Planning extent of the Order Scheme. Areas of the works which fall within Permitted Development have not been reviewed in this assessment.

4.1.5 Confirmation on tree removals will be undertaken prior to construction and detailed within a final Arboricultural Method Statement (AMS), that shall also confirm protection measures for the retained trees. Section 5 contains an Outline AMS.

4.1.6 The tree survey schedules within Annex B of this AIA cover all the trees recorded as part of this assessment in line with the BS5837:2012 guidance.

4.2 Root protection areas

4.2.1 The root protection area (RPA), as defined in the BS5837:2012, is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. This area should be protected from disturbance "in order to avoid unacceptable damage to the tree as a result of severance or asphyxiation of the root system."

4.2.2 The recommended minimum area (m^2) to avoid potentially harmful disturbance has been calculated and entered into the tree schedules (see Annex B) for all trees. The RPA for each individual tree has been illustrated on the TPPs as a circle centred on the tree's stem, while the RPAs of the tree groups and woodlands have been illustrated as an offset from the canopy extents, unless trees have specifically been recorded within the groups.

4.2.3 The calculation of the RPA does not consider existing site conditions that could affect the morphology of the tree roots, and 'modifications to the

shape of the RPA' (para 4.6.2; BS5837:2012) can be undertaken through arboricultural assessment. However, as part of this assessment no modifications have been undertaken. Where existing ditches or highway infrastructure are located the spread of the tree roots is likely to be highly modified.

4.3 Arboricultural impacts and mitigation

4.3.1 The proposals provided to determine the impacts on the recorded trees, and factored into the review of impacts, includes: the proposed extents of de-vegetation, available drawings of proposed works, and annotated sketches of proposals/de-vegetation. Furthermore, specific areas of proposals/de-vegetation/tree removal have been clarified by liaison with the Project Team. In some cases, a reasonable judgement has been made by the Arboriculturist in establishing removals based on existing site conditions that may influence root morphology/spread and how the Order Scheme would encroach into previously undisturbed soft surfaces adjacent to trees.

4.3.2 Where the works do encroach into areas of soft surfaces within the RPAs of trees, the Arboriculturist has looked at existing topography, the presence of any underground utilities, or other factors that may limit radial root spread and influence decisions over the retention of trees.

4.3.3 Tree protective barriers have not been shown as part of this assessment as their locations will need to be determined on Site as part of the Landscape and Ecological Management Plan (LEMP). The LEMP is intended to be the subject of a planning condition and applies to the Order Scheme that require planning permission, as described in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**].

4.3.4 The impacts of the Order Scheme have been assessed, and Table 4-1 below reflects the tree totals for the surveyed trees that are currently likely to require removal to facilitate the works. This includes numbers of trees to be removed and also areas to be removed where tree groups were recorded as an outline. The final details of tree removal is to be confirmed via the LEMP.

Table 4-1 - Summary of Tree Impacts

Arboricultural Features	BS Category Reference			
	Category A	Category B	Category C	Category U
Individual tree	1	9	17	2
Individually referenced	0	11	41	3

Arboricultural Features	BS Category Reference			
	Category A	Category B	Category C	Category U
trees within groups (m^2)				
Groups (m^2)	0	7,700	36,282	0
Woodlands (m^2)	0	15,233	2,054	0
Hedgerows (m)	0	0	0	0

4.3.5 These trees or groups are currently located within the footprint of the Order Scheme. Where trees are partly within the footprint of the works the Arboriculturists have used the percentage of RPA encroachment to determine whether a tree could be retained, also based on existing site conditions that could have inhibited root development.

4.3.6 Where over approximately 20% of their RPA is severed by the works the tree has been identified for removal. The 20% figure is referenced within BS5837:2012 for what is deemed potentially acceptable in terms of RPA infringement. But this is also dependant on existing site conditions, which have also been considered by the Arboriculturist.

4.3.7 The loss of trees will be unavoidable and will be limited where possible. Network Rail will make all practicable effort to minimise tree and vegetation removal in relation to the delivery of the Order Scheme and the relevant works elements that require planning permission. Where tree removal is unavoidable, this shall be mitigated through implementation of a detailed LEMP that is intended to mitigate landscape and also ecological effects. The commitment to a BNG of 10% safeguards mitigation for any unavoidable tree removal.

4.3.8 The removals will be based on areas of loss to permit the construction of the Order Scheme. At present the losses include moderate and low-quality trees. The low-quality trees should not hinder the development as their useful remaining life expectancies are limited, or they are relatively young specimens whose removals can be offset with embedded mitigation planting.

4.3.9 The tree removals are to be reviewed as the detailed design progresses with the retention of trees identified where feasible. The losses will need to be confirmed on site via a walkover with the Principal Contractor and with an arboriculturist and the details confirmed within a Final Arboricultural Method Statement secured as part of the LEMP production at detailed design. The impacts of the tree loss on ecological or landscape receptors are outlined in specialist documentation provided by these professional disciplines.

4.4 Arboricultural impacts - TPO trees and Conservation Area trees

4.4.1 TPO trees have been identified within the Site and adjacent to the boundary.

4.4.2 TPO impacts are detailed in Table 4-2. It must be noted that there may be a discrepancy between the recorded tree and the specific TPO based on the supplied mapping and being able to corroborate the two data sets.

4.4.3 The table below is the current understanding of the TPO impacts as it relates to the recorded trees and the available TPO information. These impacts will need to be confirmed on site with the Principal Contractor and the details confirmed within a Final Arboricultural Method Statement secured as part of the LEMP production at detailed design.

Table 4-2 - Summary of TPO Impacts

TPO reference	Assumed Tree survey ref.	Species	Local Authority	Works required as part of the Order Scheme
M93 ABNEY ROAD, APSLEY HOUSE 1992 - G1	G166	Mixed Species Group	Tameside	64m2 removed
S9 WAKEFIELD ROAD 1995 - G10	T062	Horse Chestnut	Tameside	Tree to be cut back as shown on TPP.
S9 WAKEFIELD ROAD 1995 - G11	T056 T057 T058 G064 T065 T066	Willow Lime Beech Mixed species Maple Beech	Tameside	1no. individual removed (T056), Remaining listed trees to be cut back as shown on TPP.
S9 WAKEFIELD ROAD 1995 - G13	G059 G060	Group of 2 Lime Maple	Tameside	Trees to be cut back as shown on TPP.
S9 WAKEFIELD ROAD 1995 - G7	G368 G370 T374 T375	Lime Lime Beech Lime	Tameside	Trees to be cut back as shown on TPP
S9 WAKEFIELD ROAD 1995 - G8	T379 T378 T366 T365	Sycamore Ash Hornbeam	Tameside	Trees to be cut back as shown on TPP

TPO reference	Assumed Tree survey ref.	Species	Local Authority	Works required as part of the Order Scheme
		Horse Chestnut		
S9 WAKEFIELD ROAD 1995 - G9	T052 T360	Beech Lime	Tameside	2no. individuals to be removed
S9 WAKEFIELD ROAD 1995 - T7	G338	Mixed Species Group	Tameside	1no. individual to be removed
TPO/00032/82 / A1	G289	A Woodland	Oldham	55m2 removed
TPO/00117/93 / A1	T324 G322 W323	Goat Willow Group of goat willow	Oldham	10036m2 removed & 1no. individual removed

4.4.1 Trees have been identified for cutting back as shown on the TPP within the Uppermill, Saddleworth Conservation Area. These impacts will need to be confirmed on site with the Principal Contractor and the details confirmed within a Final Arboricultural Method Statement secured as part of the LEMP production at detailed design.

4.5 Arboricultural impacts – veteran trees and Ancient Woodland

4.5.1 No impacts to any veteran trees or area of ancient woodland.

4.6 Preliminary management recommendations

4.6.1 The tree survey schedules (see Annex B) show management recommendations for those trees which at the time of the survey were identified as requiring management intervention. These works being in response to hazards recorded during the tree survey.

4.6.2 The works are recommendations and tree owners and managers are advised to seek further guidance should a tree on their land require management outside of the Order Scheme.

5. MITIGATION AND OUTLINE ARBORICULTURAL METHOD STATEMENT

5.1 General

5.1.1 The purpose of this section is to describe the tree protection measures likely to be required during the implementation of the proposed Order Scheme in line with guidance from the British Standard BS5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'.

5.1.2 This section describes the tree protection measures likely to be required during the detailed design and construction stages. It sets out the following information:

- Requirements and information for pre-commencement briefings;
- The roles and responsibilities associated with the delivery of the protection measures, control and communication;
- Mitigation measures to be recorded and implemented;
- Review and monitoring mechanisms.

5.1.3 The appointed Principal Contractor or designer as part of the continued progression of the Order Scheme into detail will provide a final AMS to support the construction of the Order Scheme in line with the planning condition 5 secured via the production of a LEMP.

5.1.4 The production of the final AMS is to be undertaken by an experienced Arboriculturist with a minimum of a level 4 qualification in arboriculture and who is a professional member of the Arboricultural Association, to ensure appropriate mitigation measures are implemented during the construction works and confirm protection measures and trees for retention.

5.2 Pre-commencement operations and site briefings

5.2.1 The appointed Principal Contractor is to appoint an Environmental Clerk of Works (ECoW) and a suitably qualified arboricultural specialist to support the construction stages of the proposed Order Scheme. The Arboriculturist is to produce the final AMS and consult with the relevant stakeholders during its production, notably the Local Authority Tree Officers.

5.2.2 The appointed Principal Contractor is to review the trees impacted upon by the proposed Order Scheme as part of the detailed design stages for the development of the final AMS to support the construction phase. The red crosses as illustrated on the TPPs are to be updated accordingly, where required.

5.2.3 Where trees previously identified for retention are required to be removed as part of detailed design stages, then this information shall form part of

the consultation process with the relevant stakeholders. The appointed Principal Contractor would need to ensure that such changes do not give rise to any materially new or materially different environmental effects in comparison with those reported in this AIA.

5.3 Work package plans and task briefing sheets

5.3.1 The requirements for tree protection measures shall be included within Work Package Plans (WPPs) and Task Briefing Sheets (TBSs) produced by the appointed Principal Contractor as part of the planning of construction activities. All pre-commencement briefings shall make sure all members of staff working or visiting the area of site being worked upon are aware of the individual responsibilities regarding trees and the tree protection measures required to be in place to continue construction.

5.3.2 In the approval of WPPs and TBSs the reviewer shall make sure any protection of trees has been considered within the area and seek confirmation with either the supervising Arboriculturist or ECoW if further clarification is required.

5.3.3 The pre-commencement site briefings shall be attended by the construction manager or suitable delegate. They shall raise awareness with the relevant parties of the trees within the working extents and confirm the requirements for tree related information to be included within induction material and daily briefings to members of staff working or visiting that area of the Order Scheme.

5.3.4 The briefings shall also confirm the following:

- The location of tree protective barriers
- Tree works to facilitate that phase of the Order Scheme
- Site specific additional mitigation measures
- Where/when arboricultural supervision will be required.

5.4 Site supervision

5.4.1 The supervisory role shall be performed by a suitably qualified Arboriculturist. The frequency of these visits should align with key milestones identified in Table 5-1 below and shall be undertaken as required during the progression of the Order Scheme to enable an auditable succession of monitoring events for a review of the protection measures implemented for the trees.

Table 5-1 – Programme of on-site Arboricultural monitoring

Programme	Arboriculturist or delegate	Supervision
Pre-commencement site meeting	Arboriculturist	a) Confirm location and specification of tree protective barriers b) Confirm tree works to be undertaken c) Confirm requirements for tree protection information to be included in induction details for the site d) Confirm requirements for reporting any tree related incidents e) Confirm ongoing arboricultural monitoring and contact details.
Setting out of protective barriers	Arboriculturist	a) Review location and specification of tree protective barriers b) Confirm any additional tree protection measure requirements c) Submit site monitoring pro forma
During operation as minimum every 8 weeks.	Arboriculturist	a) Review location and specification of tree protective barriers b) Assess condition of retained trees, specifically for any construction related damage c) Confirm any additional tree protection measure requirements d) Submit site monitoring pro forma
Post-construction	Arboriculturist	a) Inspect all retained trees to make sure they have not been damaged

Programme	Arboriculturist or delegate	Supervision
		during the construction operations b) To instruct any remedial works that may be required should a tree defect be identified as a result of the construction operations.

5.4.2 On completion of each site visit a report or site note should be completed by the arboricultural specialist.

5.4.3 Where emergency matters arise regarding trees, e.g. unexpected access required within construction exclusion zones or damage to retained trees, then an Arboriculturist is to co-ordinate a visit to the site in person or delegate their powers to a suitably qualified person.

5.4.4 Any variations or incidents related to trees shall be reported in writing to the Project Manager. Details of the variation(s) or incident(s) shall incorporate photographic evidence and site note(s) as appropriate. Suitable remedial measures, including potentially the provision of new planting where deemed appropriate.

5.5 Tree Protection Plans (TPPs)

5.5.1 The Tree Protection Plans (TPPs) (Volume 2, Figures 8.1.1 – 8.1.20 of this Report [**NR14**]) include the locations of protection fencing likely to be required during the construction stage. Confirmation on the positioning would need to be confirmed by the appointed Principal Contractor as part of the final AMS.

5.5.2 The protected areas once installed shall not be moved or altered without approval by the Arboriculturist and, where necessary following consultation with the local planning authority.

5.6 Construction Exclusion Zone (CEZ)

5.6.1 The CEZs can be defined as all the soft surfaces within the RPAs of retained trees outside of the works areas and the areas behind the tree protection fencing or site hoarding.

5.6.2 Site operations not permitted in the CEZs without consultation with an Arboriculturist include storage of plant, equipment or materials, vehicular or plant access, washing down of vehicles or machinery, handling, discharge or spillage of any substances, including cement washings, and actions likely to cause localised waterlogging. No mechanical digging,

scraping or excavation shall be permitted in the CEZs, nor earthworks or changes in the finished ground levels other than those agreed by an Arboriculturist.

5.7 Hand excavations within RPAs

5.7.1 Hand excavations within the RPAs of trees shall be specified as a last resort and following a review of the works in the location to make certain there are no other design solutions to avoid the RPA of retained trees.

5.7.2 Where hand excavations are specified, then this would broadly adhere to the following:

- The area to receive excavations is to be clearly marked out on site and agreed with the Arboriculturist.
- Hand tools are to be used, with all spoil to be positioned outside of the RPA of the tree.
- Small plant maybe permitted in consultation with the Arboriculturist, or the use of a vacuum excavator positioned outside of the RPA of the trees to be retained.
- The use of an air-spade rig to loosen the sub-base material can be instructed by supervising Arboriculturist if required to loosen clay based material or similar.
- Once excavated if tree roots are located these are to be moved if sufficiently pliable or pruned only as a last resort on the advice of the Arboriculturist.
- Tree roots to be retained where feasible through packing around with sharp sand.

5.8 Root pruning

5.8.1 Where tree roots have to, as a last resort, be severed, the pruning points would need to be agreed with the supervision Arboriculturist and pruning undertaken using a sharp pair of secateurs or a hand saw, or if pliable moved out of the construction profile and re-covered within topsoil.

5.9 In situ concrete

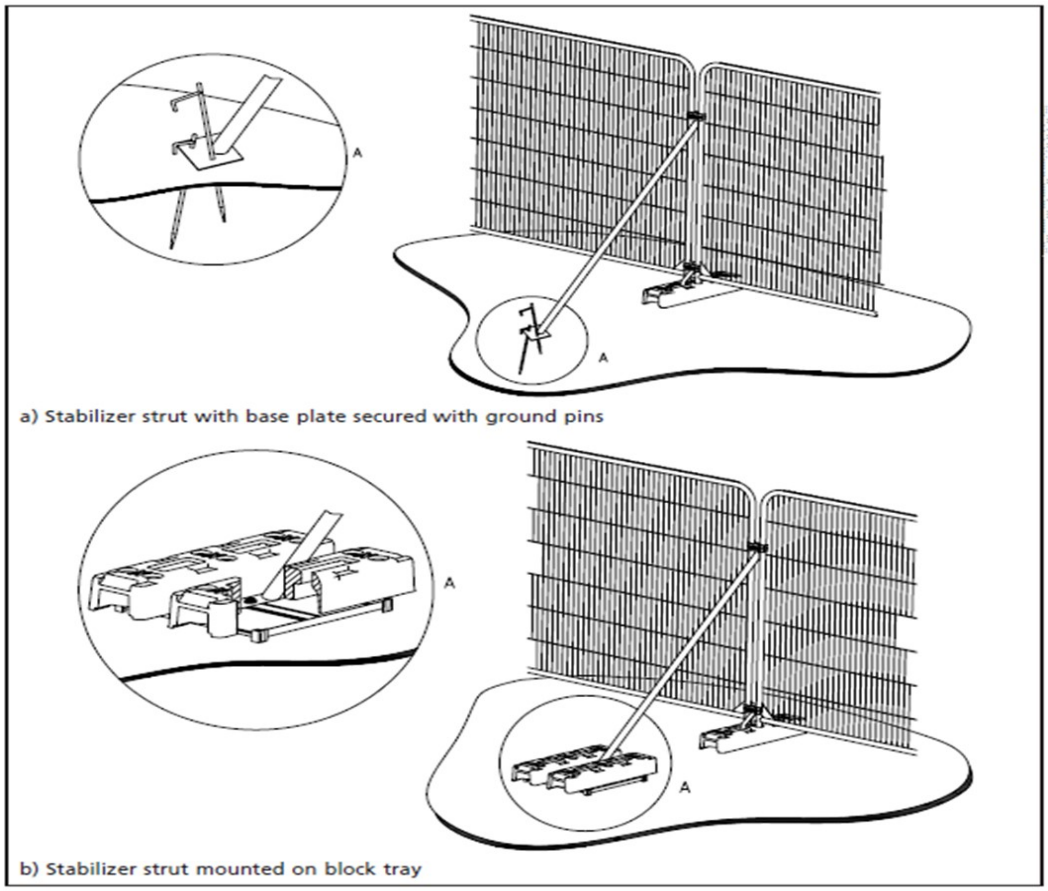
5.9.1 It should be noted that due to the highly alkaline and toxic leachate produced during the curing of wet concrete, concrete should not be poured within trees' RPAs unless an impermeable liner has been installed to contain the concrete (for example, where new fence posts or kerbs are to be installed).

5.10 Tree protective barriers

5.10.1 The locations of any protective fencing would need to be agreed prior to construction. The fencing should be erected before the commencement of works and kept in place throughout the duration of the works.

5.10.2 The protective barriers could comprise 2m tall, welded mesh panels on rubber or concrete feet. The panels are to be joined together using a minimum of two anti-tamper couplers, installed so they can only be removed from inside the fence. The distance between the fence couplers is to be at least 1m and is to be uniform throughout the fence; the panels are to be supported by inner side stabiliser struts attached to a base plate secured on a block tray. See Figure 5-1 below.

Figure 5-1 - Tree protection fencing



5.10.3 The protected areas shall be seen as sacrosanct and once installed shall not be moved or altered without recommendation by an Arboriculturist.

5.11 Ground protection matting

5.11.1 The locations for ground protection matting have not been illustrated on the TPPs, as it is not currently known where these would be required. Their locations would need to be agreed prior to the commencement of construction in coordination with a contractor.

5.11.2 Where ground protection matting is specified to protect tree roots and to minimise ground compaction within RPAs, then an example of a proprietary matting product is Ground-Guards (http://www.ground-guards.co.uk/solutions/tree-root-protection/). A double layer of Ground-Guards panels with a 150mm layer of wood chips sandwiched in-between will create a suitably cushioned base to facilitate access within RPAs where absolutely necessary.

5.12 Compound areas

5.12.1 The locations of site accommodation, temporary buildings and areas used for storage of materials are to be located outside of the CEZ of retained trees as defined within the TPPs.

5.13 Tree works

5.13.1 All tree works are to be undertaken in line with current recommendations in accordance with BS3998:2010 Tree Work – Recommendations and comply with the current Arboriculture and Forestry Advisory Group (AFAG) or applicable Forestry Industry Safety Accord (FISA) advice published by the Health and Safety Executive (HSE) or FISA.

5.13.2 Tree works are to be planned to ensure protection of people, property and wildlife.

5.13.3 The trees to be removed or worked upon for facilitation, such as pruning, shall be clearly marked by the supervising Arboriculturist prior to any tree works commencing on site. These works are to be agreed with the supervising Arboriculturist and ECoW where required. The method of removal shall be informed by the site and ecological constraints.

5.13.4 The tree works contractor shall provide access routes and loading bay locations for approval by the main contractor. These shall take into account the retention of trees and following existing access tracks or hard surfaces to try and reduce tree removals. The tree works contractor will have to submit a risk assessment and method statement for review by the Appointed Principal Contractor or Arboriculturist prior to commencing works on Site.

5.14 Tree works schedule

5.14.1 All current trees and areas of trees for removal are illustrated on the TPPs.

5.14.2 The method of removal shall be informed by the site constraints.

5.14.3 The requirements for facilitation pruning operations are to be confirmed prior to construction and covered within the pre-commencement site meetings for each phase of the works.

5.14.4 The ability to retain further trees shall be kept under review as part of construction planning

ANNEX A – KEY & BS5837:2012 SURVEY TABLE

Survey key

Tree No: Sequential reference number given to the tree or group of trees as shown on the tree survey drawings.

Species: This is the common name given to the tree.

Height (Ht.): tree height from the base of the tree to its full stem height, measured in metres (m). Measurements are taken to the nearest half metre.

Stem diameter (mm): measured in accordance with Figure A-1 below. Measurements are rounded to the nearest 10mm in some cases.

Branch spread (m): measurement of crown spread to the four cardinal points; if the crown is balanced a single measurement is given. Crown spread plotted on the tree survey drawings. Measurements are taken to the nearest half metre.

1st significant branch and direction of growth (m): measurement of the height of the first significant branch above ground level, given in metres and direction of growth e. g. 2. 4-N

Canopy height (m): height of the canopy above ground level. Measurements are taken to the nearest half metre.

Life stage: The following abbreviations are used:

Y = Young trees <1/5 life expectancy.

SM = Semi-Mature trees 1/5 – 2/5 life expectancy.

EM = Early Mature trees 2/5 – 3/5 life expectancy.

M = Mature trees 3/5 – 4/5 life expectancy

OM= Over-Mature trees >4/5 life expectancy

VET = veteran tree

Vitality: Good, fair, poor or dead

Good – a tree with little or no obvious physiological defects; leaf density and colour are typical for the species, bud, flower and fruit production are good and there are no signs of dieback at any point throughout the crown.

Fair – a tree with moderate physiological defects; leaf density is less than typical for the species, leaf cover is chlorotic, bud, flower or fruit production are deficient,

there are signs of minor dieback within the crown, there is a moderate degree of deadwood within the crown.

Poor – a tree with major or multiple physiological defects; evidence of extensive crown thinning, bud, flower or fruit production is poor or missing, there are signs of advanced dieback throughout the crown, there is extensive or major deadwood throughout the crown.

Dead – a tree that has died due to either old age, drought, disease, pest infestation, physical damage to the main stem or rooting system, or a combination of these factors.

General observations, particularly of structural and/or physiological condition: e. g. observations of any decay and physical defect.

Preliminary management recommendations: any identified preliminary management to rectify defects recorded in general observations. These may include the need for further detailed inspection, or works to address immediate hazard to life or property.

Estimated remaining contribution, in years:

<10

10+

20+

40+

Category grading: As per BS 5837:2012 chart in accordance with Figure A-2 below.

A – Illustrated as light green (RGB code 000-255-000)

B – Illustrated as mid blue (RGB code 000-000-255)

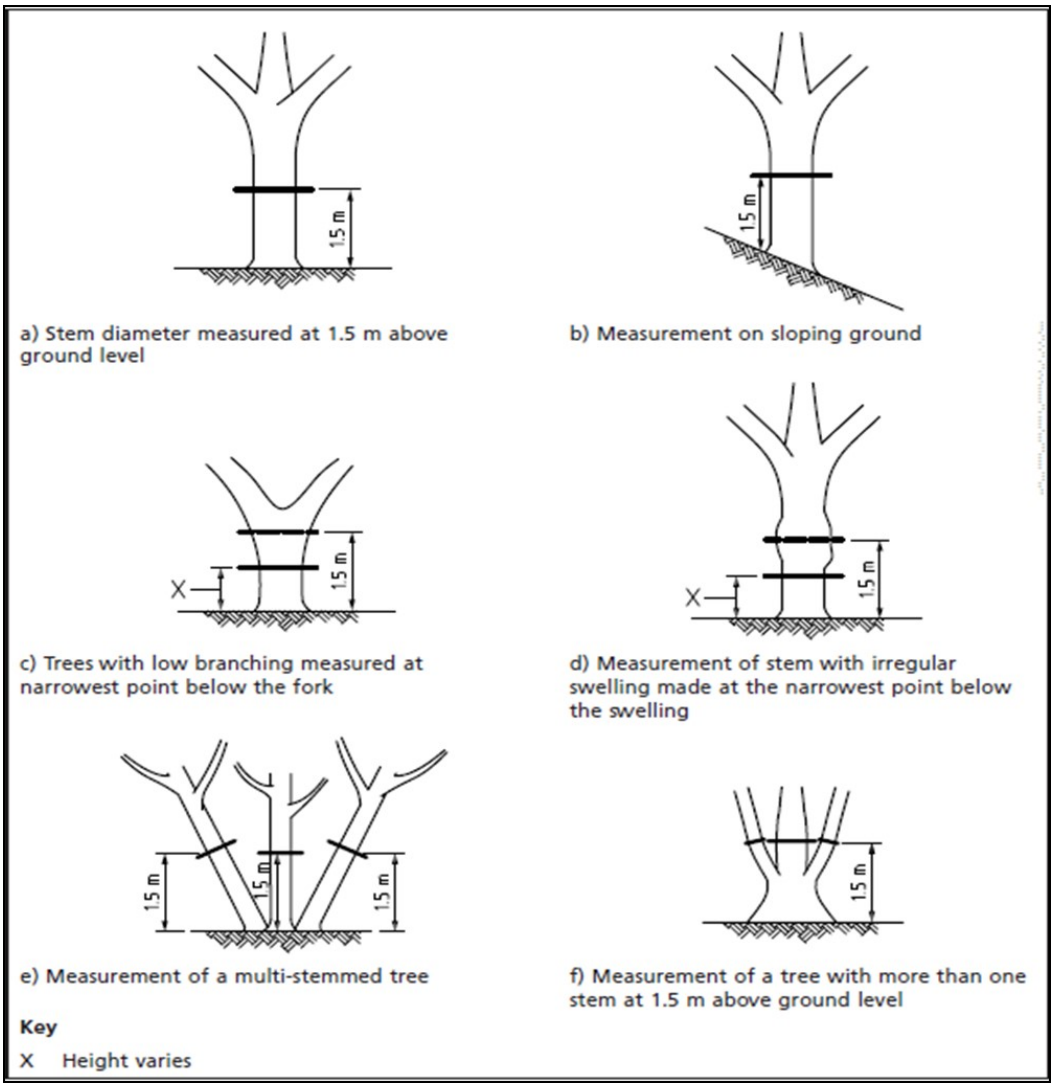
C – Illustrated as grey (RGB code 091-091-091)

U – Illustrated as dark red (RGB code 127-000-000)

Root Protection Area (m): plotted around each tree on relevant drawings, illustrating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability. The protection of the roots and soil structure is treated as of paramount importance.

Measuring table

Figure A-1 - Measurement of tree stems dependant on tree form



BS 5837:2012 cascade chart

Figure A-1 - Cascade chart for tree quality assessment from BS 5837:2012

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

ANNEX B – TREE SURVEY SCHEDULE

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G001	Mixed species tree group	11.5	310	4.0	4.0	4.0	4.0	N/A	1	SM	Fair	Group of approx. 4no Silver Birch, 4no Ash, 1no Sycamore and 1no Hawthorn, located on steep bank side. Unable to access, observations and measurements estimated from public footpath. Ages range from semi mature to early mature. Ash display minor symptoms of Ash Dieback.	No works presently required.	20+	C2	3.7	Remove Entire Group	393	1
G002	Group of Hawthorn and Oak	5	150,150	3.0	3.0	3.0	3.0	N/A	0	EM	Fair	Intermittently and generally widely spaced scrubby trees, located toward top of bank. Predominately Hawthorn species with occasional Common Oak. No access to trees all observations and dimensions estimated.	No works presently required.	40+	C2	2.5	Remove Entire Group		12
G003	Mixed species tree and shrub group	2	90	0.5	0.5	0.5	0.5	N/A	0	Y	Fair	Linear trackside group of ground vegetation and low shrubs with sporadic self-seeded Ash saplings. Unable to access trees, observations and measurements estimated. Approx. 5m wide.	No works presently required.	10+	C3	1.1	Retain		
G004	Mixed species tree and shrub group	2	90	0.5	0.5	0.5	0.5	N/A	0	Y	Fair	Linear trackside group of ground vegetation and low shrubs with sporadic self-seeded Ash saplings. Unable to access trees, observations and measurements estimated.	No works presently required.	10+	C3	1.1	Retain		
G005	Group of Willow and Buddleia	5.5	100,100,100,100,100	3.0	3.0	3.0	3.0	N/A	0	EM	Fair	Clump of Goat Willow, White Willow and Buddleia. No access to trees all observations and dimensions estimated.	No works presently required	20+	C2	2.7	Remove Entire Group	169	
G006	Mixed Species Group	13	750	5.0	7.5	5.0	7.5	N/A	0	M	Good	Linear group of trees parallel to carriageway and footpath. Consists of predominantly Lime, Sycamore and some Horse Chestnut. Low-rise stone wall abuts group and footpath along length of group. Ground level is approx. 1.5m lower than public footpath Dense basal epicormic prevents inspection of bases from footpath. Unable to access, measurements and observations from public land only.	No works presently required.	20+	B2	9.0	Retain		
T007	Ash	14	700	7.0	7.0	7.0	7.0	3.5 E	5.5	M	Poor	Tree located within G006. Adjacent to footpath. Unable access to fully inspect. Measurements and observations are estimated. Cankers observed on lower stem. Crown appears to be in decline with low foliage density. Major deadwood throughout.	No works presently required.	<10	C2	8.4	Retain		
G008	Mixed species tree group	18	260,260	5.0	5.0	5.0	5.0	Na	0	EM	Fair	Belt of intermittently spaced trees located between fields, generally 2no trees wide. Species include Sycamore, Common Ash and Goat Willow. Ash displaying early stage Ash dieback symptoms. No access to trees all observations and dimensions estimated.	No works presently required	40+	B2	4.4	Remove Entire Group	429	
G009	Group of Common Ash and Sycamore	12	220	3.0	3.0	3.0	3.0	N/A	0	SM	Fair	Linear group parallel to public footpath, abutting low rise stone wall. Consists of Common Ash and Sycamore. Ash display minor symptoms of Ash Dieback. Minor deadwood throughout. 2no dead trees within group.	Remove dead stems.	10+	C2	2.6	Remove Entire Group	97	
G010	Group of 4no Oak	6	140	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Group of 4no Common Oak. Unable to access trees, measurements and observations estimated. Dense understory of ground vegetation. Good vitality.	No works presently required.	20+	C2	1.7	Remove Entire Group	98	
T011	Ash	18	350,280	6.0	6.0	6.0	6.0	2 all	0.5	EM	Good	Located directly behind stone wall, approx. 100mm lower than footpath level. Grafted stems at 1.7m. Mirror attached to stem. Fair to good physical condition. Suspected pigeon browsing damage throughout.	No works presently required	20+	B1	5.4	Remove Individual		1
G012	Mixed species tree group	5	130	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Sporadically planted group of 2no Hawthorn, 2no Ash, 1no Oak, 1no Apple. Unable to access trees. Measurements and observations are estimated. Understory of ground vegetation. 3no small dead Ash stems within group.	No works presently required	10+	C2	1.6	Remove Entire Group	298	
G013	Group of Oak and Sycamore	13	350	5.0	5.0	5.0	5.0	GL all	0	SM-EM	Good	Group of 1no Common Oak and larger 1no Sycamore located behind stone wall approx. 1m above pavement level. Dense growth at bases obscures views of stems. Oak is suppressed.	No works presently required	40+	B2	4.2	Remove Entire Group		2
G014	Mixed species tree group	14	620	8.0	4.0	8.0	6.0	N/A	1	M	Good	Group located on embankment adjacent to carriageway. Embankment grades up from 1m above carriageway, bound by low stone wall. Unable to access trees. Measurements and observations estimated. Species consist of Oak and Sycamore with some sporadic understory Hawthorn and Elder. Ages range from semi mature to mature. 4m vertical clearance over carriageway.	No works presently required.	20+	B2	7.4	Remove Entire Group	354	
G015	Mixed species tree group	13	450	5.5	5.5	5.5	5.5	Na	0	EM	Fair	Group of Sycamore, declining Ash, Hawthorn. Limited view of trees from pavement. Dense intermingling crowns.	No works presently required	20+	C2	5.4	Remove Entire Group	83	
G016	Mixed species tree group	11	220	2.5	2.5	2.5	2.5	N/A	0	SM	Good	Group of 1no Ash, 1no Hawthorn and 1no Elder. Unable to access trees. Measurements and observations estimated. Elder shows symptoms of dieback. No other defects noted.	No works presently required.	20+	C2	2.6	Remove Entire Group		3
G017	Mixed species tree group	4.5	150	2.5	2.5	2.5	2.5	Na	0	SM	Good	Linear group of Sycamore, Horse Chestnut and Hawthorn adjacent to railway track. Intermittently spaced. No access to trees all observations and dimensions estimated.	No works presently required	20+	C2	1.8	Remove Partial Group	48	
G018	Group of 2no Sycamore	16	1000	8.0	8.0	8.0	6.0	N/A	1.5	M	Good	Group of 2no mature Sycamore adjacent to driveway. Unable to access trees, measurements estimated. Both trees are multistemmed from approx. 1.5m. Heavily cut back on the western side over driveway.	No works presently required.	20+	B2	12.0	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G019	Group of 2no Sycamore	13	240,240,240	4.0	4.0	4.0	4.0	N/A	1	SM	Good	Group of 2no Sycamore located on embankment adjacent to carriageway and perpendicular to bridge. Ground level is 1.5m higher than carriageway, bound by low stone wall. Unable to access trees, measurements and observations estimated. Both trees multi stemmed from ground level with ivy encroaching. G19 appears to be regenerating from a historic stump. 1.5m vertical clearance over footpath and carriageway.	No works presently required.	20+	C2	5.0	Retain		
G020	Mixed species tree and shrub group	8	100,100,100	4.0	4.0	4.0	4.0	Na	0	SM	Fair	Linear group of Goat Willow, Silver Birch, Buddleia, located at top and base of embankment wall to railway track. No access to trees all observations and dimensions estimated.	No works presently required	20+	C2	2.1	Remove Partial Group	392	
G021	Group of Silver Birch	10	100	1.5	1.5	1.5	1.5	Na	0	SM	Good	Group of Silver Birch adjacent gateway.	No works presently required	40+	C2	1.2	Remove Entire Group	124	
G022	Mixed Species Group	17	450	7.0	7.0	7.0	7.0	4 w	3.5	EM	Good	Mixed group of Goat Willow and Sycamore. Dominant trees in group plotted separately. Several stems resting against and on top of collapsing stone wall. Trees are generally located 0.5 -1m above pavement level.	No works presently required	20+	B2	5.4	Retain		
G023	Group of 2no Goat Willow	14	250	2.0	4.0	2.0	0.0	Na	0	EM	Fair	2no Goat Willow stems located behind stone wall leaning over road.	No works presently required	10+	C2	3.0	Retain		
G024	Mixed species tree group	20	420	6.5	6.5	6.5	6.5	Na	0	EM	Good	Large belt of trees on embankment, bound by steps to track and pavement. Dominant trees are predominately Common Oak, Norway Maple, Cedar, Red Oak, Common Ash and Sycamore. Understorey of Hawthorn. Unable to access all trees. Deadwood in crowns to 10cm dia.	Remove major deadwood over public road.	40+	B2	5.0	Retain		
G025	Mixed species tree group	5 to 25	600	6.0	6.0	6.0	6.0	Na	0	SM-M	Fair to Good	Large linear dense group located behind metal fencing of substation - all views from Printmakers Road. Most trees appear to be located between metal fence of substation and railway fence. But unable to confirm. Species include Pine, Larch, Willow, Birch, Oak, Ash, Larch. Access to rear of third-party land/ track would be required to determine location of trees relative to trackside. <5% dead and declining trees.	No works presently required	40+	B2	7.2	Retain		
T026	Maple	8	120,120,120	3.5	3.5	3.5	3.5	2.5 all	0	EM	Fair	Dense ivy prevents basal inspection.	No works presently required	20+	C1	2.5	Retain		
G027	Group of 1no Sycamore and 1no Common Ash	19	900	7.0	7.0	7.0	7.0	Na	0	M	Good	1no Sycamore + 1no Common Ash offsite trees behind stone wall, unable to view stems. Dense ivy encroaching stems and crowns. Minor storm damage visible in crowns.	No works presently required	20+	B2	10.8	Retain		
G028	Mixed species tree and shrub group	5	100	2.0	2.0	2.0	2.0	Na	0	SM	Fair	Linear selfset group of shrubs and trees. Buddleia dominates but occasional Sycamore and Ash present. Vegetation is dense such that it is not possible to see fence to track. Unable to see beyond curve in track from bridge to confirm that group continue further south.	No works presently required	10+	C2	1.2	Retain		
G029	Mixed species tree and shrub group	8	100,100	2.0	2.0	2.0	2.0	Na	0	SM	Fair	Linear selfset group of shrubs and trees. Buddleia dominates but occasional Sycamore and Ash present. Vegetation is dense such that it is not possible to see fence to track. Unable to see beyond curve in track to confirm that group continue further south.	No works presently required	10+	C2	1.7	Retain		
G030	Mixed species tree group	20	800	10.0	10.0	10.0	10.0	Na	4.5	M	Good	Group of offsite trees located behind stone wall. Trees are intermittently spaced between 6-12m apart. Species include Lime, Horse Chestnut, Sycamore and Copper Beech. Approx 11no dominant trees border wall. Privet hedge beneath parallel to road. Damage to wall along length, possibly related to direct damage by trees. 1no stem leans toward road.	No works presently required	40+	B2	9.6	Retain		
G031	Mixed species tree group	7	270,270,270	3.0	3.0	3.0	3.0	Na	0	EM-M	Fair to Good	Linear group with continuous canopy comprised of Sycamore, Hawthorn and declining Laburnum. Trees are located approx. 1m above pavement. Trees are 3-6m apart.	No works presently required	10+	C2	5.6	Retain		
G032	Group of Sycamore and Ash	14	410	4.5	4.5	4.5	4.5	2.5 all	2	EM	Fair	Fair to good. Linear group of Sycamore and 1no Ash located on bank approx. 1.2-1.5m above pavement. Trees are generally spaced 4-8m apart. Minor deadwood in crowns. Several trees with dense ivy encroachment. No access to inspect bases.	No works presently required	20+	C2	4.9	Retain		
T033	Sorbus	6.5	250	3.5	3.5	3.5	3.5	3.5ne	1.8	EM	Good	Extensive basal decay pavement side can be probed to a depth 10cm. Response growth at wound margins evident.	No works presently required	10+	C1	3.0	Retain		
T034	Prunus	5	240,240	6.0	3.0	5.0	3.0	1.8n	1	M	Fair	Minor decay at base and wounds on stem. Included union at 0.5m not currently significant.	No works presently required	10+	C1	4.1	Retain		
T035	Laburnum	7	340	3.5	3.5	3.0	1.5	1.6 all	2	M	Fair	Degrading fungal decay brackets attached to stem roadside at location of old direct damage wound, possibly vehicular. Sounding with a mallet returns a resonance to suggest underlying decay.	Fell	<10	U	4.1	Retain		
T036	Prunus	5	240	5.0	3.5	3.5	2.0	1.9 all	1.9	EM	Fair	Minor wounds on stem. Exposed roots in verge. Selectively pruned in past.	No works presently required	20+	C1	2.9	Retain		
G037	Mixed species tree group	7	100,100,100	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Linear group of self-set Goat Willow, Birch and Elder straddling metal fenceline, some stems in direct contact, some offset by 1m. Poor future prospects.	No works presently required.	10+	C3	2.1	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G038	Group of 3no Beech	19	800	8.0	6.0	7.0	6.0	N/A	0.5	M	Good	Linear group of 3no mature Beech. No access to stem bases. Ground level 1m higher than level of access road, bound by low stone wall. Dominant trees in the landscape. 1.5m vertical clearance over access road.	No works presently required.	40+	A3	9.6	Retain		
H039	Mixed Hedgerow	5.5	80,80,80	1.5	1.5	1.5	1.5	0	0	M	Good	Linear hedgerow abutting carriageway consisting of predominantly Elder, Hawthorn and Hazel. Dense ivy encroachment throughout.	No works presently required.	20+	C2	1.7	Retain		
G040	Group of 2no Lime	27	620	4.0	6.0	7.0	6.0	N/A	0	M	Fair	Group of 2no Limes adjacent to access road. Unable to access trees. Located on ground 1m higher than access road bound by low stone wall. Dense understory of bramble and saplings. Measurements and observations estimated. Ivy encroaches both trees to approx. 7m. Both trees appear to be lapsed pollards at approx. 15m.	No works presently required.	20+	B2	7.4	Retain		
T041	Maple	10	400	2.5	6.0	2.5	7.5	3.5 W	2	M	Good	Unable to access tree. Measurements and observations estimated. Tree located in private garden, historically maintained with the exception of one limb that projects northwest towards railway.	No works presently required.	20+	C2	4.8	Retain		
G042	Mixed species tree and shrub group	2.5	70	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Linear group extending along trackside consisting of low lying ground vegetation and shrubs with sporadic Sycamore saplings and unmanaged Hazel. Unable to access area, measurements and observations estimated.	No works presently required.	20+	C2	0.8	Remove Partial Group		1
G043	Mixed species tree group	6.5	110	2.5	2.5	2.5	2.5	N/A	0	SM	Good	Dense linear group extending along trackside consisting of historically managed Hazel, Elder, Sycamore, Birch and Horse Chestnut. Possibly regeneration from old stumps. Unable to access trees, measurements and observations estimated.	No works presently required.	20+	C2	1.3	Retain		
T044	Lime	20	600	4.0	3.0	7.0	2.5	6.5 S	4	M	Good	Unable to access tree. Measurements and observations estimated. Dense Ivy encroaches throughout structure. Tree forms part of larger wooded group. Approx 2.5m north of path.	No works presently required.	20+	B2	7.2	Retain		
T045	Beech	20	900	11.0	6.0	13.0	13.0	3.5 S	1	M	Good	Large dominant tree forming part of small woodland group. Unable to access tree, measurements and observations estimated. Ivy encroaches to approx. 8m. Dense, spreading tree, approx. 2m north of path.	No works presently required.	40+	A1	10.8	Retain		
T046	Lime	20	600	5.5	2.0	5.5	4.0	7 S	2	M	Fair	Tree abuts wall. Unable to access tree. Measurements and observations estimated. Dense Ivy encroaches throughout structure. Suppressed growth by neighbouring trees.	No works presently required.	20+	B2	7.2	Retain		
T047	Ash	16	375,250	0.5	1.0	6.5	3.0	4.5 S	1.5	EM	Good	Tree abuts wall, predominating heavily south due to suppression from trees behind northern wall. Stem bifurcates at 0.75m, evidence of inclusion.	No works presently required.	20+	B2	5.4	Retain		
T048	Maple	18	450	6.0	3.0	7.0	6.0	3.5 S	2	M	Fair	Tree abuts wall. Unable to access tree, measurements and observations estimated. Tree forms part of small wooded group. Dense Ivy encroaches throughout structure.	No works presently required.	20+	B2	5.4	Retain		
T049	Maple	13	480	4.0	6.0	5.0	4.0	2 N	0	EM	Good	Tree abuts footpath edge. 2no large established epicormic stems project south east from ground level. 2m vertical clearance over footpath and carriageway.	No works presently required.	20+	B2	5.8	Retain		
G050	Mixed species tree group	25	750	6.0	9.5	6.0	7.5	N/A	0	M	Good	Linear group of trees offset 0.5-1m from boundary wall extending along footpath. Species consist of mature Lime, Beech and Ash. Unable to access trees, measurements and observations estimated. Dense Ivy encroaches throughout group. High amenity trees. 1.5m clearance over footpath, 4.5m over carriageway.	No works presently required.	20+	A2	9.0	Retain		
G051	Beech	20	650	5.5	5.5	5.5	5.5	N/A	0	M	Good	Group of 2no Beech on upper railway embankment. Larger dominant tree abuts railway bridge. Unable to access trees, measurements and observations estimated. Smaller tree to north predominates north due to suppression from larger tree. Heavy ivy encroachment throughout group. Northwestern side of canopies in close proximity to roofline of private property.	No works presently required.	40+	B2	7.8	Retain		
T052	Beech	23	650	6.5	4.0	6.0	7.5	10 S	2	M	Good	Mature Beech adjacent to bridge situated on trackside embankment. Unable to access tree. Measurements and observations estimated. Ivy encroaches to approx. 6m. Included union at 5m, currently appears stable with no signs of recent movement or cracking.	No works presently required.	40+	A1	7.8	Remove Individual		1
G053	Group of 2no Lime and 1no Willow	12	300	2.5	5.0	3.5	4.5	N/A	0	SM	Good	Group of 3no. Trees on embankment adjacent to bridge, consisting of 2no Lime and 1no Goat Willow, all semi mature. Unable to access trees, measurements and observations estimated. Ivy encroaches throughout group.	No works presently required.	20+	C2	3.6	Retain		
G054	Group of 2no Hazel	8	95,95,95,95,95	3.5	3.5	3.5	3.5	N/A	0	M	Good	Group of 2no. Hazel adjacent to road, offset by approx. 2m. Historically coppiced. No significant defects observed.	No works presently required.	20+	C2	2.5	Retain		
G055	Mixed species tree group	8	275	2.0	2.0	2.0	2.0	N/A	0	EM	Fair	Linear group, some stems directly abutting fenceline, some offset by approx. 1m. Species include self-seeded Sycamore, Goat Willow, Horse Chestnut, and Lime. Limes have historically been pollarded at approx. 4m. Direct interference with fenceline from group.	No works presently required.	20+	C2	3.3	Retain		
T056	Willow	12	430,230	5.0	5.0	5.0	5.0	4.5 E	5	M	Dead	Standing dead tree, abutting access road.	Fell to ground level regardless of proposed works.	<10	U	5.9	Remove Individual		1
T057	Lime	23	650	2.5	5.5	6.0	6.0	3.5 S	0	M	Good	Tree located adjacent to road offset by 1m. Dense basal epicormic growth restricts access to base. Predominates south due to suppression from neighbouring tree. Fair structural condition.	No works presently required.	40+	B1	7.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T058	Beech	25	950	9.0	9.0	9.0	9.0	6m N	2	M	Good	Large dominant tree offset from road by 1m. Stem kinks 45 degrees at 1.5m, correcting at 3.5m. Large, spreading crown, otherwise fine specimen.	No works presently required.	40+	B1	11.4	Retain		
T059	Maple	11	250,100	2.5	1.0	3.5	4.0	Na	2	SM	Fair	Historically suppressed.	No works presently required	20+	C1	3.2	Retain		
G060	Mixed species tree group	18	750	7.5	7.5	7.5	7.5	Na	2	EM-M	Fair to Good	Group of Sycamore, Beech and Lime located behind stone wall approx. 1m above footpath level. No access to trees observation and dimensions estimated. Approximate stem locations plotted.	No works presently required	40+	B2	9.0	Retain		
T061	Lime	19	700	7.5	3.0	7.5	7.5	6s	0	M	Good	Offsite tree located in garden behind stone wall approx. 1.3m above footpath level. Moderate ivy encroachment of stem, unable to see base. No access to tree all observations and dimensions estimated. Previously topped/ lost main leader at 11m.	No works presently required	20+	B1	8.4	Retain		
T062	Horse Chestnut	19	700	7.5	7.5	7.5	2.0	6s	0	M	Good	Offsite tree located in garden behind stone wall approx. 1.3m above footpath level. Moderate ivy encroachment of stem, unable to see base. No access to tree all observations and dimensions estimated. Previously topped/ lost main leader at 11m.	No works presently required.	20+	B1	8.4	Retain		
G063	Mixed species tree group	19	650	6.0	6.0	6.0	6.0	Na	0	SM-M	Good	Group/ woodland block of approx. 15no deciduous trees located behind chainlink fence on steep slope down from road. Trees are intermittently spaced. Limited understory visible. Species include Lime, Sycamore, Horsechestnut and Common Ash. Occasional SM and EM stems Birch toward northern end. Crown height over road 3.0m. No access to inspect all observations and dimensions estimated.	No works presently required	40+	B2	7.8	Retain		
G064	Mixed species tree group	22	560	5.6	8.0	5.5	8.0	N/A	0	M	Good	Group of trees located on roadside embankment, consisting of predominantly early mature to mature Sycamore, sporadically planted mature Lime and Ash with some understory Hazel. Ivy encroaches throughout group. Trees appear to be in fair to good structural condition throughout. 2no dead trees within group have been individualised. Trees closest to road offset by approx. 1.5m.	No works presently required.	20+	B2	6.7	Retain		
T065	Maple	23	570	8.0	7.5	5.5	7.5	4.5 N	2	M	Good	Mature Sycamore directly abutting stone wall. Access to tree restricted by steep bank, crown dimensions estimated. Good example of species, no significant defects observed.	No works presently required.	40+	B2	6.8	Retain		
T066	Beech	27	890	11.0	9.0	9.0	9.0	5.5 E	3	M	Good	Tree located 3m from edge of road on embankment. Historic open decay on south west side of stem extending to 1.5m, not currently of concern, response growth developing at the margins. Crown predominates north east. Fine example of species.	No works presently required.	40+	A1	10.7	Retain		
G067	Group of 3no Western Red Cedar	18	210,150,150,100	2.5	2.5	2.5	2.5	6 all	5.5	EM	Good	Group of 3no Western Red Cedar located behind stone wall. Fair form. No access.	No works presently required	20+	B2	3.8	Retain		
G068	Mixed species tree group	19	420	6.0	6.0	4.5	7.0	N/A	2.5	EM	Good	Group located in private garden consisting of Sycamore, Beech and Hornbeam, ranging from semi mature to early mature. Unable to access trees, measurements and observations estimated. Garden ground level is 1m higher than road level and bound by low stone wall to the east. 2m vertical clearance over road.	No works presently required.	20+	B2	5.0	Retain		
G069	Mixed species tree group	16	480	5.5	5.5	5.5	5.5	Na	1	EM-M	Fair to good	Group of mixed deciduous trees located behind chainlink fence on steep slope down to watercourse. Trees are generally at 3-8m spacings. Species include Common Ash, Goat Willow, Silver Birch, Sycamore. Understory of Buddleia, Sycamore, Rhododendron, Hazel that sprawl fence in places. Crown clearance over road 2m.	No works presently required	20+	B2	5.8	Retain		
T070	Sorbus	10	300	2.0	1.5	2.5	2.0	2 S	1	EM	Good	Roadside tree located on embankment. 1m from road edge. Good example of species, no significant defects observed.	No works presently required.	20+	B1	3.6	Retain		
T071	Cotoneaster	6.5	170,140,90,90	6.0	4.0	6.0	4.0	0	0	EM	Good	Tree located on embankment adjacent to road. Unable to access tree, measurements and observations estimated.	No works presently required.	20+	C2	3.1	Retain		
T072	Leyland Cypress	11	400	2.5	2.5	2.5	2.5	0	0	SM	Good	Tree located 1m from road on embankment. Encroachment over road is minimal. Good example of species.	No works presently required.	20+	C2	4.8	Retain		
G073	Group of Goat Willow	6	175	2.0	2.0	2.0	2.0	0	0	SM	Fair	Group of Goat Willow on roadside embankment, appear to be regenerating from low cut stumps. Dense understory of Himalayan balsam. Unable to access trees due to dense vegetation.	No works presently required.	10+	C2	2.1	Retain		
G074	Group of 2no Silver Birch	13	320	2.0	4.0	4.5	4.0	N/A	4	EM	Good	Group of 2no Silver Birch, located on embankment. Unable to access trees, measurements and observations estimated. Good physiological condition.	No works presently required.	20+	C2	3.8	Retain		
G075	Group of Sycamore	16	550	7.0	6.0	7.0	7.0	N/A	2	EM	Good	Group of Sycamore located on embankment. All early mature. Unable to access trees. Observations and measurements estimated. Trees appear to be in fair to good structural conditions throughout.	No works presently required.	40+	B2	6.6	Retain		
T076	Ash	17	360	4.0	3.5	3.5	2.0	1.5 all	4	EM	Good	Partially suppressed.	No works presently required	20+	C1	4.3	Retain		
T077	Ash	17	230	3.0	3.0	3.0	3.0	4 all	5.5	EM	Fair	Crown thinning slightly.	No works presently required	20+	C1	2.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G078	Group of Goat Willow and Sycamore	18	550,450	3.0	10.0	5.0	4.0	Na	1	M	Good	Group of Goat Willow and Sycamore located approx. 1/4 way up embankment trackside. No access to trees all observations and dimensions estimated. 6no trees in group intermittently spaced. Most stems lean toward east away from track.	No works presently required	20+	B2	8.5	Retain		
T079	Maple	20	270,270,270,270,270	5.5	5.5	5.5	5.5	5s	5.5	M	Good	Located behind metal fence. No access to inspect all observations and dimensions estimated. Suspected old coppice stool.	No works presently required	40+	B2	7.2	Retain		
G080	Group of Goat Willow	16	480,300	5.0	5.0	5.0	5.0	1.5w	3	M	Fair	Group of 2no Goat Willow 5m apart located behind metal fence. Evidence of historic pruning adjacent road. No access to trees all observations and dimensions estimated.	No works presently required	20+	C3	6.8	Retain		
G081	Mixed species group	18	400	6.0	6.0	6.0	6.0	N/A	0	EM	Fair	Densely wooded group extending along roadside edge up to the top of embankment. Unable to access all trees due to dense understory vegetation. Measurements and observations estimated. Trees along stairway edge have been individualised as per Topo survey. Species include Sycamore and Goat Willow with dense understory of younger saplings, Elder and Hazel. Some standing dead individuals within group, immediately adjacent to road.	Remove dead trees within falling distance of public access.	20+	C2	4.8	Retain		
G082	Mixed species tree group	14	280	5.0	5.0	5.0	5.0	Na	0	SM-EM	Good	Dense group of trees located behind chainlink fence. Trees are 1m+ lower ground than road. Species include Sycamore, Goat Willow, Common Ash and Silver Birch. Slender forced growth. Crown clearance over road 3.5m.	No works presently required	40+	C2	3.4	Retain		
W083	Mixed woodland	16	400	4.5	4.5	4.5	4.5	N/A	0	EM	Fair	Unmanaged mixed species woodland group consisting predominantly of Ash, Sycamore and Goat Willow. Group extends from roadside where it is bound by stone wall, up to top of trackside embankment. Unable to access trees, measurements and observations are estimated. Individual accessible trees along stairway have been individualised. Dense understorey of saplings and ground vegetation. Dense ivy encroachment throughout group. 1no. Goat Willow to the east of group approx. 3.5m from roadside edge and adjacent to lamppost (W083E) has failed and in severe decline. 1no Goat Willow adjacent to stairway (W083A) is standing dead.	Remove failed Willow.	20+	C2	4.8	Retain		
G084	Mixed species tree and shrub group	9	100	0.5	0.5	0.5	0.5	0	0	SM	Good	Linear trackside embankment group extending up to trackside between bridges. Immediately abuts W083 to the east. Unable to access trees, measurements and observations estimated. Group consists predominantly of low ground vegetation and shrubs with sporadic self-seeded Silver Birch saplings.	No works presently required.	20+	C2	1.2	Retain		
G085	Mixed species tree group	20	350	5.0	5.0	5.0	5.0	Na	0	EM	Good	Small woodland block of Sycamore, Birch, Goat Willow. No access all observations and dimensions estimated. Stems generally spaced 5-10m apart.	No works presently required	40+	B2	4.2	Retain		
W086	Mixed Woodland	5 to 20	800	8.0	8.0	8.0	8.0	Na	0	SM-M	Fair to good	Large woodland group behind chainlink fence on slope. No access to trees all observations and dimensions estimated. Limited views from road. Dominant species include Beech, Sycamore and Elm. Most trees with dense ivy encroachment. Most trees are generally at 3-8m spacings. Crown clearance over road 3.5m.	No works presently required	40+	B2	9.6	Remove Partial Group	628	
G087	Mixed species tree group	5	150	2.5	2.5	2.5	2.5	Na	0	SM	Good	Group trackside approximately 8m wide extending up to track. No access to trees all observations and dimensions estimated. Species include Birch, Beech, Goat Willow. No views beyond curve in track.	No works presently required	20+	C2	1.8	Retain		
G088	Group of 2no Common Ash	17	800	7.0	7.0	7.0	7.0	Na	4	M	Fair to poor	2no Common Ash trackside on downslope of embankment. No access. Dense ivy encroaching stems and crowns. Well established Ash dieback symptoms. Large diameter deadwood over pavement and parking.	Remove major deadwood.	10+	C2	9.6	Retain		
G089	Mixed species tree group	14	400	6.0	6.0	6.0	6.0	Na	0	EM	Good	Group, trackside on steep slope down to track. Dominant trees include Sycamore and Oak are located in top 1/3 of embankment. Most with dense ivy encroachment. Understory of Ash. No access to trees all observations and dimensions estimated.	No works presently required	40+	B2	4.8	Retain		
G090	Mixed species tree group	10	150	1.5	1.5	1.5	1.5	Na	0	SM	Good	Belt of trees toward bottom of embankment. Species include Oak and Sycamore. No access.	No works presently required	40+	C2	1.8	Retain		
G091	Mixed species tree group	8 to 12	200,200,200	4.5	4.5	4.5	4.5	Na	0	SM-EM	Fair to good	Group located on embankment sloping down to track. Trees are widely spaced, some have been previously topped. Species include Common Ash, Sycamore, Turkey Oak, Birch, Common Oak, Willow. Understory of smaller stems of Birch, Willow and Oak beneath canopies.	No works presently required	20+	C2	4.2	Retain		
T092	Maple	14	320,300	6.5	6.5	6.5	6.5	0.5 S	1	EM	Good	Located on embankment. No access to tree all observations and dimensions estimated. Pruning wounds on stem.	No works presently required	40+	B1	5.3	Retain		
G093	Group of 4no Common Ash	52	220	1.5	1.5	1.5	1.5	N/A	0	Y	Poor	Group of 4no. young self-seeded Ash on embankment section between footpath and carriageway. All present symptoms of Ash Dieback.	No works presently required.	10+	C2	2.6	Retain		
T094	Prunus	8	380	5.0	5.0	5.0	5.0	2 E	0	M	Good	Tree located adjacent to footpath. Good physiological condition. No defects observed. 1.5m vertical clearance over footpath.	No works presently required.	20+	B2	4.6	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T095	Prunus	6.5	520	4.5	4.0	6.0	4.0	2 S	2	M	Good	Tree located on verge strip between footpath and carriageway. Small Ganoderma sp. brackets observed at base to the south and east. Historic open decay on west side at approx.1m revealing desiccated wood. Good physiological condition.	Further investigation required to ascertain extent of decay with the use of Sonic Tomography and Resistograph drill.	20+	C1	6.2	Retain		
G096	Mixed species tree group	5	140	1.5	1.5	1.5	1.5	0	0	SM	Good	Dense linear trackside group on embankment, bound by carriageway to the west and track to the east, extends between two bridges. Species consist of semi mature Silver Birch, Oak and Goat Willow with dense understory of ground vegetation and shrubs.	No works presently required.	20+	C2	1.7	Retain		
T097	Maple	8	260	3.5	3.5	3.5	3.5	2 all	0	SM	Good	Previously topped at 4-5m. Minor wounds on stem.	No works presently required	20+	C2	3.1	Retain		
G098	Mixed species tree group	5	130	2.5	2.5	1.0	1.0	Na	0	SM	Good	Group of planted trees and shrubs including Magnolia, Sycamore, Cotoneaster, Amelanchier, Rowan, Buddleia, Ash. Several trees previously topped. Appear to be located within bounds of domestic dwelling.	No works presently required	20+	C2	1.6	Retain		
G099	Mixed species tree group	5 to 12	300	3.5	3.5	3.5	3.5	Na	0	SM-EM	Good	Mixed species group. Trees are located between railway fence (where visible) and track and outside fence. Group comprised of Sycamore, Birch, Hawthorn, Horse Chestnut, Goat Willow. Sapling understorey. Intermittently and sparsely spaced generally 3-8m apart. No access to trees all observations and dimensions estimated. All views from over bridge.	No works presently required	20+	C2	3.6	Remove Partial Group	404	
G100	Mixed Species Group	8	275	2.5	1.5	2.5	2.5	N/A	0	SM	Good	Linear group on trackside embankment extending from trackside up to wall boundary with footpath. Unable to access trees, measurements and observations estimated. Species consist of semi-mature Ash, Silver Birch, Oak, Ash and Goat Willow. Some early mature individuals higher on embankment adjacent to footpath boundary wall. Dense ground vegetation and shrubs throughout group. Trees adjacent to trackside appear historically coppiced. 1m clearance over footpath.	No works presently required.	20+	C2	3.3	Remove Entire Group	2243	
G101	Group of Birch	9.5	390	4.0	4.0	4.0	4.0	N/A	0	EM	Good	Group of Silver Birch on raised ground between trackside compound hardstanding and footpath, bound by stone wall to the west. Trees range between semi-mature and early-mature. Dense vine encroaches throughout group. Fair structural conditions.	No works presently required.	20+	C2	4.7	Remove Entire Group	205	
G102	Group of Birch	12	370	5.0	5.0	5.0	5.0	N/A	0.5	EM	Fair	Group of silver birch on raised ground between compound and footpath, bound by wall to the west. Unable to access trees, measurements and observations estimated. Dense Ivy encroaches throughout group. Fair structural conditions, foliage density appears lower compared to same species groups nearby.	No works presently required.	20+	C2	4.4	Remove Entire Group	313	
G103	Mixed Species Group	8	320	4.0	4.0	4.0	4.0	N/A	0.5	SM	Good	Linear trackside group consisting of Birch, Oak and Sycamore. Located on ground approx. 2m higher than footpath. 1.5m wall west of group extending along footpath. Unable to access trees, measurements and observations estimated.	No works presently required.	20+	C2	3.8	Remove Entire Group	131	
G104	Mixed Species Group	4.5	110	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Linear group along embankment, bound by trackside and footpath boundary wall to the west. Group located on ground 2m higher than footpath level. Species consist of Ash, Sycamore, Goat Willow. Observed from footpath. Unable to access trees, measurements and observations estimated. Trees appear to be regenerated from old coppice stools. Dense ground vegetation throughout.	No works presently required.	20+	C2	1.3	Remove Entire Group	549	
G105	Mixed Species Group	19	700	7.0	7.0	7.0	7.0	Na	2	M	Good	Group of mixed deciduous even-aged trees located behind timber boundary fence. No access to trees all observations and dimensions estimated. Species include Horse Chestnut, Sycamore, Lime, Turkey Oak. Crowns overhang pavement with 2m clearance and road with 4.5m. Dominant in locality.	No works presently required	40+	B2	8.4	Retain		
G106	Group of Birch	4	85	1.0	1.0	1.0	0.5	0	0	Y	Fair	Linear group extending along top of 2m stone wall. Young multi-stemmed Birch. Poor future prospects due to location.	No works presently required.	10+	C3	1.0	Retain		
G107	Group of Birch	12	320	3.0	3.0	3.0	3.0	N/A	0	EM	Good	Group of Silver Birch located on edge of woodland area 2m higher than access road level, bound by 2m stone wall. Unable to access trees, measurements and observations estimated. Fair to Good structural conditions. 2.5m vertical clearance over access road.	No works presently required.	20+	C2	3.8	Retain		
G108	Group of Sycamore	4	90,90,90,90	1.0	1.0	1.0	1.0	N/A	0	SM	Good	Linear trackside group of Sycamore on raised embankment. Unable to access trees, measurements and observations estimated. Ground level 2m higher than access road. 2m wall to south of group. Group historically coppiced. 2m vertical clearance over access road.	No works presently required.	20+	C3	2.2	Retain		
T109	Goat Willow	6	220,180,180,180,180	3.0	3.0	3.0	3.0	0	1	SM	Good	Tree located on trackside, atop 2m wall adjacent to access road. Direct interference with top of wall. Multi-stemmed from ground level. 2m clearance over access road.	No works presently required.	10+	C3	5.1	Retain		
T110	Hawthorn	6	180	1.5	1.5	1.5	1.5	0	0	SM	Good	No defects observed. Located adjacent to access road and boundary fenceline.	No works presently required.	20+	C2	2.2	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T111	Norway Spruce	5.5	170	0.5	0.5	0.5	0.5	0	0	SM	Fair	Planted Norway Spruce. No defects observed.	No works presently required.	20+	C2	2.0	Retain		
T112	Common Ash	9	270,220	2.5	3.0	2.5	1.0	3 S	1	SM	Poor	Tree located adjacent to access road. Severe dieback indicative of Ash Dieback. Approx. 15% live growth remaining.	No works presently required.	<10	U	4.2	Retain		
G113	Group of Ash	10	190	2.0	2.0	2.0	2.0	N/A	2	SM	Poor	Group of 2no Ash located adjacent to access road. Minor signs of Ash Dieback. 2no dead stems adjacent to southern tree.	No works presently required.	10+	C2	2.3	Retain		
G114	Mixed Species Group	13	320	2.5	4.0	4.0	4.0	N/A	1	EM	Fair	Linear group adjacent to access road, offset by approx. 3.5m. Straddling stone wall. Group consists of 2no companion Hawthorn, 5no Mountain Ash and 3no Cherry. Hawthorn exhibits severe decline. Both larger Cherry have suffered significant mechanical damage/ vandalism to main stems.	No works presently required.	10+	C3	3.8	Retain		
G115	Group of Hawthorn	8	130,130,130,130,130	2.0	0.5	2.0	2.0	N/A	0	EM	Good	Group of 2no Hawthorn adjacent to access road. Fair structural conditions, 0.5m encroachment over access road.	No works presently required.	20+	C2	3.5	Retain		
T116	Goat Willow	9	365,400	8.0	9.0	6.0	3.5	0	0	M	Good	Tree directly abuts access road. 2no laterals predominate heavily east. Included unions at 1m. Mechanical damage to both stems up to 1.5m on west side.	No works presently required.	20+	C2	6.5	Retain		
T117	Goat Willow	9.5	570,410	8.0	4.0	5.0	7.0	2 N	1.5	M	Good	Tree directly abuts access road. Codominant union at ground level. Minor mechanical damage to stem base. Dominant stem projects heavily north with moderate lean.	No works presently required.	20+	C2	8.4	Retain		
T118	Goat Willow	5	170	2.0	2.0	2.0	2.0	1 S	0.5	SM	Good	Tree located abutting boundary wall. No defects observed.	No works presently required.	10+	C2	2.0	Retain		
G119	Group of Goat Willow	9	650	5.0	5.0	5.0	5.0	N/A	1	M	Good	Group of 2no Goat Willow adjacent to access road. Northern tree has 1no stem with evident decay, not currently considered significant. Otherwise no significant defects observed. 4m vertical clearance over road.	No works presently required.	20+	C2	7.8	Retain		
G120	Mixed Species Group	3	80,80,80	1.5	1.5	1.5	1.5	N/A	0	SM	Fair	Trackside group consisting of dense ground vegetation with sporadic self-seeded Birch and Goat Willow.	No works presently required.	10+	C3	1.7	Retain		
T121	Goat Willow	7.5	550,330,330	8.0	4.5	4.5	6.0	1.5 W	0	OM	Fair	Tree located adjacent to access road. Multi-stemmed from ground level. Multiple lateral branch failures. 2.5m vertical clearance over access road.	Remove failed limbs.	20+	C2	8.7	Retain		
G122	Mixed Species Group	14	260,260,260,260,260	4.5	4.5	4.5	4.5	Gl	2	EM-M	Fair to Good	Fair to good. Group of mixed deciduous trees located adjacent to permissive bridleway/ drive. Approx 0.5m deep ditch located between the trees and the drive. Species include Common Ash, Sycamore, Hawthorn and Goat Willow. No access to trees all observations and dimensions estimated. Ash at start of group exhibiting Ash dieback symptoms with extensive dieback.	No works presently required	20+	B2	7.0	Retain		
T123	Goat Willow	7.5	550	8.0	4.5	7.0	8.0	1 W	0	M	Fair	Tree located adjacent to access road. Multi-stemmed from 1m. Multiple lateral branch failures. Cankers throughout stem and branch structure. Predominates heavily west. 3m vertical clearance over access road.	No works presently required.	20+	C2	6.6	Retain		
G124	Mixed Species Group	18	400	5.0	5.0	5.0	5.0	Na	0	EM	Good	Tree belt located on third-party land enclosing open area south of houses and permissive footpath. No access to trees all observations and dimensions estimated. Species visible include Apple, Common Ash, Birch, Oak, Goat Willow, Holly, Sycamore. Most appear to be self-set. Densely stocked in places. Some stems with slender forced growth. Views of trees from public access limited. Permission for access would be required to survey trees thoroughly.	No works presently required Survey concluded without access, permissive footpaths are overgrown impenetrable.	40+	B2	4.8	Retain		
G125	Mixed Species Group	5	100	1.0	2.0	1.0	1.0	N/A	0	SM	Fair	Linear group extending along trackside and borders access road, consisting of Willow, Laurel, Elder, Laurel and Hawthorn.	No works presently required.	10+	C3	1.2	Retain		
G126	Mixed Species Group	10	200	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Dense group on trackside embankment, consisting predominantly of ground vegetation and shrubs with sporadic self-seeded Willow and Birch. Some larger Birch standards within group towards the north. Viewed from footbridge, unable to access trees, measurements and observations estimated.	No works presently required.	20+	C2	2.4	Retain		
G127	Group of Birch	16	390	4.5	5.5	4.5	4.5	3 W	1	EM	Good	Group of 2no closely planted Silver Birch on trackside embankment. Unable to access trees. Measurements and observations estimated. Dense Ivy encroaches to approx. 3m. Crown of western tree predominates west die to suppression with moderate stem lean.	No works presently required.	20+	C2	4.7	Retain		
T128	Sycamore	22	450,450,450,450	6.0	7.0	5.0	7.0	N/A	6	M	Good	Tree located on trackside embankment. Location estimated as viewed from footbridge. Unable to access tree. Measurements and observations estimated. Multi-stemmed from ground level.	No works presently required.	20+	B2	10.8	Retain		
T129	Sycamore	8.5	100,100,100,100,100	2.5	2.5	2.5	2.5	0	0	SM	Good	Multi-stemmed from ground level, possibly regenerated from coppice stool. Abuts public footpath.	No works presently required.	20+	C2	2.7	Retain		
G130	Mixed Species Group	3.5	80,80,80	0.5	0.5	0.5	0.5	N/A	0	EM	Fair	Group consisting of linear Privet hedgerow to the south, with mixed species ornamental shrubs to the north. Group extends along front gardens of residences. Group observed from access road, unable to access trees, measurements and observations estimated.	No works presently required.	10+	C3	1.7	Retain		
G131	Group of Birch and Goat Willow	5 to 14	340	4.0	4.0	4.0	4.0	Na	0	SM-EM	Fair to Good	Intermittently widely spaced group. Species include Silver Birch & Goat Willow. Limited views of these trees available.	No works presently required	20+	C2	4.1	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T132	Common Oak	13	550	6.0	6.0	6.0	6.0	5.5 S	5	EM	Good	Located in front garden of domestic garden. No access to tree all observation s and dimensions estimated. Extensively crown raised in past. Appears to have been reduced in height/ topped in past.	No works presently required	40+	C1	6.6	Retain		
G133	Mixed Species Group	5	150	2.5	2.5	2.5	2.5	Na	0	SM	Good	Linear non continuous group located in embankment retained by 1.2-3m tall stone wall. Constrained rooting areas. Species include Sycamore, Common Ash, Goat Willow and Birch.	No works presently required	20+	C2	1.8	Retain		
T134	Birch	17	500,400	5.5	5.5	5.5	5.5	Gl	0	M	Good	No access to tree all observations and dimensions estimated. Twin stemmed from close to ground level. Subordinate codominant, roadside has been reduced in height in past.	No works presently required	20+	B1	7.7	Retain		
T135	Common Lime	25	650	7.0	7.0	7.0	7.0	5.5 all	0	M	Good	Located behind stone wall adjacent gateway to third-party property. Base of stem buried by detritus. Crown breaks at 6m. Dominant tree.	No works presently required	40+	A2	7.8	Retain		
G136	Mixed Species Group	18	250	5.5	5.5	5.5	5.5	Na	1	SM-EM	Good	Narrow belt of third party selfset trees located between stone wall and barbed wire fence. Intermittently spaced. Species include Elm, Common Ash, Elder. Several dead and declining Elm along length of group.	Fell dead and declining trees.	20+	C2	3.0	0.0		
T137	Horse Chestnut	16	750	6.0	6.0	6.0	6.0	1.8 N	0	M	Good	Located between stone wall and chainlink fence, at approx. 0.5m below pavement level. No access to tree all observations and dimensions estimated.	No works presently required	20+	B1	9.0	Retain		
G138	Mixed Species Group	5 to 10	100,100,100	2.5	2.5	2.5	2.5	Na	0	SM	Good	Linear non continuous group located in embankment retained by 1.2-1.5m tall stone wall. Constrained rooting areas. Species include Sycamore, Common Ash, Goat Willow, Elm and Birch. Several dead and declining Elm along length of group. Group varies in width along length, between 1-3 trees wide.	No works presently required	40+	C2	2.1	Retain		
G139	Mixed Species Group	142	390	3.0	5.5	3.0	5.5	N/A	0	Y-EM	Good	Dense linear roadside group on raised embankment. Bound by low stone wall to the east of group and trackside to the west. Unable to access trees, measurements and observations estimated. Group viewed from footpath. Ages range from young saplings to semi mature understory with sporadic early-mature individuals. Species include Goat Willow, Birch, Ash, Sycamore, Oak and Hazel. Approx 5m vertical clearance over carriageway.	No works presently required.	20+	C2	4.7	Retain		
G140	Mixed Species Group	13	390	3.0	4.5	3.0	4.5	N/A	0	EM	Good	Linear roadside/ trackside group on embankment, bound by low stone wall to the east of group and trackside to the west. Unable to access trees, measurements and observations estimated. Group viewed from footpath. Includes evenly spaced, early mature Birch, Goat Willow and Oak. Understorey of ground vegetation.	No works presently required.	20+	C2	4.7	Remove Partial Group	353	
G141	Mixed Species Group	13	400	4.0	5.5	3.0	7.0	N/A	0	EM	Good	Linear roadside/ trackside group on raised embankment, bound by low stone wall to the east of group and trackside to the west. Unable to access trees, measurements and observations estimated. Group viewed from footpath. Includes fairly evenly spaced, early mature Oak, Goat Willow, Sycamore and Ash. Ash exhibit signs of Ash dieback in ranging severity. 1no standing dead tree abuts road at centre of group. Understorey of ground vegetation. Group widens to the north. 5m vertical clearance over carriageway.	Fell standing dead tree.	20+	C2	4.8	Remove Entire Group	2928	
G142	Mixed Species Group	4.5	90,90,90	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Trackside group on steep embankment consisting predominantly of low ground vegetation with sporadic clumps of self-seeded Hazel, Sycamore and Goat Willow. Unable to access group, measurements and observations estimated. Group viewed from car park to the east.	No works presently required	20+	C2	1.9	Remove Entire Group	919	
W143	Woodland Group	25	350	4.0	4.0	4.0	4.0	Na	0	EM	Good	Dense woodland block on steep slope. Thin soils suspected over rock. Trees are generally at 2-4m spacings. Slender drawn growth. Common Oak predominates, occasional Sycamore and pockets of Birch, Goat Willow, Holly, Hawthorn, Rowan and whitebeam also present. Woodland appears to extend to within 10 metres of track in places. Too steep to traverse. Occasional stems observed with stem diameter of 550mm.	No works presently required	40+	B2	4.2	Remove Partial Group	1505	
G144	Mixed Species Group	16	390	5.0	5.0	5.0	3.5	N/A	0	SM	Good	Group forms dense compartment of larger woodland. Viewed from public footpath. Unable to access trees, measurements and observations estimated. Group extends down steep embankment and into woodland. Species include early mature Ash, Sycamore and Goat Willow with understorey Hazel and Hawthorn. 1no Apple and 1no Ash abut stone wall to the west of group. Centre of group extending up embankment is largely clear of trees. Ash exhibit signs of Ash dieback. Dense ground flora on embankment.	No works presently required.	20+	C2	4.7	Retain		
T145	Scots Pine	15		4.5	4.5	4.5	4.5	10 all	10	EM	Good	Located in domestic rear garden. No access to tree. Location approximate.	No works presently required	20+	B1	0.0	Retain		
T146	Holly	5	90,90,90	2.0	2.0	2.0	2.0	2 all	1	SM	Good	Approx location plotted.	No works presently required	40+	C1	1.9	Retain		
W147	A Woodland	20	280,280	2.5	2.5	2.5	2.5	Na	0	EM	Good	Dense Downy Birch woodland with occasional Oak on steep slope. Trees are generally 2m apart. Slender drawn growth patterns. Woodland merges with surrounding woodland.	No works presently required	40+	B2	4.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
W148	A Woodland	25	350	4.0	4.0	4.0	4.0	Na	0	EM	Good	Dense woodland block on steep slope. Thin soils suspected over rock. Trees are generally at 2-4m spacings. Slender drawn growth. Common Oak predominates, occasional Sycamore and pockets of Birch and Rowan also present.	No works presently required	40+	B2	4.2	Retain		
W149	A Woodland	18	300	4.0	4.0	4.0	4.0	N/A	0	EM	Good	Woodland group extending up to trackside, bound by 5.5m wall to the east. Unable to access all areas within group. Measurements and observations estimated/ averaged. Species consist predominantly of semi to early mature goat willow with sporadic semi mature Oak, Ash, Birch and Sycamore. Clumps of Hazel throughout.	No works presently required.	20+	C2	3.6	Remove Partial Group	2054	
G150	Group of Common Oak	16	400,400,400	7.0	4.5	4.0	4.5	N/A	0	EM	Good	Group of 2no. Oak on Western trackside embankment. Unable to access trees, measurements and observations estimated. Group viewed from public footpath. Trees appear to be multi-stemmed from ground level. Dense understorey of ground vegetation.	No works presently required.	20+	C2	8.3	Retain		
G151	Group of Rhododendron	4.5	170,170,170	2.0	2.0	2.0	2.0	0	0	EM	Good	Linear group of Rhododendrons on trackside embankment. Unable to access trees, measurements and observations estimated.	No works presently required.	20+	C2	3.5	Retain		
T152	Common Oak	17	500	7.5	5.0	5.0	5.0	2.5 N	0	EM	Good	Tree located on trackside embankment. Unable to access tree, measurements and observations estimated. Tree viewed from public footpath. Crown predominates north. Dense understory of shrubs and saplings.	No works presently required.	20+	C2	6.0	Retain		
T153	Sycamore	17	400	5.0	5.0	5.0	5.0	N/A	0	EM	Good	Tree located on trackside embankment. Unable to ascertain ownership. Unable to access tree, measurements and observations estimated. Tree viewed from public footpath.	No works presently required.	20+	C2	4.8	Retain		
G154	Mixed Species Group	14	420	5.0	5.0	5.0	5.0	N/A	0	EM	Fair	Linear group on trackside embankment. Unable to access trees, measurements and observations estimated. Viewed from public footpath. Group consists of semi-mature to early mature Ash, Goat Willow and Oak, some self-seeded Sycamore saplings and an understory of ground vegetation and shrubs. Group is approx. 8-10m wide. 1no standing dead Ash.	Fell dead Ash.	20+	C2	5.0	Retain		
W155	A Woodland	18	400	6.0	6.0	6.0	6.0	Na	0	EM-M	Good	EM-M. Mixed dense group of woodland and planted trees including White Willow, Leyland Cypress, Lime, Common Ash, Sycamore, Silver Birch, Oak, Norway Maple. Dense understory if bramble and shrubs. Trees are generally 2-4m apart. Several Willow at edge have partially failed. Only able to view from footpath. Dimensions estimated.	No works presently required	40+	B2	4.8	Retain		
G156	Mixed Species Group	20	300	4.5	4.5	4.5	4.5	Na	0	EM	Good	Group located north and east of stone wall above tunnel and extending down steep embankment to track. Species include Birch, Common Oak, Turkey Oak, and Hawthorn. Trees are intermittently spaced, but generally spaced 2-5m apart where grouped together. Occasional larger stems of Oak adjacent to western boundary up to 500mm diameter. Gaps in group evident. No access to trees all observations and dimensions estimated. End of group estimated using aerial photography.	No works presently required	40+	B2	3.6	Remove Partial Group	582	
T157	Sycamore	5	150,150,150	2.5	2.5	2.5	2.5	0	0	SM	Good	Self-seeded Sycamore on trackside embankment. Unable to access, measurements estimated.	No works presently required.	20+	C2	3.1	Retain		
T158	Sycamore	5	150,150,150	2.5	2.5	2.5	2.5	0	0	SM	Good	Self-seeded Sycamore on trackside embankment. Unable to access, measurements estimated.	No works presently required.	20+	C2	3.1	Retain		
G159	Mixed Species Group	20	550	4.0	7.0	5.0	7.0	N/A	0	M	Good	Group located at top of trackside embankment adjacent to footbridge and path. Extends to property boundaries and abuts public footpath to the north of group bound by 3m wall. Unable to access trees, measurements and observations estimated. Group consists predominantly of mature Ash, Sycamore, Hornbeam and Horse Chestnut. 2no early mature Rowan to east of the group. Dense bramble understory. Ivy encroaches throughout group. 2m vertical clearance over footpath.	No works presently required.	20+	C2	6.6	Retain		
G160	Group of Sycamore	7	200	2.0	1.5	1.5	1.5	1.5	0	SM	Fair	Group of 2no self-seeded Sycamore growing atop 2m wall along footpath. Extensive browsing damage to both stems. Poor future prospects due to location. Direct contact with adjacent building. 4m vertical clearance over footpath.	No works presently required.	10+	C3	2.4	Retain		
G161	Mixed Species Group	13	290	5.0	4.5	2.0	4.5	N/A	0	EM	Fair	Group located in private garden. Consists of 3no early mature Ash, with understorey Leyland Cypress, Hawthorn, Ash and shrubs. Unable to access trees, measurements and observations estimated. Ash display some minor signs of possible Ash dieback. Cankers on southernmost tree.	No works presently required.	20+	C2	3.5	Retain		
G162	Mixed Species Group	18	480	4.5	4.5	4.5	4.5	N/A	0	EM	Fair	Group located adjacent to trackside embankment. Ownership is unclear. Unable to access group, measurements and observations estimated. Group viewed from public footpath. Extents of group estimated. Species consist of Sycamore and Ash. Dense ivy encroachment throughout group. 2no. standing dead Ash to the western extent of group. 1no Beech and 1no Elm abut 2m wall to the south of group, overhanging footpath with 2m clearance.	Fell standing dead Ash.	20+	C2	5.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T163	Common Ash	23	650	6.5	6.5	5.0	11.0	6 E	0	M	Good	Large Ash located on upper trackside embankment. Unable to access tree, measurements and observations estimated. Dominant tree in surroundings. 2no historically failed limbs at approx. 6.5m east.	No works presently required.	40+	B1	7.8	Retain		
G164	Group of Sycamore	15	400	6.5	6.5	6.5	6.5	N/A	0	EM	Good	Group of 2no Sycamore on trackside. Unable to access trees, measurements and observations estimated. Viewed from public footbridge. Dense ivy encroachment throughout.	No works presently required.	20+	C2	4.8	Remove Partial Group	103	
T165	English Elm	8	210	2.0	2.0	2.0	2.0	2 S	2	SM	Dead	Standing dead tree on trackside embankment.	Fell to ground level.	<10	U	2.5	Retain		
G166	Mixed Species Group	5.5	200	3.0	3.0	3.0	3.0	N/A	0	SM	Fair	Sparse understorey group on trackside embankment. Unable to access group, measurements and observations estimated. Species consist of Elm, Horse Chestnut, Ash, Hawthorn, Hazel and self-seeded Sycamore, all young to semi-mature. Dense ground covering of shrubs extend down to trackside. 1no standing dead Ash next to T166.	Fell standing dead Ash to ground level.	20+	C2	2.4	Remove Partial Group	282	
G167	Mixed Species Group	7	200,150	5.5	5.5	5.5	5.5	Na	0	EM	Good	Linear group/ unmanaged hedge of Hazel, Holly and Hawthorn. No access.	No works presently required	40+	C2	3.0	Remove Partial Group	55	
G168	Group of Field Maple and Common Ash	21	270	5.5	5.5	5.5	5.5	Na	0	EM	Good	Group of Field Maple and Common Ash stems located behind fence of car park. No access to trees all observations and dimensions estimated. Trees are densely spaced. Understory of Hazel. Dense bramble at base. Mutually competing crowns. Poor form.	No works presently required	20+	C2	3.2	Remove Entire Group	181	
G169	Mixed Species Group	19	300	5.5	5.5	5.5	5.5	Na	0	EM	Fair	Group of 3no Common Ash, 1no Goat Willow and 1no Field Maple. No access to trees all observations and dimensions estimated. All stems are densely ivy clad. Ash displaying symptoms suggesting onset of Ash Dieback. Understory of Hawthorn.	No works presently required	10+	C2	3.6	Remove Entire Group	91	
G170	Group of English Elm	15	350	4.0	4.0	4.0	4.0	0	0	M	Dead	Group of 3no standing dead Elm on trackside embankment adjacent to access road.	Fell to ground level.	<10	U	4.2	Remove Entire Group		3
G171	Group of Sycamore and Common Ash	18	450	5.0	5.0	5.0	5.0	Na	0	EM	Good	Densely spaced group of 4no Sycamore trees. Dense ivy encroaching prevents views of stems. 2no smaller Ash at edge of canopy to north.	No works presently required	20+	C2	5.4	Remove Entire Group	179	
T172	Sycamore	18	500	2.5	5.5	5.5	5.0	5 S	5	M	Good	Tree located on embankment adjacent to access road. Dense basal epicormic growth. Suppressed by larger tree to the north. Crown predominates east. No significant defects observed.	No works presently required.	40+	B2	6.0	Remove Individual		1
T172A	Sycamore	18	660	5.0	7.0	7.0	5.0	6 S	5.5	M	Good	Tree located on trackside embankment. Historic open decay at base on south side revealing desiccated wood. Margins closing. Not currently considered significant.	No works presently required.	40+	B2	7.9	Remove Individual		1
T173	English Elm	15	330	7.0	7.0	2.0	6.0	2	2	EM	Fair	Tree located on trackside embankment. Suppressed by larger neighbouring trees. Predominates heavily north. No significant defects observed.	No works presently required.	20+	C2	4.0	Remove Individual		1
T174	Common Ash	18	690	5.0	8.0	7.0	6.0	8 all	2.5	M	Good	Distorted stem shape at 1m, suggests that tree has historically included old fence structure. Historic pruning and removal structural branches in crown. Top of crown thinning slightly but currently adequate. <5% major deadwood in crown.	Remove major deadwood in crown.	20+	B1	8.3	Remove Individual		1
G175	Mixed Species Group	4.5	90	1.5	1.5	1.5	1.5	0	0	Y	Good	Linear trackside group consisting of young self-seeded Hazel, Sycamore and Elm as well as ground vegetation and bramble. Group extends to trackside edge.	No works presently required.	10+	C3	1.1	Remove Partial Group	233	
G176	Group of Goat Willow and Elm	6	90,90,90	2.5	2.5	2.5	2.5	0	0	SM	Good	Group of unmanaged Goat Willow and Elm. Observed from footbridge. No access to group, measurements and observations estimated. Located within trackside private garden.	No works presently required.	10+	C3	1.9	Retain		
G177	Group of Sycamore	17	350	5.5	5.5	5.5	5.5	Na	0	EM	Good	Group of 3no Sycamore located in third-party gardens. Dense ivy encroaching stems. No access to trees, all observations and dimensions estimated. Otherwise fair form.	No works presently required	40+	B2	4.2	Retain		
T178	Common Ash	23	700	7.5	7.5	10.0	7.5	11s	8	M	Good	Dominant tree. Located in third-party gardens. No access to tree all observations and dimensions estimated. 5% major deadwood in crown. Crown slightly sparse.	Remove major deadwood in crown.	20+	B1	8.4	Retain		
H179	A Hedgerow	3	80	0.8	0.8	0.8	0.8	Na	0	Y	Good	Mixed hedge of Elm, Hawthorn, Privet. Hedge has not been recently pruned adjacent Old Brow , but appears to be regularly managed at 1-5m height adjacent to Old Brow Court.	No works presently required	20+	C2	1.0	Retain		
G180	Mixed Species Group	2	75,75,75	0.5	0.5	0.5	0.5	0	0	Y	Good	Linear group of shrubs and young self-seeded Ash, Sycamore and Hazel saplings along trackside embankment.	No works presently required.	20+	C2	1.6	Remove Partial Group		
G181	Mixed Species Group	10	350	4.0	4.0	4.0	4.0	N/A	0	EM	Good	Linear group on upper trackside embankment, adjacent to footpath boundary wall. Species consist of predominantly Goat Willow and Sycamore. Unable to access trees, measurements and observations estimated. Group viewed from public footpath. 1.5m vertical clearance over footpath.	No works presently required.	20+	C2	4.2	Remove Partial Group		
T182	Common Ash	17	700	8.0	5.5	8.0	6.0	3.5 S	1.5	M	Good	Tree located on upper trackside embankment adjacent to footpath boundary wall. Unable to access tree, measurements and observations estimated. Utility cable extends through western side of crown, historically pruned back for clearance. 3m vertical clearance over footpath.	No works presently required.	20+	B2	8.4	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G183	Group of Goat Willow and Holly	4	100,100	3.0	3.0	3.0	3.0	Na	0	EM	Good	Dense overgrown group of Goat Willow with Holly at western extents, extending to rear gardens. Limited access, location approximated.	No works presently required	20+	C2	1.7	Retain		
G184	Mixed Species Group	10	300	4.0	4.0	4.0	4.0	0	0	SM	Good	Mixed species group consisting of Goat Willow, Common Ash and Sycamore. Unable to access group, observations made from public footpath to the east. Group extends further west beyond denoted area.	No works presently required.	20+	C2	3.6	Remove Partial Group	2150	
G185	Mixed Species Group	12	250	2.5	2.5	2.5	2.5	0	0	SM-EM	Good	Group located on trackside embankment. Unable to access trees, all measurements and observations estimated. Species predominantly Birch and Goat Willow. Group abuts wall to the south east boundary with carriageway. Ages SM to EM. Group widens to north-east.	No works presently required.	20+	C2	3.0	Remove Partial Group	1373	
T186	Sycamore	15	400,380	6.5	7.0	3.5	4.0	2 E	1.5	SM	Good	Main stem abuts boundary wall with direct damage evident. Main stem bifurcates at ground level with adequate union.	No works presently required.	20+	C1	6.6	Remove Individual		1
T187	Common Ash	13	240	3.0	3.0	3.0	3.0	0	0	SM	Poor	Tree located trackside with no access, all measurements and location estimated. Tree in significant decline, suspected Ash Dieback.	No works presently required.	10+	C1	2.9	Retain		
T188	Goat Willow	8	200	5.0	5.0	5.0	5.0	0	0	SM	Poor	Tree located trackside with no access, all measurements and location estimated. Small self-seeded Sycamore adjacent to the north-east.	No works presently required.	20+	C1	2.4	Retain		
G189	Mixed Species Group	12	470	5.0	5.0	5.0	3.0	N/A	0	EM-M	Fair	Group extending from trackside down to carriageway verge. Unable to access all trees, viewed from roadside, measurements and observations estimated. Species include Cherry, Sycamore, Goat Willow, Silver Birch and Apple. Ages range from early mature to mature.	No works presently required.	20+	C2	5.6	Remove Partial Group	123	
G190	Mixed Species Group	7	80	3.0	3.0	3.0	3.0	0	0	Y	Good	Mixed species group consisting of Field Maple and Common Ash with an understorey of Cherry Laurel and Cotoneaster.	No works presently required	20+	C1	1.0	Retain		
G191	Mixed Species Group	7	80	3.0	3.0	3.0	3.0	0	0	Y	Good	Mixed species group consisting of Field Maple and Common Ash located trackside with no access to fully inspect, all measurements and location estimated.	No works presently required	20+	C1	1.0	Retain		
G192	Mixed Species Group	6	150	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Narrow linear group on raised ground, bound by stone wall to south east and north west. Species include self-seeded Silver Birch, Sycamore, Hazel and Buddleia. 5no planted apple saplings abut southeast wall in grass verge.	No works presently required.	10+	C3	1.8	Retain		
T193	Sycamore	7	180,180,180	2.5	3.5	2.0	1.5	1.5 E	0	SM	Good	Self-seeded multi-stemmed Sycamore abutting stone wall.	No works presently required.	20+	C3	3.7	Retain		
G194	Group of 3no Paper Birch	6.5	220,220,200,220,200	2.5	2.5	2.5	2.5	1 all	0	EM	Good	Trees located on grass verge space. Cluster of 3no. multistemmed Birch. No defects observed.	No works presently required.	20+	C1	5.7	Retain		
T195	Common Ash	5.5	220	0.5	0.5	0.5	0.5	0.5	0	Y	Poor	Single tree located atop stone wall on trackside embankment. Unable to access tree, measurements and observations estimated. Significant decline, likely Ash dieback.	No works presently required.	<10	C3	2.6	Retain		
T196	Common Ash	7.5	310	4.0	5.0	2.5	5.5	1 W	0	EM	Poor	Tree located on raised stone walled embankment. Unable to access tree, viewed from grass verge. Measurements and observations estimated. Crown in significant decline, likely Ash dieback.	No works presently required.	10+	C3	3.7	Retain		
T197	Mountain Ash	5.5	200	2.0	2.0	2.0	2.0	0	0	EM	Good	Tree located on trackside embankment. Unable to access, measurements and observations estimated. Tree suppressed by neighbouring trees, however good vitality.	No works presently required.	20+	C	2.4	Retain		
G198	Mixed Species Group	13	370	4.0	4.0	4.0	4.0	N/A	0	SM-M	Fair	Dense linear group on trackside embankment extending along boundary with carriageway. Unable to access trees, viewed from public footpath, observations and measurements estimated. Species include predominantly Ash, Beech, Poplar, Sycamore and Alder. Multiple mature trees within group. Ash display symptoms of Ash dieback throughout group. Some dead stems within group. 5m clearance over carriageway to the east.	Fell dead stems, monitor Ash dieback within group.	20+	C2	4.4	Retain		
G199	Mixed Species Group	5	80	2.0	2.0	2.0	2.0	0	0	Y	Fair	Mixed species scrubby group which extends down from third-party gardens to track edge. Species predominantly consisting of Common Ash, Goat Willow and Sycamore. Trees located trackside with no access to fully inspect, all measurements and location estimated. Observations made from footpath to the north.	No works presently required.	10+	C2	1.0	Retain		
T200	Copper Beech	22	720	8.0	8.0	8.0	8.0	5	5	M	Good	Dominant spreading tree within trackside embankment group. Unable to access tree, measurements and observations estimated.	No works presently required.	40+	B1	8.6	Retain		
G201	Mixed Species Group	3.5	100	0.5	0.5	0.5	0.5	N/A	0	Y	Fair	Small trackside group consisting of Ash, Birch and Willow self-seeded saplings. Unable to access trees, measurements estimated.	No works presently required.	10+	C3	1.2	Retain		
T202	Sycamore	12	390	4.0	4.0	4.0	4.0	5	5	EM	Good	Individual Sycamore on embankment, unable to access tree, viewed from bridge. Fair form.	No works presently required.	20+	C1	4.7	Retain		
G203	Mixed Species Group	20	450	8.0	8.0	8.0	8.0	4	1.5	SM-EM	Good	Mixed species group located on raised bank on boundary of car park and third-party properties. Species include semi to early mature Sycamore with the occasional Beech and Common Ash.	No works presently required.	10+	C2	5.4	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G204	Mixed Species Group	7	120	3.0	3.0	3.0	3.0	0	0	SM	Good	Linear mixed species third-party group located in raised garden, no access to fully inspect, all measurements and location estimated. Species include Goat Willow and Birch with an understorey of Lilac and Privet.	No works presently required.	20+	C2	1.4	Retain		
G205	Mixed Species Group	7	80	3.0	3.0	3.0	3.0	0	0	Y	Good	Mixed species group consisting of Sycamore and Common Ash located trackside with no access to fully inspect, all measurements and location estimated.	No works presently required	20+	C1	1.0	Retain		
G206	Group of Ash	7	80	3.0	3.0	3.0	3.0	0	0	Y	Good	Group consisting of Common Ash located trackside with no access to fully inspect, all measurements and location estimated. Observation made from footbridge to the south. Minor dieback observed, suspected Ash Dieback.	No works presently required	20+	C1	1.0	Retain		
G207	Mixed Species Group	14	250	5.0	5.0	5.0	5.0	0	0	SM	Good	Mixed species group consisting of Common Ash and Silver Birch. Trees are located trackside with no access to fully inspect, all measurements and location estimated. Observations made from footbridge to north east. Trees located on steep bank.	No works presently required.	20+	C2	3.0	Retain		
G208	Mixed Species Group	3	100	0.5	0.5	0.5	0.5	N/A	0	SM	Good	Linear trackside group, consisting predominantly of low level scrub vegetation and sporadic clumps of self-set saplings and small trees to the southwest extent of group.	No works presently required.	20+	C3	1.2	Retain		
T209	Common Ash	13	240	3.0	3.0	3.0	3.0	0	0	SM	Poor	Tree located trackside with no access, all measurements and location estimated. Observations made from footbridge to the north. Crown in decline, suspected Ash Dieback.	No works presently required.	10+	C1	2.9	Retain		
G210	Mixed Species Group	8	100	3.0	3.0	3.0	3.0	0	0	Y	Fair	Mixed species group consisting of 1no Common Ash, 1no. rowan and 1no. Goat Willow. Tree located trackside with no access to fully inspect, all measurements and location estimated. Observations made from footbridge to the south. Ash has dieback observed within crown, suspected Ash dieback.	No works presently required	20+	C2	1.2	Retain		
G211	Mixed Species Group	7	270	2.0	2.0	2.0	2.0	N/A	0	SM	Fair	Linear group abutting stone wall boundary of road, species include Hawthorn, Sycamore, Ash, Prunus and 1no. Goat Willow. Unable to access trees, group viewed from the road. Ash display minor signs of Ash dieback. Goat Willow also displays symptoms of decline. 1.5m clearance over road.	No works presently required.	10+	C3	3.2	Retain		
G212	Mixed Species Group	8	100	3.0	3.0	3.0	3.0	0	0	Y	Fair	Mixed species group consisting of 1no Common Oak and several smaller Silver Birch. Trees located trackside with no access to fully inspect, all measurements and location estimated. Observations made from road to the south.	No works presently required	20+	C2	1.2	Retain		
T213	Goat Willow	14	430	7.0	7.0	7.0	7.0	0	0	EM	Good	Third-party tree with no access to fully inspect, all measurements and location estimated. Observations made from opposite side of railway. Tree abuts boundary wall.	No works presently required	20+	C1	5.2	Retain		
T214	Common Ash	9	200	4.0	4.0	4.0	4.0	2.5	2.5	SM	Good	Third-party tree with no access to fully inspect, all measurements and location estimated. Observations made from opposite side of railway.	No works presently required	20+	C1	2.4	Retain		
T215	Common Ash	5.5	200,90	1.5	1.0	1.0	1.0	1.5 E	0	Y	Fair	Self-seeded Ash abutting footbridge atop stone wall. Minor crown decline, poor future prospects due to location.	No works presently required.	10+	C3	2.6	Retain		
G216	Group of Ash and Birch	7	100	4.0	4.0	4.0	4.0	0	0	SM	Good	Mixed species group consisting of Common Ash and Silver Birch. Trees are located trackside with no access to fully inspect, all measurements and location estimated. Observations made from footbridge to north east. Trees located on steep bank.	No works presently required.	20+	C2	1.2	Retain		
T217	Leyland Cypress	11	390	4.0	4.0	4.0	4.0	0.5	0	EM	Good	Tree located within private garden adjacent to access road. Viewed from road, measurements estimated. Fair form, 3.5m clearance over access road.	No works presently required.	20+	C1	4.7	Retain		
T218	Goat Willow	8	200	6.0	6.0	6.0	6.0	0	0	EM	Good	Tree located on river edge outside of denoted area, crown overhangs car park area.	No works presently required.	20+	C1	2.4	Retain		
T219	Sycamore	15	400,400	8.0	8.0	5.0	4.0	2 N	2	EM	Good	Tree located within river abutting boundary wall. Crown predominates north-east due to historical pruning.	No works presently required.	20+	C1	6.8	Retain		
G220	Mixed Species Group	14	320	4.0	4.0	4.0	4.0	0	0	SM	Good	100 to 320. Mixed species linear group growing alongside river bank and bridleway. Species include Common Ash, Alder and Sycamore. Historical damage observed to structural roots abutting hard standing bridleway. Dieback observed within Ash, suspected Ash Dieback.	No works presently required.	20+	C2	3.8	Remove Partial Group	132	
G221	Group of Goat Willow	15	350	6.0	6.0	6.0	6.0	2	5	S-EM	Good	Group of 3no. semi to early mature Goat Willow located within scrubby area. No access to fully inspect due to dense Himalayan Balsam. All measurements and location estimated.	No works presently required	20+	C2	4.2	Remove Partial Group	102	
G222	Group of Ash	12	200	4.0	4.0	4.0	4.0	0	0	SM	Fair	100 to 200. Linear group of Common Ash growing on top of boundary wall alongside a bridleway. Several small diameter standing dead trees. Dieback observed within Ash, suspected Ash Dieback.	No works presently required.	20+	C2	2.4	Remove Partial Group	210	
G223	Group of Sycamore	16	300	7.5	7.5	7.5	7.5	0	5	SM	Good	Group of 3no evenly aged Sycamore growing between boundary fence and wall. No access to fully inspect, all measurements estimated. Trees are multi-stemmed from ground level.	No works presently required	20+	C1	3.6	Remove Partial Group	58	
T224	Sycamore	10	380	4.0	3.0	4.0	4.0	5	4	EM	Good	Tree directly abuts access road. Historic mechanical damage to base. Likely historically self-seeded. Fair form.	No works presently required.	20+	C2	4.6	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T225	Common Hornbeam	12	400	5.0	5.0	5.0	5.0	0	0	M	Good	Tree located on trackside embankment. Unable to access tree, viewed from access road, observations and measurements estimated. Abuts private property boundary, exact position of stem is estimated.	No works presently required.	20+	C2	4.8	Retain		
T226	Prunus 'Kanzan'	6	200	5.0	3.0	3.0	4.0	0	0	SM	Fair	Third-party tree with no access to fully inspect, all measurements and location estimated. Dieback observed within the northern crown.	No works presently required.	10+	C1	2.4	Retain		
T227	Goat Willow	8	320,260,280	6.0	6.0	6.0	6.0	0	0	M	Good	Tree located on trackside embankment. Unable to access, measurements and observations estimated. Viewed from access road. Fair form, from preliminary inspection.	No works presently required.	20+	C1	6.0	Retain		
G228	Group of Hazel	7.5	150,150,150	1.5	1.5	1.5	1.5	0	0	EM	Good	Large trackside embankment group of Hazel coppice. Unable to access group, measurements and observations estimated. Group abuts access road and appears to extend up to trackside. Fair form throughout from preliminary inspection. 2m clearance over access road.	No works presently required.	20+	C2	3.1	Remove Partial Group	155	
G229	Mixed Species Group	5.5	140,140,140	2.0	2.0	2.0	2.0	N/A	0	SM	Fair	Trackside embankment group extending up to trackside. Fairly sparse in places. Unable to access trees, measurements and observations estimated. Viewed from access road. Species consist of Hazel, Ash and some standalone Goat Willow. Understory of ground vegetation. Symptoms of Ash dieback throughout group.	No works presently required.	10+	C3	2.9	Retain		
G230	Mixed Species Group	7	220	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Sparse trackside embankment group extending down to access road. Unable to access trees, measurements and observations estimated. Viewed from road. Species include Rowan, Ash, Goat Willow and Sycamore. Understory of ground vegetation.	No works presently required.	20+	C2	2.6	Remove Partial Group	22	
G231	Mixed Species Group	15	320	6.0	6.0	6.0	6.0	5	5	SM-EM	Good	100 to 320. Sm to em. Third-party linear mixed species group located alongside boundary fence adjacent to bridleway. No access to fully inspect, all measurements and location estimated. Species include Common Ash, Goat Willow and Sycamore. Dieback observed within Ash, suspected Ash Dieback. Several failed limbs on Goat Willow. Group not continuous.	No works presently required.	20+	B2	3.8	Remove Partial Group	908	
G232	Mixed Species Group	13	320	4.0	4.0	4.0	4.0	N/A	0	Y-M	Fair	Dense group located on embankment extending down to access road. Unable to access group, measurements and observations estimated. Viewed from access road. Species include Ash, Goat Willow, Sycamore, Rowan and Larch with dense understorey of ground vegetation. Ages range from young to mature.	No works presently required.	20+	B2	3.8	Remove Partial Group		
T233	Common Ash	4.5	100,100,100,100,100	1.5	1.5	1.5	1.5	0	0	Y	Good	Tree located on top of trackside embankment, abutting bridge. Unable to access tree, measurements and observations estimated. Viewed from public footpath. Fair form, poor location.	No works presently required.	10+	C2	2.7	Retain		
G234	Group of Willow and Hawthorn	3.5	140,140,140	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Group of 1no. Willow and 1no. Hawthorn abutting fenceline adjacent to gateways and encroaching through into access road by 2m.	No works presently required.	10+	C3	2.9	Remove Entire Group	22	
G235	Mixed Species Group	6	85	2.0	2.0	2.0	2.0	0	0	Y	Good	Mixed species group located trackside. No access to fully inspect, all measurements and location estimated. Species include Scots Pine, Birch, Holly and Rowan.	No works presently required.	20+	C1	1.0	Retain		
G236	Mixed Species Group	13	280	6.0	6.0	6.0	6.0	0	0	SM	Good	Mixed species group located trackside. No access to fully inspect, all measurements and location estimated. Species include Goat Willow Birch, Sycamore and Common Ash.	No works presently required.	20+	C1	3.4	Retain		
G237	Group of Oak and Ash	4	90	1.5	1.5	1.2	1.2	2	2	Y	Good	Mixed species group consisting of 1no. Oak and 1no. Common Ash which are located within public footpath.	No works presently required	20+	C1	1.1	Retain		
G238	Mixed Species Group	13	320	6.0	6.0	6.0	6.0	0	0	SM	Good	Mixed species group located within third-party land, view from adjacent footpath. No access to fully inspect, all measurements and location estimated. Species include Goat Willow Birch, Sycamore and Scots Pine.	No works presently required.	20+	C1	3.8	Retain		
G239	Mixed Species Group	13	380	6.0	6.0	6.0	6.0	0	0	SM	Good	Mixed species group located within third-party land, view from adjacent footpath. No access to fully inspect, all measurements and location estimated. Species include Norway Maple, Sycamore, Common Ash, Pear, Birch, Holly and Hawthorn. Group extends further north beyond plotted points. Crowns overhanging public footpath to the west.	No works presently required.	20+	B2	4.6	Retain		
T240	White Willow	3.5	110	1.0	1.0	1.0	1.0	0.5	0	Y	Good	Small self-seeded Willow abutting access track.	No works presently required.	10+	C3	1.3	Retain		
T241	Common Ash	4.5	100	1.0	1.0	1.0	1.0	1.5	1	Y	Good	Self-seeded Ash on footpath abutting trackside stone wall. No defects observed.	No works presently required.	20+	C2	1.2	Retain		
T242	Sessile Oak	4	150	2.0	0.5	2.0	0.5	0.5	0	SM	Good	Self-seeded Oak on footpath abutting stone wall, no defects observed.	No works presently required.	20+	C2	1.8	Retain		
G243	Group of Oak	4	100	1.0	1.0	1.0	1.0	0.5	0	Y	Fair	Group of 2no. Self-seeded Oak on footpath abutting stone wall. Fair forms.	No works presently required.	10+	C2	1.2	Retain		
G244	Mixed Species Group	5	200	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Group located on trackside embankment. Unable to access trees, measurements and observations estimated. Viewed from footpath. Group consists of sparsely self-seeded Oak, Rowan and Sorbus.	No works presently required.	20+	C2	2.4	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G245	Mixed Species Group	6	80	2.0	2.0	2.0	2.0	0	0	Y	Good	Mixed species group located on steep bank trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Hazel, Oak, Beech and Rowan. Trees are young and well-spaced.	No works presently required.	20+	C1	1.0	Retain		
G246	Mixed Species Group	13	280	6.0	6.0	6.0	6.0	0	0	SM	Good	Mixed species group located on third-party land adjacent to footpath and trackside. No access to fully inspect, all measurements and location estimated. Species include Goat Willow Birch, Sycamore, Hawthorn and Birch and Common Ash. Dieback observed within Ash, suspected Ash Dieback.	No works presently required.	20+	C1	3.4	Remove Partial Group	23	
T247	Common Ash	16	650	6.0	6.0	8.0	8.0	1.5 S	3	M	Poor	Tree located on third-party land adjacent to footpath and trackside. No access to fully inspect, all measurements and location estimated. Tree is in decline, suspected Ash Dieback.	No works presently required.	10+	C1	7.8	Retain		
G248	Mixed Species Group	6	200,200	1.5	1.5	1.5	1.5	N/A	0	SM	Fair	Closely planted/ seeded group of 1no. Ash, 1no. Rowan, 1no. Sorbus and 1no. Hawthorn on trackside embankment adjacent to bridge. Ash displays signs of Ash dieback with approx. 30% remaining crown.	No works presently required.	20+	C2	3.4	Retain		
T249	Sessile Oak	6	235	3.0	3.0	3.0	3.0	2	0	SM	Good	Tree located on footpath adjacent to bridge. 2no. torn limbs at 2 and 2.5m. Otherwise fair form.	No works presently required.	20+	C1	2.8	Remove Individual		1
T250	Sessile Oak	4	110,110	3.0	2.5	2.5	1.0	0	0	SM	Good	Multistemmed self-seeded Oak located atop stone wall adjacent to footpath. 2m clearance. Fair form, poor location.	No works presently required.	10+	C2	1.9	Retain		
G251	Mixed Species Group	4.5	120	1.0	1.0	1.0	1.0	N/A	0	SM	Good	Linear group along field edge adjacent to trackside embankment. Species consist of predominantly Oak, Rowan and Hawthorn. Unable to access trees, measurements and observations estimated from bridge. No defects observed from preliminary inspection.	No works presently required.	20+	C2	1.4	Retain		
T252	Common Hawthorn	5	100	2.0	2.0	2.0	2.0	0	0	Y	Good	Tree located on third-party land adjacent to footpath, observations made from footpath. No access to fully inspect, all measurements and location estimated.	No works presently required.	20+	C1	1.2	Retain		
G253	Group of Birch	10	370	3.5	3.5	3.5	3.5	N/A	0	EM-M	Good	Linear group of Birch along top of trackside embankment. Ages range from early mature to mature. Unable to access trees, observations and measurements estimated, viewed from bridge.	No works presently required.	20+	B2	4.4	Retain		
G254	Group of Hawthorn and Oak	4	100	2.0	2.0	2.0	2.0	0	0	SM	Good	Mixed species group located within third-party land, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Hawthorn and Oak. Dense Ivy encroaching entire group.	No works presently required.	20+	C1	1.2	Remove Partial Group	287	
G255	Group of Goat Willow and Oak	4	120	3.0	3.0	3.0	3.0	0	0	SM	Good	Mixed species group located on trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Goat Willow and Oak.	No works presently required.	20+	C1	1.4	Retain		
T256	Mountain Ash	7	200,100	3.5	3.5	3.5	3.5	0	0	SM	Good	Tree located adjacent to footpath. Main stem bifurcates at 1m with adequate union.	No works presently required	20+	C1	2.7	Remove Individual		1
T257	Sessile Oak	14	320	5.0	5.0	5.0	5.0	0	2	SM	Good	Tree located on third-party land adjacent to footpath. No access to fully inspect, all measurements and location estimated. Small diameter Holly growing from base.	No works presently required.	40+	C1	3.8	Retain		
G258	Group of Oak and Hawthorn	6	300	3.0	3.0	2.0	2.0	N/A	0	EM	Good	Linear group along footpath edge straddling boundary stone wall. Species include early mature Oak and Hawthorn.	No works presently required.	20+	C2	3.6	Retain		
G259	Mixed Species Group	8	180	4.5	4.5	4.5	4.5	0	0	SM	Good	Mixed species third-party group located on steep bank, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Oak, Beech, Laburnum, Elder, Scots Pine and Spruce. Group extends further north beyond plotted points.	No works presently required.	10+	C2	2.2	Retain		
G260	Mixed Species Group	5	280	0.5	2.0	2.0	2.0	N/A	0	EM	Good	Linear third party group along field edge abutting footpath. Predominantly Laburnum. Group predominates southeast. Fair forms.	No works presently required.	20+	C2	3.4	Retain		
T261	Common Beech	12	410	5.0	5.0	5.0	5.0	2 N	2	M	Good	Tree located in field approx. 2m from footpath. Unable to access tree, measurements and observations estimated. Viewed from footpath. No defects observed from preliminary inspection.	No works presently required.	40+	B2	4.9	Retain		
T262	Scots Pine	7.5	420	2.0	3.5	4.0	3.5	2.5 E	2	M	Good	Tree located within field approx. 7m from footpath. Unable to access tree, measurements and observations estimated. Location approximated. Viewed from footpath. Tree appears to have been historically topped.	No works presently required.	20+	C1	5.0	Retain		
T263	Common Ash	10	100,150,180,200	4.0	4.0	4.0	4.0	2	1.5	SM	Poor	Tree located in field approx 2m from footpath. Viewed from footpath. Unable to access tree, measurements estimated. Ash dieback throughout. Significant ivy encroaching throughout. 40% live growth left.	No works presently required.	10+	C2	3.9	Retain		
G264	Group of Pine	17	550	5.0	5.0	5.0	5.0	6	2	M	Good	Group of 2no. Scots Pine located on lower embankment approx 6m lower than footpath. Unable to access trees, measurements and observations estimated. Trees viewed from path. Moderate overhang over footpath and carriageway of approx 2m. 4m clearance. Fair form.	No works presently required.	20+	B2	6.6	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G265	Mixed Species Group	14	450	5.0	5.0	5.0	5.0	0	0	SM-EM	Good	120 to 450. Sm to em. Mixed species third-party group located alongside river bank, observations made from footpath. No access to fully inspect, all measurements and locations estimated. Species include Common Ash, Goat Willow, Horse Chestnut, Sycamore and Cherry. Group extends further south beyond plotted points.	No works presently required	20+	B2	5.4	Retain		
G266	Group of Willow	10	300,300,300	6.0	6.0	6.0	6.0	N/A	0	M	Good	Staggered group of 5no clumps of Goat Willow located in field. Unable to access trees, measurements and observations estimated from footpath. Mutually suppressed, fair forms.	No works presently required.	20+	C2	6.2	Retain		
G267	Group of Willow	13	350,350,350	6.5	6.5	6.5	6.5	N/A	0	M	Good	Linear group of Goat Willows located in field. Multi-stemmed. Unable to access trees, measurements and observations estimated from footpath.	No works presently required.	20+	C2	7.3	Retain		
G268	Mixed Species Group	15	350	5.0	5.0	5.0	5.0	4	4	Y-SM	Good	Mixed species third-party linear group located alongside boundary fence, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Common Ash, Horse Chestnut, Sycamore and 1no. young Spruce to the north. Minor dieback observed within Ash, suspected Ash Dieback.	No works presently required.	40+	B2	4.2	Retain		
W269	A Woodland	17	500	5.0	5.0	5.0	5.0	N/A	0	Y-M	Fair	Woodland group wrapping around fishing lake, bordering footpath to south-east, residences to north-east and trackside to northwest. Group viewed from public footpaths, measurements and observations estimated. Species include predominantly Oak, Hawthorn, Goat Willow, Alder and Ash with dense understory vegetation. Minor Ash dieback throughout woodland. Ages range from young to mature.	No works presently required.	20+	B2	6.0	Retain		
W270	A Woodland	18	400	5.0	5.0	5.0	5.0	0	0	EM	Good	Third-party woodland belt, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species predominantly consist of Common Ash, Sycamore with the occasional Goat Willow. Woodland appears to extend south beyond plotted points	No works presently required	40+	B2	4.8	Retain		
G271	Mixed Species Group	5	125	2.5	2.5	2.5	2.5	N/A	0	Y-EM	Fair	Incontiguous linear trackside group of Ash, Goat Willow, Rhododendron and Oak . Unable to access trees, measurements and observations estimated from field. Ash display minor signs of Ash dieback. Understory of ground vegetation. Ages range from young to early mature.	No works presently required.	20+	C2	1.5	Remove Partial Group	162	
G272	Group of Ash and Hawthorn	6	120	3.0	3.0	3.0	3.0	0	0	SM	Good	Mixed species group located trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Common Ash and Hawthorn.	No works presently required.	20+	C1	1.4	Remove Partial Group	11	
G273	Mixed Species Group	6	80	2.0	2.0	2.0	2.0	0	0	Y	Good	Mixed species group located trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Common Ash, Oak and Sycamore.	No works presently required.	20+	C1	1.0	Remove Partial Group	10	
T274	Sycamore	12	500	5.0	5.0	5.0	5.0	2 all	2	M	Good	Tree growing from top of boundary wall and is located trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Main stem historical reduced to approx 5m with large diameter pruning wound.	No works presently required.	20+	C1	6.0	Retain		
G275	Group of Oak	5	200	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Group of 3no evenly aged Oaks abutting stone wall adjacent to trackside.	No works presently required.	20+	C2	2.4	Retain		
G276	Group of Laburnum	6	120	2.0	2.0	4.0	2.0	2	2	SM	Good	Linear group of 3no. evenly aged Laburnum. Dense Ivy encroaching throughout entire group. Crowns suppressed by adjacent large Sycamore.	No works presently required	20+	C2	1.4	Retain		
T277	Sycamore	13	500	5.0	6.5	6.5	4.0	2 W	2	M	Good	Tree located on edge of footpath abutting stonewall boundary of trackside. Fair form.	No works presently required.	20+	B2	6.0	Retain		
T278	Common Ash	18	300,500	8.0	4.0	6.0	8.0	5 SE	6	M	Fair	Dense bramble around base prevents full inspection. Main stem abuts boundary wall. Crown historically reduced at 8m. Crown appears to be in decline, potential on-set of Ash Dieback.	No works presently required	20+	B1	7.0	Retain		
T279	Sycamore	13	500	6.0	5.0	7.0	6.0	4 E	0	M	Good	Tree located on edge of footpath abutting stonewall boundary of trackside. Fair form. Dense epicormic obstructs full basal inspection.	No works presently required.	20+	B2	6.0	Retain		
T280	Sycamore	13	500	7.5	7.5	7.5	7.5	5 all	0	M	Good	Tree located on edge of footpath abutting stonewall boundary of trackside. Dense ground vegetation obstructs access. Measurements and observations estimated from bridge. Fair form from preliminary inspection.	No works presently required.	20+	B2	6.0	Retain		
G281	Group of Oak	5	180	2.5	2.5	2.5	2.5	0	0	Y	Good	Group of 5no evenly aged Oak growing on top of footbridge.	No works presently required	10+	C1	2.2	Remove Partial Group	73	
T282	Oak	17	550	7.5	7.5	8.0	8.0	2 N	1.6	M	Good	Tree is located adjacent to boundary fence on trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Dominant tree within group of smaller trees. Tree is of relatively good form.	No works presently required	40+	B1	6.6	Retain		
G283	Group of Oak and Ash	12	350	6.5	6.5	5.5	2.5	N/A	1	EM	Fair	Group of 2no. Early mature Oak and 1no. Semi mature Ash located on bridge. Mutually suppressed. Ash displays symptoms of die-back. 40% remaining live crown.	No works presently required.	20+	C2	4.2	Remove Entire Group		3

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G284	Group of Oak and Sycamore	8	100	2.5	2.5	2.5	2.5	2	2	Y	Good	Group of 1no. Oak and 1no. Sycamore located within footpath adjacent to footbridge. Tree suppressed by adjacent larger trees.	No works presently required	20+	C1	1.2	Remove Entire Group		2
G285	Mixed Species Group	14	400	3.0	2.0	3.0	4.0	N/A	0	SM-EM	Good	Linear group on trackside embankment. Unable to access trees, measurements and observations estimated from bridge and footpath. Species include Oak, Goat Willow, Birch and Rhododendron. Ages range from semi mature to early mature.	No works presently required.	20+	C2	4.8	Remove Partial Group	159	
G286	Group of Birch and Oak	12	200	4.0	4.0	4.0	4.0	2	2	SM	Good	Linear group of Birch and Oak located on top of bank trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated.	No works presently required	20+	C2	2.4	Remove Partial Group	380	
T287	Sessile Oak	16	520,400	2.0	4.0	8.0	8.0	0.5 W	0.5	M	Good	Tree located on top of trackside embankment. Unable to access tree, measurements and observations estimated from field. Co-dominant union at base. Unable to view base due to ivy encroachment. Crown predominates heavily south and west due to suppression from neighbouring trees. 5% major deadwood within crown.	No works presently required.	20+	B2	7.9	Retain		
T288	Sycamore	20	600	10.0	8.0	6.0	8.0	1	5	M	Good	Dominant tree located on boundary of woodland compartment within third-party land, observations made from footpath. No access to fully inspect, all measurements and location estimated. Minor ivy encroachment on main stem. Crown slightly suppressed by adjacent large Oak.	No works presently required	20+	B1	7.2	Retain		
G289	A Woodland	14	400	5.0	5.0	5.0	5.0	N/A	0	Y-M	Good	Woodland belt surrounding fishing lake, species include Birch, Ash, Oak, Maple, Hawthorn, Sycamore and Birch. Ages range from young to mature. Trees are generally of Fair to Good form. Some Ash display symptoms of Ash dieback.	No works presently required.	20+	B2	4.8	Remove Partial Group	55	
G290	Group of Sycamore and Ash	20	500	8.0	8.0	8.0	8.0	2	5	M	Good	Group of 5no. evenly aged Sycamore with several smaller diameter Common Ash to the west. Trees are located within a raised area, which has no access to fully inspect, all measurements and location estimated. Observations made from footpath. Dense Ivy encroaching throughout group. Displacement of retaining wall observed.	No works presently required	20+	B2	6.0	Retain		
T291	Goat Willow	18	380,300,400	8.0	8.0	8.0	8.0	5	5	OM	Good	Tree is located within a raised area and is abutting the retaining wall, significant displacement to wall observed. Main stem trifurcates at ground level with decay evident within all stems adjacent to the union. Recently partially failed branch over hanging footpath.	Carry out resistance drills at base to ascertain extent of decay. Structural engineer to inspect retaining wall. Remove partially failed branch at 5m over footpath.	20+	B1	7.5	Retain		
G292	Mixed Species Group	4.5	130	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Linear group along private garden boundary on raised ground atop stone wall, adjacent to carriageway. Extends up to bridge. Unable to access trees, viewed from footpath. Measurements and observations estimated. Species include Cotoneaster, Cypress, Prunus, Snakebark Maple and Sycamore with an understory of ground covering shrubs.	No works presently required.	20+	C2	1.6	Retain		
T293	Common Hawthorn	4	100	1.5	1.5	1.5	1.5	0	0	SM	Good	Hawthorn on raised trackside embankment. Unable to access tree, measurements and observations estimated. Surrounded by dense ground vegetation.	No works presently required.	20+	C2	1.2	Retain		
G294	Group of Juniper	10	200,200	4.5	4.5	4.5	4.5	0	0	M	Good	Group of 2no. evenly aged Juniper and 1no. Leyland Cypress located within a third-party garden with no access to fully inspect, all measurements and location estimated.	No works presently required	20+	B2	3.4	Retain		
T295	Sycamore	15	520	7.5	7.5	7.5	7.5	2 S	3	M	Good	Tree located within school playground on raised ground, bound by stonewall boundary with footpath. Unable to access tree, measurements and observations estimated from footpath. Vertical cracking in wall suggests possible direct damage. Small suppressed semi-mature Yew growing into crown.	No works presently required.	40+	B2	6.2	Retain		
H296	Cherry Laurel Hedgerow	5	100	2.0	2.0	2.0	2.0	0	0	EM	Good	Linear Cherry Laurel hedgerow planted alongside boundary of third-party property. Hedgerow appears regularly maintained and provides good screening. Hedgerow is non-continuous due to opening for driveway.	No works presently required	20+	C2	1.2	Retain		
T297	Sycamore	15	590	5.0	4.0	3.0	7.5	2 W	0	M	Good	Tree located within footpath adjacent to trackside, abutting third party wall. Basal epicormic growth prevents full inspection of base. Crown predominates towards trackside. Historically suppressed by neighbouring tree, since monolithed. Otherwise fair form.	No works presently required.	40+	B2	7.1	Retain		
T298	Common Lime	23	650	8.0	5.5	2.5	5.5	2 N	0	M	Good	Tree located within footpath adjacent to trackside. Directly abutting stone wall. Dense basal epicormic growth prevents full inspection of base. Crown predominates towards trackside due to suppression from neighbouring tree. Main stem kinks significantly at approx. 11m and corrects due to suppression.	No works presently required.	40+	B2	7.8	Retain		
T299	Common Ash	22	600	4.0	8.0	8.0	8.0	2 N	2	M	Fair	Tree located within footpath abutting the boundary wall to the adjacent school. Dense lower growth and Holly restrict access to fully inspect. Minor dieback observed within crown, suspected on-set of Ash Dieback.	No works presently required	20+	B1	7.2	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G300	Group of Ash	16	300	4.0	4.0	4.0	4.0	2 N	1.5	SM	Fair	Group of 2no. Ash within footpath. 1no. Abuts stone wall to the south-west of footpath and 1no. Abuts trackside fenceline. Likely self-seeded. Fair forms.	No works presently required.	20+	C2	3.6	Retain		
T301	Goat Willow	15	350,350	4.0	7.0	10.0	4.0	2 S	2	M	Good	Tree located within footpath growing from base of security fence. The main stem has a significant lean to the south over adjacent school grounds. Decay is evident on the upperside of the main stem. Tree has poor future prospects and will likely have to remove due to poor structural condition.	No works presently required	<10	U	5.9	Retain		
T302	Sessile Oak	25	500	7.0	3.0	10.0	5.0	3 S	3	M	Good	Tree located within footpath. Crown predominates south due to suppression from adjacent trees. Large diameter deadwood overhanging footpath.	No works presently required	40+	B1	6.0	Retain		
H303	Leyland Cypress Hedgerow	4	140	1.0	1.0	1.0	1.0	N/A	0	SM	Fair	Linear third-party Leyland Cypress boundary hedge line straddling fenceline. Unable to access trees, measurements and observations estimated from footpath. Hedge line appears historically maintained.	No works presently required.	20+	C2	1.7	Retain		
T304	Sycamore	25	650	8.0	5.0	12.0	5.0	4 N	4	M	Good	Tree located within footpath. Dense epicormic growth around the base of the main stem restricts access to fully inspect. Crown predominates south due to suppression from adjacent trees and historical pruning from trackside.	No works presently required	40+	B1	7.8	Retain		
T305	Common Ash	15	370,160	3.5	3.5	3.5	3.5	0	0	M	Poor	Tree located within footpath adjacent to trackside. Dense basal epicormic growth prevents full inspection of base and lower stem. Crown displays extensive decline, likely Ash Dieback. Suppressed by neighbouring trees. Poor form.	No works presently required.	10+	C3	4.8	Retain		
T306	Common Lime	22	500	8.0	4.0	10.0	5.0	0	3	M	Good	Tree located within footpath. Dense epicormic growth throughout the entire structure prevents fully inspection.	No works presently required	20+	B1	6.0	Retain		
G307	Group of Ash and Sycamore	6.5	120	2.0	2.0	2.0	2.0	N/A	0	SM	Poor	Linear group of trees straddling trackside boundary fenceline. Species consist of Ash and Sycamore, all likely self-seeded and historically maintained at fence height. Management has lapsed. Multiple dead stems within group.	Fell dead stems. Consider reinstating management regime of historically pollarded stems.	10+	C3	1.4	Retain		
T308	Sycamore	14	500	1.0	5.0	10.0	8.0	6 S	8	M	Good	Tree located within footpath abutting boundary fence to third-party garden. Dense Ivy encroaching entire structure prevents full inspection. Crown has historically been significantly reduced, resulting in an unbalanced crown.	No works presently required	20+	C1	6.0	Retain		
T309	Common Lime	6	410	1.5	1.5	1.5	1.5	1.5	0	M	Good	Tree located within footpath, abutting third-party fenceline. Dense basal epicormic growth prevents full inspection of base. Historically pollarded at approx. 5m. Fair form.	No works presently required.	20+	C1	4.9	Retain		
G310	Group of Ash and Sycamore	7	100	3.0	3.0	3.0	3.0	0	3	Y	Fair	Linear mixed species group located within footpath abutting boundary security fence. Species include Common Ash and Sycamore. Ash trees are in various stages of decline with several dead stems, suspected Ash Dieback.	No works presently required	10+	C2	1.2	Retain		
H311	Leyland Cypress Hedgerow	10	170	1.5	1.5	1.5	1.5	N/A	0	EM	Good	Third-party planted linear Leyland Cypress hedgerow. Unable to access trees, measurements and observations estimated from footpath. Historic management appears to have lapsed.	No works presently required.	20+	C3	2.0	Retain		
T312	Sycamore	22	670	4.0	7.0	8.0	7.0	3 W	2	M	Good	Tree located within footpath abutting third-party boundary fenceline. Basal growth restricts inspection of base. View of entire tree restricted by surrounding trees. Form appears good from preliminary inspection.	No works presently required.	40+	B2	8.0	Retain		
T313	Common Ash	6	650	0.5	0.5	0.5	0.5	N/A	0	M	Dead	Tree located within footpath abutting boundary fence. Tree is standing dead and has been reduced to a monolith at approx 6m.	No works presently required	<10	U	7.8	Retain		
T314	Common Beech	25	750	9.0	9.0	10.0	6.0	5 N	7	M	Good	Tree located within footpath abutting boundary fence. Large cavity with decay evident at 2m to the north, a further cavity at 4m just above the main stem union, potential column of decay extending between cavities.	Impulse tomography tests to ascertain extent of decay within both cavities	20+	B1	9.0	Retain		
T315	Sycamore	19	650	5.5	5.0	9.0	7.0	3 N	2	M	Good	Tree located within footpath adjacent to trackside. Ivy encroaches to approx 8m restricting inspection of base and stem. Recent wound from fractured limb at 4.5m south, not considered significant. Fair to Good form.	No works presently required.	20+	B2	7.8	Retain		
G316	Group of Ash	26	750	10.0	10.0	10.0	10.0	5 N	6	M	Good	Group of 2no evenly aged Common Ash located within footpath adjacent to boundary fence. Considered partner trees with relatively good form. No current significant dieback was observed. Large diameter deadwood throughout crown.	No works presently required	40+	B2	9.0	Retain		
G317	Group of Alder	15	350	3.0	9.0	4.0	3.0	5 E	5	SM	Good	Group of 2no Alder located within exposed soil area adjacent to road. Tree to the west is of smaller size and is growing from base of retaining wall.	No works presently required	20+	C2	4.2	Retain		
T318	Common Ash	18	350,220,400	6.0	7.0	7.5	5.0	3 S	2	M	Poor	Tree located on edge of private access track. 3no. Close stems. Roots have flattened against edge of track with evidence of historic mechanical damage, dense ivy encroachment throughout, preventing full inspection. Crown displays extensive dieback, reduced useful life expectancy.	No works presently required.	10+	C3	6.9	Retain		
G319	Mixed Species Group	6	150	2.0	2.0	2.0	2.0	N/A	0	Y-SM	Good	Trackside embankment group. Unable to access all trees, measurements and observations estimated from access track. Embankment is raised and bound by railway sleeper wall, approx. 1m higher than access track. Species consist of predominantly Goat Willow, Hawthorn, Lime and Sycamore, ages range from young to semi-mature.	No works presently required.	20+	C2	1.8	Retain		

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G320	Group of Ash and Oak	6	100	2.0	2.0	2.0	2.0	0	0	Y	Fair	Linear mixed species group located on raised area adjacent to trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Common Ash and Oak. Dieback observed within Ash to the west of the group, suspected Ash Dieback.	No works presently required	10+	C2	1.2	Remove Entire Group	152	
T321	Common Hawthorn	7	200,280	5.0	3.0	3.0	5.0	0	3	SM	Good	Tree located on raised area adjacent to trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Main stem bifurcates at ground level. Dense Ivy encroaching entire structure.	No works presently required	20+	C1	4.1	Remove Individual		1
G322	Group of Goat Willow	18	350	7.0	7.0	7.0	7.0	0	0	SM-EM	Good	Third-party group of Goat Willow located within fenced off compound trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Historical storm damage and deadwood observed within group. Group is considered low value. However, it provides good screening for residential properties from the train line.	No works presently required	20+	B2	4.2	Remove Entire Group	943	
W323	A Woodland	17	400	5.0	5.0	5.0	5.0	N/A	0	Y-M	Fair	Large trackside woodland group extending to boundary with carriageway. Unable to access trees, measurements and observations estimated from footpath. Species consist of predominantly Sycamore, Goat Willow, Elm, Birch and Sycamore. A linear row of Leyland Cypress extends adjacent to trackside. Ages range from young to mature. Woodland appears unmanaged. Ivy encroaches throughout.	No works presently required.	40+	B2	4.8	Remove Partial Group	9093	
T324	Goat Willow	18	380,300	8.0	8.0	8.0	8.0	5	5	EM	Good	Third-party tree located within a fenced of woodland area and is abutting the retaining wall, significant displacement to wall observed. Main stem bifurcates at ground level with significant included bark union. Poor future prospects.	No works presently required	10+	C1	5.8	Remove Individual		1
G325	Mixed Species Group	12	200	5.0	5.0	5.0	5.0	0	0	SM-EM	Good	Densely planted tree belt located on bank adjacent to trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Common Ash, Rhododendron, Birch, Goat Willow, Lime, Sycamore, Oak and Elm. Trees are generally semi-mature with the occasional early-mature specimens. Ash within the northern extents of the group have significant dieback, suspected Ash Dieback.	No works presently required	20+	C2	2.4	Remove Entire Group	194	
T326	Sycamore	15	450,450	7.0	7.0	7.0	7.0	2 SE	0	M	Good	Tree located in low, walled area between footpath and trackside/station. Unable to access tree, measurements and observations estimated. Co-dominant at base, suspected inclusion but unable to access to inspect. Otherwise fair form.	No works presently required.	20+	B2	7.6	Remove Individual		1
G327	Mixed Species Group	12	350	4.0	4.0	4.0	4.0	N/A	0	EM	Good	Linear trackside group consisting of Birch, Goat Willow, Elm and Sycamore. Bound by high stone wall to the south-east. Unable to access trees, measurements and observations estimated, viewed from footpath. View restricted by wall.	No works presently required.	20+	C2	4.2	Retain		
G328	Group of Laburnum	5	100	3.0	3.0	3.0	3.0	0	0	SM	Good	Group of 3no evenly aged Laburnum located within low walled off area between footpath and trackside/station , observations made from footpath. No access to fully inspect, all measurements and location estimated.	No works presently required	10+	C1	1.2	Remove Entire Group	79	
G329	Group of Sycamore and Lime	13	370	4.0	5.5	5.5	5.5	N/A	5	M	Good	Linear group along roadside verge consisting of 1no Sycamore A, and 4no Lime B, C, D and E. Group suppressed on north western side and predominate over carriageway. Fair forms. Sycamore, A, has evidence of historic mechanical damage to stem revealing desiccated wood at ground level up to 1.5m on south eastern side, not currently considered significant.	No works presently required.	20+	B2	4.4	Retain		
G330	Group of Sycamore and Birch	6	90	2.0	2.0	2.0	2.0	0	0	Y	Good	Mixed species group of self-seeded saplings within low walled off area between footpath and trackside/station , observations made from footpath. No access to fully inspect, all measurements and location estimated. Species include Sycamore and Birch	No works presently required	10+	C1	1.1	Remove Entire Group	38	
T331	Goat Willow	16	400	6.0	6.0	6.0	6.0	0	0	M	Fair	Tree located on raised area adjacent to trackside, observations made from footpath. No access to fully inspect, all measurements and location estimated. Main stem union has failed which has resulted in half of the failed tree overhanging the footpath and road.	Fell tree regardless of proposed works	<10	U	4.8	Retain		
G332	Mixed Species Group	11	300	5.0	5.0	5.0	5.0	N/A	0	SM	Fair	Linear group abutting fenceline. Unable to access, measurements and observations estimated. Species include Sycamore, Goat Willow.	No works presently required.	20+	C2	3.6	Remove Entire Group	442	
G333	Mixed Species Group	18	450	3.0	3.0	3.0	3.0	N/A	0	SM-M	Good	boundary group of Silver Birch, Goat Willow, Elder, Hawthorn, Sycamore, Common Ash. Trees are intermittently spaced, densely spaced in places. Occasional EM-M Goat Willow interspersed throughout group. Trees extend from boundary fence to internal footpaths within Smurfit Kappa area. <5% dead trees. Some recent root severance to south to accommodate new path. Trees are of relatively low value, but provide visual screening.	Fell any dead trees in falling distance of path and railway.	40+	C2	5.4	Remove Partial Group	608	

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G334	Mixed Species Group	18	350	4.0	4.0	4.0	4.0	N/A	0	SM-EM	Fair	Linear group located adjacent to boundary fence 2-3m above warehouse level and on embankment to railway. Species include Ash, Sycamore and occasional Oak understory. Dense spacings in places. Light ivy encroachment. Ash are in decline. Trees towards southern end of group straddle boundary fence and appear to be located on railway land.	No works presently required	40+	C2	4.2	Remove Partial Group	374	
G335	Mixed Species Group	20	450	4.0	4.0	4.0	4.0	N/A	0	EM	Good	Group of Silver Birch, Goat Willow, Sycamore located within and just outside of boundary fence. Stems straddle fence line. Goat Willow Multistemmed which extend up to southern boundary.	No works presently required	20+	C2	5.4	Remove Partial Group	175	
G336	Mixed Species Group	18	480	4.5	4.5	4.5	4.5	N/A	0	EM	Good	Group of Alder, Sycamore, Goat Willow and Birch located between Electricity pylon and green metal fence. No access to inspect all measurements estimated. No evidence of recent works.	No works presently required	40+	B2	5.8	Retain		
G337	A Group	16	325	3.0	2.0	6.0	4.0	N/A	1.5	EM	Fair	Group of Sycamore and Ash on raised ground adjacent to driveway. 1no tree abuts fenceline on eastern side - unable to fully inspect due to dense ivy. Unable to fully access individual trees due to dense ground vegetation. Measurements estimated. Ivy encroaches throughout group. Some Ash within group in severe decline. Some standing dead within group.	Fell standing dead trees to ground level regardless of proposed development.	20+	C2	3.9	Remove Partial Group	235	
G338	Mixed Species Group	11	400	4.5	4.5	4.5	4.5	N/A	0	EM	Good	Group of Goat Willow, Common Ash, Cherry and Sycamore growing amongst dilapidated buildings. Unable to access all trees. Goat Willow previously coppiced. Ash are in decline.	No works presently required	20+	C2	4.8	Remove Entire Group	302	1
G339	Mixed Species Group	12	300+300	5.0	5.0	5.0	5.0	N/A	0	EM	Fair	Linear group of Ash and Sycamore at boundary. Stems straddle chain-link fence. Dense ivy encroaching small number of stems. Ash are in decline.	No works presently required	20+	C2	5.1	Remove Partial Group	207	
T340	Common Ash	16	880	5.5	5.5	5.5	5.5	5 all	5	OM	Poor	Less than 5% live foliage. Appears to be in terminal decline.	No works presently required	<10	U	10.6	Retain		
G341	Mixed Species Group	12	250+250	5.0	5.0	5.0	5.0	N/A	0	EM	Fair	Group of Ash, Goat Willow, Birch and Sycamore at boundary located alongside stone wall and dilapidated buildings. Stems straddle chain-link fence. Many trees coppiced.	No works presently required	20+	C2	4.2	Remove Partial Group	390	
G342	Group of Goat Willow And Elder	6	130	2.0	2.0	2.0	2.0	N/A	0	SM	Fair	Group consisting of sporadic, semi-mature, self-seeded Elder and Goat Willow. Unable to access individual trees due to unstable ground and dense vegetation.	No works presently required.	10+	C3	1.6	Remove Entire Group	278	
G343	Mixed Species Group	18	500	6.0	6.0	6.0	6.0	N/A	0	EM	Good	Linear mixed species group extending along trackside embankment. Unable to access group to fully inspect. Measurements and observations estimated from railway bridge. Group consists of early mature Sycamore, Oak, Laurel and Pine. Dense ivy encroaches throughout.	No works presently required.	20+	C2	6.0	Retain		
T344	Turner's Oak	17	720	7.5	4.0	4.0	9.0	5.5 N	5.5	M	Good	Tree located within garden. Crown predominates northwest due to suppression from neighbouring trees to the east. Major deadwood within crown. Fair to good structural condition.	No works presently required.	40+	B2	8.6	Retain		
T345	Common Hawthorn	7.5	380	3.0	3.0	3.0	3.0	3 all	3	EM	Good	Located at edge of garden at Heyrod Hall. Minor lean. Light ivy encroachment.	No works presently required	40+	C1	4.6	Retain		
T346	Common Beech	16	460	6.0	6.0	6.0	6.0	2 all	1.5	EM	Good	Minor crown imbalance due to suppression. Crown breaks at 2m.	No works presently required	40+	B1	5.5	Retain		
G347	Rhododendron	3	100	2.5	2.5	2.5	2.5	0	0	EM	Good	Linear cluster of Rhododendron. Fair form.	No works presently required.	20+	C2	1.2	Retain		
H348	Leyland Cypress Hedgerow	6	160	1.5	1.5	1.5	1.5	0	0	EM	Good	Linear Leyland Cypress hedgerow extending along garden boundary. Good vitality.	No works presently required.	20+	C2	1.9	Retain		
G349	Mixed Species Group	22	550	7.0	7.0	7.0	7.0	N/A	0	M	Good	No access to inspect all measurements estimated. Locations based on national tree mapping. Group of Birch, Oak, Lime and Sycamore located in garden area used for keeping chickens etc. Widely spaced trees.	No works presently required	20+	B2	6.6	Retain		
T350	Common Beech	24	870	9.0	8.0	5.0	9.0	7.5 all	2	M	Good	Large occluding wound to northwest, decay evident. Slight lean to northwest.	No works presently required	20+	B2	10.4	Retain		
T351	Small-Leafed Lime	13	510	2.5	2.5	2.5	2.5	2	1.5	EM	Good	Tree has been historically managed as a pollard at approx. 10m with approx 3m regrowth. No structural defects observed.	No works presently required.	20+	B2	6.1	Retain		
G352	Group of Laurel and Rhododendron	6	100+100	3.0	3.0	3.0	3.0	N/A	0	EM	Good	Group of Laurel and Rhododendron located amongst outbuildings.	No works presently required	20+	C2	1.7	Retain		
T353	Turner's Oak	20	905	9.0	9.0	6.0	7.0	5.5 W	3	M	Good	Historic pruning wound at 2m north, dried black exudate extends from wound to ground level. Stem bifurcation at 2.5m, above wound. Unable to inspect condition. Otherwise fair structural condition.	No works presently required.	40+	B1	10.9	Retain		
T354	Common Beech	13	360	5.0	5.0	5.0	5.0	2.5 all	1.5	EM	Good	Light ivy encroachment. Shrubs growing beneath crown.	No works presently required	40+	B2	4.3	Retain		
T355	Sycamore	13	480+400	8.5	6.0	4.0	6.0	1.2 nw	2	M	Good	Slight lean to northwest. Twin stem from 1.4m. No access to stem, all measurements estimated. Multiple managed shrubs of Laurel, Cypress and Lonicera. located beneath crown. Previously topped at 3.5-6m.	No works presently required	20+	C2	7.5	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T356	Common Beech	23	690	2.5	5.0	9.0	5.0	7.5 S	2	M	Good	Tree located directly on driveway edge. Buttresses encroach into driveway by approx. 0.5m. Minor historic mechanical damage to buttress. Crown predominates heavily south due to suppression from neighbouring tree. Otherwise fair form. Good vitality.	No works presently required.	40+	B2	8.3	Retain		
T357	Horse Chestnut	22	640	6.5	5.0	6.5	6.5	4.5 E	3	M	Good	Tree located directly on driveway edge. Fair form. Good vitality.	No works presently required.	40+	B2	7.7	Retain		
G358	Group of 1no Beech and 1no Lime	22	600	6.0	6.0	6.0	6.0	N/A	2	M	Good	Group of 1no Beech (A) and 1no Lime (B) in raised planter adjacent to driveway and stone boundary wall. Fair forms, suppressed by neighbouring trees.	No works presently required.	40+	B2	7.2	Retain		
T359	Sycamore	21	340	4.0	4.0	4.0	4.0	7 all	7	EM	Good	Slender forced growth. High live crown. Crown lifted in past. Stem 150mm from wall.	No works presently required	20+	B2	4.1	Retain		
T360	Common Lime	19	380	2.5	2.5	2.5	2.5	6 w	1.5	EM	Fair	Located 350mm from stone wall. Extensive basal growth prevents inspection. Minor wounds on stem. Appears to have been topped at 9-10m.	No works presently required	20+	C2	4.6	Remove Individual		1
T361	Common Lime	18	510	3.5	3.5	3.5	4.0	2 N	0.5	M	Fair	Tree directly abuts boundary stone wall. Basal epicormic growth prevents basal inspection. Slender, unbalanced growth habit due to suppression from neighbouring trees.	No works presently required.	20+	C1	6.1	Retain		
T362	Horse Chestnut	22	720	5.0	8.0	4.5	4.5	4 S	2	M	Good	Tree located directly on roundabout edge adjacent to stone wall. Minor small diameter cavity on stem base to south west, not considered to be a concern. Crown predominates south east. Fair form. Good vitality.	No works presently required.	40+	B2	8.6	Retain		
T363	Common Lime	18	610	7.0	7.0	5.5	3.0	4.5 E	0	M	Good	Tree located on roundabout edge adjacent to stone wall. Dense basal epicormic growth restricts inspection of stem base. Historic occluded wound from 0.5m to 2m on western side of stem. Open growth habit. Fair form.	No works presently required.	40+	B2	7.3	Retain		
T364	Common Lime	16	700	5.0	4.0	4.0	3.5	2 all	1.5	M	Good	Tree located on roundabout edge adjacent to stone wall. Dense basal epicormic growth restricts inspection of stem base. Fair structural form. Appears historically managed.	No works presently required.	40+	B2	8.4	Retain		
T365	Common Horse Chestnut	17	630	7.0	7.0	7.0	7.0	4 all	3	M	Good	Tree located at edge of rockery 0.5m from unmetalled driveway. Crown breaks at 4.5m. Historic selective pruning. Minor wounds on stem.	No works presently required	20+	B2	7.6	Retain		
T366	Common Hornbeam	18	440	7.0	4.0	2.0	4.0	3 n	2.5	M	Good	Crown imbalance due to suppression. Minor wounds on stem. Minor deadwood stubs.	No works presently required	20+	B2	5.3	Retain		
G367	Group of Western Red Cedar and Cherry Laurel	11	210	1.5	1.5	1.5	1.5	0	0	EM	Good	Group of Western Red Cedar and Cherry Laurel. Fair forms. Understorey of linear managed Privet hedgerow extending along low stone wall. 0.75m encroachment of hedgerow over driveway.	No works presently required.	20+	B3	2.5	Retain		
G368	Group of 3no. Lime	18	400	4.5	4.5	4.5	4.5	N/A	0	M	Good	Row of 3no even aged Common Lime. 2no trees located to south of fence line. All trees with light ivy encroachment. Tree to north appears to have lost main leader in past. Individually unremarkable, but collectively of higher value.	No works presently required	20+	B2	4.8	Retain		
G369	Common Lime	22	650	8.0	8.0	8.0	8.0	N/A	0	M	Fair	Linear group of Limes abutting boundary fenceline. Unable to access to inspect. Measurements and observations estimated. Extent of group is estimated.	No works presently required.	40+	B2	7.8	Retain		
G370	Group of 2no. Lime	15	620	5.5	5.5	5.5	5.5	3.5 s	1.5	M	Good	Group of 2no even aged Common Lime. Trees are located behind stone wall, no access to inspect. Dense basal and epicormic growth. Low clearance over track.	No works presently required	40+	B2	7.4	Retain		
T371	Common Lime	16	400+400+220+220	6.0	6.0	6.5	1.5	4 SW	3	EM	Good	Tree located on edge of access track, abutting boundary stone wall. Multi stemmed from ground level. Dense ivy encroaches throughout, preventing full inspection. Fair form from preliminary inspection.	No works presently required.	20+	C1	7.7	Retain		
G372	Group of 3no. Elder	5.5	180	2.0	2.0	2.0	2.0	N/A	0	M	Fair	Group of 3no Elder. No access to inspect all measurements estimated.	No works presently required	10+	C2	2.2	Retain		
G373	Group of 1no Lime and 1no Beech	20	550	5.5	8.0	5.5	8.0	N/A	0.5	M	Good	Group of 1no. Lime (A) and 1no Beech (B) Unable to access to fully inspect. Observations and measurements estimated from access track. Ivy encroaches heavily on main stem of Beech. Fair forms from preliminary inspection.	No works presently required.	40+	B2	6.6	Retain		
T374	Common Beech	22	700	8.0	8.0	8.0	8.0	9 all	1.5	M	Good	Located at lower level behind stone wall. No access to inspect all measurements estimated. Dominant tree in locality. Low crown clearance over track.	No works presently required	40+	A1	8.4	Retain		
T375	Common Lime	17	450	5.0	5.0	5.0	5.0	5s	2.5	EM	Good	Located at lower level behind stone wall. No access to inspect all measurements estimated. Minor imbalance, suppressed by neighbouring tree.	No works presently required	20+	C1	5.4	Retain		
T376	Horse Chestnut	9	650	4.0	4.0	4.0	4.0	4 E	1.5	M	Good	Tree located on lower ground than access track abutting stone wall. Measurements estimated from higher ground as unable to access. Crown has been pollarded at approx 0.5m above height of wall. Approx 4m regrowth. 1.5m vertical clearance over access road.	No works presently required.	20+	C1	7.8	Retain		
G377	Group of Beech and Ash	21	800	9.0	9.0	9.0	9.0	N/A	0	M	Good	No access. Plot locations and measurements estimated. Group of 2no Beech and Common Ash. Beech trees appear to be a fine specimens of good form. ash declining slightly. Located on sloping ground.	No works presently required. Access will be required to refine locations.	40+	B2	9.6	Retain		
T378	Ash	20	750	13.0	11.0	12.0	5.0	6 N	6	M	Poor	Tree located on raised ground, approx 4.5m higher than access track. Unable to access tree. Measurements and observations estimated from access track. Severe decline throughout crown. Approx 25% live growth remaining.	No works presently required.	<10	U	9.0	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T379	Sycamore	17	500	7.0	7.0	7.0	7.0	5.5 all	6	M	Good	No access to inspect all measurements estimated. Located approx. 2m above track.	No works presently required	40+	B1	6.0	Retain		
T380	Maple	11	400	3.5	3.5	3.5	3.5	4 all	4	SM	Good	Tree located on roadside verge, abutting stone boundary wall. Cavity at 1.5m south on main stem, can be probed to approx. 30cm. Main union at 2m appears tensile, though likely undermined by decay associated with cavity. Reduced safe useful life expectancy.	No works presently required.	20+	C1	4.8	Retain		
G381	Mixed Species Group	18	450	5.5	5.5	5.5	5.5	N/A	2	M	Good	Group of Sycamore and Alder with understory of Hawthorn and Privet hedge broken by gateway. No access to inspect all measurements estimated. No access to inspect all measurements estimated. Stems of the dominant trees are set back 3-4m from boundary fence.	No works presently required	20+	B2	5.4	Retain		
T382	Common Lime	9	220+220+200	3.5	3.5	3.5	3.5	1.2 all	4	EM	Poor	No live foliage evident, appears to be dead.	Fell/ Make safe	<10	U	4.4	Retain		
W383	Mixed Species Woodland	18	250	3.0	3.0	3.0	3.0	N/A	0	EM	Good	Woodland compartment consisting predominantly of Birch, Goat Willow and Sycamore. Some sporadic Leyland Cypress and Holly. Understorey of Laurel and Hazel. Some standing dead stems within group. Trees are from within 1.5m to 2.5m from driveway edge to the east of the group. Managed Privet hedge extends along driveway edge.	No works presently required.	40+	B2	3.0	Retain		
G384	Mixed Species Group	18	410	5.5	5.5	5.5	5.5	N/A	0	EM	Good	Woodland group on sloping ground between public footpath/ driveway and carriageway. Species include Goat Willow, Sycamore, Birch with an understory of Holly and Hawthorn. Stems of dominant trees are generally 2.5-3m from edge of drive. 0.7m privet hedge parallel to driveway, set back by 0.5-1m.	No works presently required	40+	B2	4.9	Retain		
W385	A Woodland	45078	380	7.0	7.0	7.0	7.0	N/A	0	SM-M	Poor to fair	Woodland block of Common Ash, Sycamore, Elm, Common Lime, Horse Chestnut. Understory of Rhododendron. Trees are located amongst and at bounds of working yard, which appears to be long in operation. Some direct damage to stems, with missing and damaged bark. Approx 5% dead and in decline. Several large mature Ash are exhibiting decline. Many trees buried and inaccessible. Trees located on eastern boundary straddle Chain-link fence. Several dominant trees next to track historically topped.	No works presently required	40+	B2	4.6	Retain		
G386	Mixed Species Group	13	300	4.0	4.0	4.0	4.0	N/A	0.5	EM	Poor	Mixed species group along steep embankment extending down to river. Unable to access individual trees due to steep terrain. Measurements and observations estimated from top of embankment. Species include Goat Willow, Lime, Ash and Oak. Ash trees are in various stages of decline, indicative of Ash dieback. Some standing dead within group. Physiological conditions range from poor to good. Ages range from semi mature to early mature.	No works presently required.	20+	C2	3.6	Retain		
G387	Mixed Species Group	16	450	4.5	4.5	4.5	4.5	N/A	0	SM-M	Fair	Group of widely spaced EM- M Ash and Sycamore interspersed with SM-EM Ash and understorey of Privet. elevated 1-2m above public footpath.	No works presently required	20+	B2	5.4	Retain		
H388	Leyland Cypress Hedgerow	11	250	2.5	2.5	2.5	2.5	N/A	0	EM	Good	Linear hedge of Leyland Cypress. No access to inspect.	No works presently required	40+	C2	3.0	Retain		
H389	Mixed Species Hedgerow	1.8	100	0.5	0.5	0.5	0.5	N/A	0	SM	Good	Mixed hedge at boundary. Appears to be regularly managed. Species include Privet.	No works presently required	20+	C2	1.2	Retain		
G390	Mixed Species Group	15	500	4.5	4.5	4.5	4.5	N/A	0	SM-EM	Good	Widely varied group extending at edge of field. No access to inspect all measurements and observations estimated. Species include Horse Chestnut, Oak, Sycamore, Hawthorn. Scrubby at margins.	No works presently required	20+	B2	6.0	Retain		
G391	Mixed Species Group	16	450	4.0	4.0	4.0	4.0	N/A	1	M	Good	Group of Horse Chestnut, Lime and Ash. Located in garden. No access to inspect all measurements estimated.	No works presently required	40+	B2	5.4	Retain		
G392	Mixed Species Group	9	400	3.5	3.5	3.5	3.5	N/A	0.5	EM	Good	Sporadic mixed species group of fairly uniform age and size located across fields used for grazing, extending up to railway embankment boundary. Trees are intermittently spaced. Species consist of Oak, Goat Willow and Hawthorn. Ages range from semi to early mature. Fair forms throughout group.	No works presently required.	20+	B2	4.8	Remove Partial Group	1032	
G393	Group of Cherry Laurel	5.5	100+100+100	1.5	1.5	1.5	1.5	0	0	SM	Good	Linear group of Cherry Laurel. Fair forms.	No works presently required.	20+	C2	2.1	Retain		
G394	Group of Sycamore and Ash	24	800	8.0	8.0	8.0	8.0	N/A	0	M	Good	Group of estimated 4no Ash and 1no Sycamore located in domestic garden. No access, limited views. Chicken runs at bases. Ash declining slightly. Permission for access would be required to survey accurately.	No works presently required	40+	B2	9.6	Retain		
G395	Group of Willow	5.5	110+110+110	1.5	1.5	1.5	1.5	N/A	0	SM	Fair	Small clump of Goat Willow straddling pond edge. Fair forms. 1.5m overhang of access track. 2m vertical clearance.	No works presently required.	20+	C2	2.1	Retain		
G396	Mixed Species Group	6	100+100	2.5	2.5	2.5	2.5	0	0	SM	Good	Linear group located atop retaining wall. Trees are intermittently spaced. Species include Elm, Birch and Goat Willow. Minimum clearance over road 3m.	No works presently required	10+	C2	2.1	Retain		
G397	Mixed Species Group	4	100	0.5	0.5	0.5	0.5	N/A	0	SM	Good	Small group of Lonicera, Holly, Aucuba, Cotoneaster, Cypress located behind short masonry wall. Appear to be managed to form informal hedge.	No works presently required	20+	C2	1.2	Retain		
T398	Common Ash	7.5	280	3.5	3.5	3.5	3.5	2 all	2	SM	Good	Located in front garden behind stone wall. No access to inspect. Previously topped at 5m.	No works presently required	20+	C1	3.4	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T399	Wild Cherry	9	200+200	2.0	2.0	2.0	2.0	3 all	2	EM	Fair	Tree located on raised embankment extending along roadside. Unable to access, measurements and observations estimated. Crown in direct contact with utility pole and telephone cables. 2m encroachment over road. 2.5m vertical clearance.	No works presently required.	10+	C2	3.4	Retain		
H400	Privet Hedgerow	3	75+75+75	1.0	1.0	1.0	1.0	0	0	EM	Good	Unmanaged Privet hedgerow on raised embankment alongside road. Presently no encroachment over road.	No works presently required.	20+	C2	1.6	Retain		
G401	Group of 2no. Cherry	10	410	5.5	3.5	4.0	5.0	N/A	5	M	Good	Group of 2no. Cherry on raised embankment adjacent to carriageway. Fair forms. Presently no encroachment over carriageway.	No works presently required.	20+	B2	4.9	Retain		
G402	Group of 4no Cherry	6	290	4.0	3.5	4.0	2.5	1.9 all	2.5	EM	Good	Group of 4no even aged Ornamental Cherry in footpath. Constrained root systems. Appear to be regularly managed over carriageway.	No works presently required	20+	C2	3.5	Retain		
G403	Mixed Species Group	16	420	3.0	3.0	3.0	3.0	N/A	2	M	Fair	Large mixed species group extending along roadside, bound by stone wall along footpath edge. Ground level is approx. 1m lower than carriageway. Unable to access trees, measurements and observations estimated from roadside. Group consists of mature Ash, Sycamore and Goat Willow, set back from footpath edge by approx. 5.5m. Understorey of self-seeded Ash, Goat Willow and Hazel saplings and dense ground vegetation extends up to stone wall. Ash display varying levels of crown decline. Approx. 2m overhang of footpath. 2m vertical clearance. Ground level appears to drop steeply at 5.5m distance from footpath. Group extends further East than plotted points.	No works presently required.	20+	C2	5.0	Retain		
H404	Leyland Cypress Hedgerow	3	100	1.5	1.5	1.5	1.5	N/A	1	SM	Good	Small Leyland Cypress hedge located behind 1.2m stone retaining wall. Minor encroachment of crown over public footpath.	No works presently required	40+	C2	1.2	Retain		
T405	Smooth Japanese Maple	2.8	90	1.2	1.2	1.2	1.2	0.5 all	0.7	SM	Good	Located in front garden of 269, no access all measurements estimated. Crown encroached footprint of footpath by 9.5m.	No works presently required	20+	C1	1.1			
G406	Sycamore	12	370	5.0	4.0	5.0	5.0	N/A	1.5	EM	Good	Group of 3no Sycamore adjacent to roadside, located in private garden area. Unable to access group, measurements and observations estimated from roadside. Uniform age and size. Crowns predominate west due to historic cutting back from building to east. Fair forms. 5.5m clearance over carriageway.	No works presently required.	40+	B2	4.4	Retain		
G407	Mixed Species Group	9	180	3.5	3.5	3.5	3.5	N/A	0	SM	Good	Group of 1no Sycamore, 1no Birch, 1no Goat Willow located behind timber fence. No access to inspect all measurements estimated.	No works presently required	20+	C2	2.2	Retain		
T408	Sycamore	10.5	260	4.5	4.5	4.5	4.5	2 all	1.5	SM-EM	Good	Located between timber fence and edge of footpath. Stem with minor lean. Crown breaks at 2.2m.	No works presently required	40+	C1	3.1	Retain		
G409	Sorbus	5	185	2.0	2.0	2.0	2.0	2 all	1.5	SM	Good	Group of 4no. Sorbus extending adjacent to footpath. Uniform age and size. Fair forms.	No works presently required.	20+	C2	2.2	Retain		
T410	Goat Willow	11	350+150	7.0	7.0	3.0	3.0	0	3	M	Good	Located 1.5,m above public footpath in the 'Drill Hall' grounds. No access to inspect. Dense ivy encroaching stem. Included union from 0 to 0.6m.	No works presently required	10+	C1	4.6	Retain		
G411	Group of Ash	12	300	1.0	3.5	3.5	2.0	N/A	1.5	SM	Fair	Linear cluster of self-seeded Ash on raised ground bound by stone wall. Ages range from young to semi mature. Stem diameters range from 100mm to 300mm dia. Evidence of Ash dieback within group. 5m vertical clearance over carriageway.	No works presently required.	10+	C3	3.6	Retain		
G412	Mixed Species Group	16	320	3.0	3.0	4.5	4.5	3.5s	3.5	EM	Good	Group of 1no Sycamore, 1no Common Ash and 1no Goat Willow located above the public footpath behind stone retaining wall. Stems are set back 1-2.5m from wall. No access to inspect all measurements estimated.	No works presently required	20+	C2	3.8	Retain		
T413	Goat Willow	17	550	6.0	6.0	6.0	6.0	3.5 all	4.5	M	Good	No access to inspect all measurements estimated. Dense ivy encroaching stem and crown to 12m, unable to see structure.	Remove ivy to expose stem. Inspect stem.	20+	B1	6.6	Retain		
G414	Mixed Species Group	5	120	1.5	1.5	1.5	1.5	N/A	0	SM	Fair	Mixed species group extending along trackside boundary and down to edge of private building to the south east of group. Unable to access group, observations and measurements estimated from footbridge. Species consist of predominantly self-seeded Ash, Sycamore and Birch saplings as well as ground covering vegetation. Some larger Willow to the north east of group.	No works presently required.	20+	C2	1.4	Remove Partial Group		
T415	Ash	16	800+420	9.5	9.5	9.5	9.5	3 all	3.5	M	Poor	Dominant spreading tree within woodland compartment. Dense internal epicormic growth indicative of stress. Crown in decline, likely associated with Ash dieback. Major deadwood within crown. 3.5m vertical clearance over car park area.	No works presently required.	10+	B3	10.8	Remove Individual		1
G416	Mixed Species Group	43952	800	8.0	8.0	8.0	8.0	N/A	0	M	Good	All observations made from public road approx. 500m from trees. The observations are preliminary in regard to trees trackside to gain some information on the collective area. The area contains a mixture of woodland and pasture. Species appear to include Ash and Sycamore. There appears to be a variation in height and stature.	No works presently required	40+	B2	9.6	Retain		
T417	Common Ash	8	240+240	3.0	3.0	3.0	3.0	1.3 all	1	SM-EM	Good	Tree located roadside of wire fence. Previously topped at 4.5m.	No works presently required	20+	C1	4.1	Retain		
T418	Common Ash	9.5	230+100	2.0	2.0	2.0	2.0	2 n	2.5	EM	Poor	Located directly adjacent to carriageway. Tree in decline. Crown historically lifted.	No works presently required	10+	C1	3.0	Retain		
H419	Eleagnus Hedgerow	2	80+80+80	0.5	0.5	0.5	0.5	0	0	SM	Good	Regularly managed Eleagnus hedgerow.	No works presently required.	20+	C2	1.7	Retain		

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H420	Mixed Species Hedgerow	1.5	80+80+80	0.5	0.5	0.5	0.5	0	0	SM	Good	Small clump of regularly managed Euonymus and Eleagnus hedgerow.	No works presently required.	20+	C2	1.7	Retain		
T421	Dogwood	4.5	160+100	2.5	2.5	2.5	2.5	0.5	1.5	EM	Good	Located 1.6m behind stone boundary wall. Good form.	No works presently required	20+	C1	2.3	Retain		
T422	Beech	4.5	160	1.5	1.5	1.5	1.5	0.5	0	SM	Good	Tree located within private garden. Unable to access to fully inspect. Measurements and observations estimated from road. Good vitality. Appears managed as part of hedgerow.	No works presently required.	20+	C2	1.9	Retain		
W423	Mixed Species Woodland	13	350	3.5	3.5	3.5	3.5	N/A	0	EM	Fair	Woodland compartment extending down to trackside to the southeast and up to car park to the northwest where the outer trees straddle the fenceline. Unable to access group, measurements and observations estimated from car park area. Species consist predominantly of Ash, Goat Willow and Sycamore ranging in age from young to established early mature individuals. Ash within group appear to be in varying stages of decline. Dense understorey of saplings and ground covering vegetation.	No works presently required.	40+	B3	4.2	Remove Entire Group	2038	
G424	Mixed Species Group	5	200	1.0	1.0	1.0	1.0	N/A	0	SM	Good	Small clump of semi mature Prunus, Rose, Privet, Hawthorn and 1no pollarded Horse Chestnut. Understory of ground vegetation. Group located on raised ground approx. 2m above road, bound by stone wall, adjacent to public footpath. Group wraps around private property boundary. Fair forms.	No works presently required.	10+	C2	2.4	Remove Entire Group		
G425	Mixed Species Group	8	200	2.5	2.5	2.5	2.5	N/A	0	SM	Fair	Dense group extending up to and straddling trackside boundary. Species consists predominantly of Hawthorn, Ash and Prunus. Dense understorey of ground vegetation. Extents of group estimated due to inaccessibility. Measurements and observations estimated.	No works presently required.	10+	C2	2.4	Remove Entire Group	458	
G426	Mixed Species Group	13	400	5.5	5.5	5.5	5.5	N/A	0	M	Fair	Cluster of Goat Willow, Ash and Sycamore, with an understorey of Hawthorn, self-seeded Goat Willow saplings and ground vegetation. Ages range from young to mature. Some partially failed laterals and windblown stems among Goat Willows, which appear to be nearing over maturity. Ash within group appear to be in decline.	No works presently required.	20+	B3	4.8	Remove Partial Group	438	
W427	Mixed Species Woodland	13	500	4.5	4.5	4.5	4.5	N/A	0	M	Fair	Unmanaged woodland compartment extending along trackside boundary. Ages range from young saplings to mature individuals. Species consist predominantly of Goat Willow, Ash, Hazel, Oak and Sycamore. Understorey of ground vegetation. Fair structural conditions throughout.	No works presently required.	40+	B2	6.0	Remove Partial Group	1969	
H428	Mixed Species Hedgerow	4.5	120	1.1	1.0	1.0	1.0	0	0	SM	Good	Managed linear hedgerow adjacent to roadside.	No works presently required.	20+	C2	1.4	Retain		
G429	Mixed Species Group	7	250	2.5	2.5	2.5	2.5	N/A	1.5	SM	Good	Closely planted group of 3no Cherry, 1no Prunus and 1no Hornbeam of uniform age and size.	No works presently required.	20+	C2	3.0	Retain		
T430	Ash	13	300	5.5	5.5	5.5	5.5	5.5 W	5	EM	Poor	Tree located on higher ground adjacent to access track, bound by low stone wall. Stem abuts wall. Crown displays minimal vitality. Limited remaining life span.	Consider removal and replacement of tree within 6 months.	<10	U	3.6	Retain		
G431	Mixed Species Group	17	380	5.5	5.5	5.5	5.5	N/A	2	EM-M	Good	Group of 1no Common Ash, 1no Silver Birch and 1no Purple Plum. Group is located in domestic garden . Stems are 1-1.5m from closest edge of footpath. Ash appears to have onset of Ash dieback. Otherwise fair to good condition.	No works presently required	20+	B2	4.6	Retain		
G432	Mixed Species Group	18	430	5.0	5.0	5.0	5.0	N/A	2.5	EM	Good	Dense group of Sycamore, Oak, Field Maple, with Hazel, Holly and Hawthorn understory. Group is bound by a 0.9m tall stone retaining wall. Evidence of historic crown lifting. 3m crown clearance over path and edge of road.	No works presently required	40+	B2	5.2	Retain		
G433	Mixed Species Group	2.7	80	0.8	0.8	0.8	0.8	N/A	0.5	SM	Good	Informal avenue of small trees and shrubs located both sides of access track. All stems are located in beds between stone walls and edge of track. Relatively densely spaced. Species include Contorted Hazel, Viburnum, Skimmia, Euonymus.	No works presently required	20+	C2	1.0	Remove Partial Group	47	
T434	Oak	16	400	4.5	4.5	6.0	4.5	N/A	5.5	EM	Fair	Tree located in raised planter in corner of private garden. Unable to access to fully inspect. Observations and measurements estimated from public footpath. Minor appical decline in crown observed, particularly on northern side.	No works presently required.	20+	B3	4.8	Retain		
H435	Cherry Laurel Hedgerow	4	100	1.0	1.0	1.0	1.0	0	0	SM	Good	Linear, managed Cherry Laurel hedgerow straddling private garden boundary. Unable to access to fully inspect. Measurements estimated from public footpath.	No works presently required.	20+	C2	1.2	Retain		
G436	Mixed Species Group	8	220	3.5	3.5	3.5	3.5	N/A	0	EM	Fair	Dense group consisting of predominantly Goat Willow, Ash and Oak with a dense bramble understorey. Ages range from young to early mature. Multiple standing dead Ash within group.	No works presently required.	20+	C2	2.6	Remove Partial Group	25	
G437	Mixed Species Group	17	370	6.0	6.0	6.0	6.0	N/A	3	M	Fair	Closely planted linear group extending between fenceline and river, behind boundary fenceline. Group consists of mature Alder, early mature Goat Willow and young to semi mature Ash. Unable to access group, measurements and observations estimated from access road. Dense ivy encroaches throughout group, restricting preventing basal inspections. Multiple standing dead Ash stems. 3m vertical clearance over access road.	Fell dead Ash stems to ground level.	20+	B3	4.4	Retain		

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G438	Group of 1no Alder and 1no Goat Willow	10	270+230+230	5.0	5.0	5.0	5.0	Na	3.5	SM-EM	Fair	Group of 1no Goat Willow and 1no Alder. SM-EM. Goat Willow to north is larger specimen and has several decay pockets evident in stem facing road, but with extensive response growth. Trees location e behind metal fence. No access to stems.	No works presently required	10+	C2	5.1	Retain		
T439	Common Ash	16	270+230+230	5.0	5.0	5.0	5.0	5 all	5.5	EM	Poor	Tree located behind metal fence, no access to inspect all measurements estimated. Tree has 90% defoliated. 10% minor deadwood in crown. Suspected onset of Ash dieback.	No works presently required	10+	C1	5.1	Retain		
H440	Privet Hedgerow	4	80+80+80	0.5	0.5	0.5	0.5	0	0	EM	Good	Linear, managed Privet hedgerow abutting boundary fenceline. Overhang appears regularly cut back from access road.	No works presently required.	10+	C2	1.7	Retain		
G441	Mixed Species Group	19	450	5.0	5.0	5.0	5.0	N/A	1	EM	Fair	Large Riverside group located behind metal fence. No access to inspect all measurements estimated. Group is dominated by declining Common Ash displaying symptoms of Ash dieback. These trees are interspersed with occasional Alder, Goat Willow and Sycamore. Generally densely spaced with mutually competing crowns. Understory of Hazel, Horse Chestnut, Alder, Hawthorn.	Fell dead trees within falling distance of buildings, benches and access.	10+	C2	5.4	Retain		
G442	Mixed Species Group	16	270	3.0	3.0	3.0	3.0	N/A	1	EM	Fair	Mixed species group on slight embankment. Public staircase extends through group. Species include Alder, Oak, Ash, Sycamore and Hawthorn. Ivy encroaches throughout the group, preventing full inspections. Group appears to have been thinned, and some trees topped, exposing some individual trees with slender growth habits. Standing dead Hawthorns within group. 1no Sycamore to north of staircase is in moderate decline.	Fell standing dead trees. Consider removal of exposed, slender trees.	20+	C2	3.2	Retain		
G443	Group of 2no Hawthorn	9	280	2.0	2.0	2.0	2.0	N/A	0	SM-EM	Poor	Group of 2no Hawthorn. Both with dense ivy encroachment suppressing interior growth. Ivy obscures stem bases.	No works presently required	10+	C2	3.4	Retain		
G444	Mixed Species Group	14	300	4.0	3.5	6.5	3.5	N/A	0	EM	Poor	Mixes species group on embankment extending from boundary wall to the northwest down to pathway adjacent to sports field. Species consists predominantly of Alder, Goat Willow, Ash and Sycamore with an understorey of Dogwood and ground vegetation. Unable to access individual trees due to terrain. Observations made from footpath. Trees are predominantly slender with poor taper. Multiple dead Ash and Alder stems within group.	Fell all standing dead trees regardless of proposed development.	10+	C2	3.6	Retain		
T445	Goat Willow	17	400+400+270	6.5	6.5	6.5	2.0	0	2.5	M	Good	Decay at previously removed codominant close to ground does not appear to have extended into remaining stems. Further decay pockets at base. Wounds with extensive response growth above union at 0.8m. Historic pruning to clear pitch.	No works presently required	10+	C2	7.5	Retain		
G446	Group of Alder	12	275	3.0	1.5	4.0	3.0	N/A	4	EM	Good	Linear group of Alder on raised ground between stands and boundary wall. Dense ivy prevents basal inspections. Measurements and observations estimated. Standing dead stems within group.	Fell standing dead trees.	10+	C3	3.3	Retain		
G447	Mixed Species Group	18	290	4.0	4.0	4.0	4.0	N/A	0	SM-EM	Fair	Large group of self-set trees. Alder predominate, but with Oak and Sycamore. Understorey of Goat Willow and Rowan. Several trees close to road have been previously topped. Most trees lean toward pitch. Slender forced growth.	No works presently required	10+	C2	3.5	Retain		
G448	Group of Sycamore	14	400	5.5	2.0	6.5	2.0	N/A	0	EM	Good	Linear group of Sycamores located on raised ground between stands and boundary wall. Dense ivy encroaches throughout group preventing full inspections. No significant defects observed from preliminary inspection. Good vitality.	No works presently required.	40+	B2	4.8	Retain		
T449	Sycamore	17	420+330+330	6.0	6.0	6.0	6.0	2 all	1.5	M	Good	Possible old coppice. Fair form.	No works presently required	20+	B1	7.5	Retain		
T450	Goat Willow	13	420+280	5.5	5.5	5.5	5.5	0	0	M	Good	Located at edge of canal. No access to inspect all measurements estimated.	No works presently required	20+	B1	6.1	Retain		
T451	Sycamore	16	430+350	5.0	5.0	5.0	5.0	4.5 all	4.5	M	Good	Located on bank of canal. No access to inspect all measurements estimated. Crown extensively lifted, large wounds are occluding.	No works presently required	20+	B1	6.7	Retain		
G452	Group of 3no Sycamore	16	370	4.0	4.0	4.0	4.0	4.5 all	1	EM	Good	Group of 3no even aged Sycamore located at top of bank. Continuous crowns. Selective crown lifting.	No works presently required	40+	B2	4.4	Retain		
T453	Hawthorn	7	200+200	3.5	3.5	3.5	3.5	N/A	1	EM	Fair	No access. All observations are from 50 metres and preliminary.	No works presently required	20+	C1	3.4	Retain		
W454	Mixed Species Woodland	20	400	4.5	4.5	4.5	4.5	N/A	0	M	Good	Dense linear woodland belt located on raised ground dividing carriageways. Ground level is approx. 2m higher than level of carriageway to east and level with carriageway to west, bound by stone walls on both sides. Width of group tapers gradually from south to north. Unable to access individual trees, measurements and observations estimated from roadside. Species consist predominantly of Oak, Birch, Beech, Sycamore, Scots Pine and Larch, with a dense understory of Hazel, Holly, self-seeded saplings and ground covering vegetation. Ages range from young to mature. Vitality appears fair to good throughout. 5m vertical clearance over carriageway.	No works presently required.	40+	B2	4.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
H455	Leyland Cypress Hedgerow	12	250	2.0	2.0	2.0	2.0	0	0	EM	Good	Linear Leyland Cypress hedgerow, extending along raised ground behind commercial building. Unable to access to fully inspect, measurements and observations estimated from roadside. Appears unmanaged. Good vitality.	No works presently required.	20+	C2	3.0	Retain		
G456	Mixed Species Group	13	300	3.0	3.0	3.0	3.0	N/A	0	EM	Fair	Mixed species group located on steep embankment extending down from stone wall roadside boundary to edge of canal. Ground level is approx. 1.5m lower than road level. Unable to access, measurements and observations estimated. Species include Willow, Ash, Sycamore, Birch and Hawthorn. Understorey of self-seeded saplings. Multiple Ash in group have been heavily pollarded at 4-5m. Some standing dead trees within group.	Fell standing dead trees in group to ground level.	20+	C2	3.6	Retain		
G457	Mixed Species Group	19	280	3.5	3.5	3.5	3.5	N/A	0	EM	Good	Dense group of trees on bank and adjacent to bridge wall. No access to inspect all measurements estimated. Species include White Willow, Ash and Alder with understory of Hazel.	No works presently required	20+	C2	3.4	Retain		
T458	Common Oak	13	320	5.0	3.5	1.5	3.0	3 all	1.5	SM	Good	Located in from garden, 1m behind stone wall. No access to inspect all measurements estimated. Crown imbalance due to historic light suppression.	No works presently required	40+	B1	3.8	Retain		
T459	Common Beech	15	680	7.0	7.0	7.0	7.0	3.5 s	2.5	EM-M	Good	Tree located approx. 0.5m below pavement level behind stone retaining wall. 2m from wall. Constrained root system. No access to inspect all measurements estimated. Fair form.	No works presently required	40+	B1	8.2	Retain		
T460	Sycamore	7.5	90+90+90+90+90	2.5	2.5	2.5	2.5	0	0	SM	Good	Self-set coppiced tree. Stems are pressed against stone boundary wall. Likely to cause future nuisance issues, as outgrowing space.	No works presently required	10+	C1	2.4	Retain		
T461	Apple	3	80	1.5	1.5	1.5	1.5	0.5	1.5	SM	Fair	Located behind stone wall. Crown overhangs public footpath with low clearance.	Lift over path to 2.6m.	20+	C1	1.0	Retain		
T462	Sycamore	16	840	11.5	7.0	9.0	7.0	5S	6	M	Good	Dominant tree located adjacent to church driveway, 1m from edge. Good structural condition, good vitality.	No works presently required.	40+	A1	10.1	Retain		
T463	Goat Willow	17	850	6.0	5.0	8.0	5.5	3.5S	4	M	Good	Tree located adjacent to church driveway, 1m from edge. Large example of species with good structural form and vitality. Understorey of 2no. Rhododendron and 1no Elder.	No works presently required.	20+	B1	10.2	Retain		
T464	Prunus	5	230+190+160	4.0	4.0	4.0	4.0	2 W	2.5	M	Poor	Tree located adjacent to church driveway. Historic mechanical damage to lower stem. Exposed desiccated wood, some response growth at the margins. Ivy encroaches to 1m preventing full inspection of stem base. Stem projecting east is dead. Main central stem displays some decline. Stem, projecting north retains good vitality.	Remove dead stem.	10+	C2	4.1	Retain		
T465	Common Lime	19	500	6.0	6.5	7.5	5.0	4 E	0	M	Fair	Tree abuts trackside boundary fenceline. Dense basal epicormic growth prevents inspection of stem base and lower stem. Ivy encroaches to approx 5m. Tree appears to have been historically managed as a pollard at approx. 7m. Minor deadwood within crown. Fair vitality.	No works presently required.	20+	B2	6.0	Retain		
H466	Leyland Cypress Hedgerow	4.5	160	1.0	1.0	1.0	1.0	0	0	EM	Good	Linear managed Leyland Cypress hedgerow extending along boundary fenceline.	No works presently required.	20+	C2	1.9	Retain		
T467	Common Alder	16	600	7.0	5.5	7.5	7.0	2 S	2	M	Good	Tree located adjacent to trackside boundary fenceline. Dense bramble prevents basal inspection. Minor inclusion of main union at 3m, presently appears stable with no signs of movement or cracking. 2no small cavities on northeastern stem at 7m and 8m, unable to ascertain depth. Otherwise fair form.	Climbing inspection with the use of Resistograph to assess structural integrity of northeastern stem at height of cavities.	20+	B2	7.2	Retain		
T468	Sycamore	17	420	7.0	5.0	7.0	2.5	4 S	0	EM	Fair	Tree located adjacent to trackside boundary fenceline. Dense basal epicormic growth and bramble prevents full basal inspection. Hedgerow prevents visual inspection of main stem. Crown predominates heavily north. Fair form.	No works presently required.	20+	C1	5.0	Retain		
T469	Sessile Oak	17	740	5.0	6.0	8.5	9.0	4.5 W	1.5	M	Good	Tree located adjacent to trackside boundary fenceline. Swept growth habit, predominating west. Minor deadwood within crown. Fair form.	No works presently required.	40+	B2	8.9	Retain		
G470	Group of Laurel and Holly	9	250	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Group of Holly with occasional Laurel at boundary. Lower section roadside faced up and managed as hedge.	No works presently required	40+	C2	3.0	Retain		
G471	Group of 2no Sycamore	19	580	5.5	5.5	5.5	5.5	3.5 all	5.5	M	Good	Group of 2no Sycamore. Dense ivy prevents inspection.	No works have presently required.	40+	B2	7.0	Retain		
G472	Group of 2no Sycamore	14	300	4.5	4.5	4.5	4.5	4 all	5	EM	Fair	Group of 2no even aged Sycamore. Trees are located in raised ground planted approx. 0.5m above church drive. Compact suppressed crowns.	No works presently required	20+	C2	3.6	Retain		
G473	Mixed Species Group	7	100+130	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Mixed group of shrubs and small trees. Intermittently spaced and screening of boundary fence. Species include Holly, Portugal Laurel, Rhododendron and Juniper.	No works presently required	40+	C2	2.1	Retain		
T474	Common Lime	18	330	4.5	4.5	4.5	4.5	6 all	0	EM	Good	Fair form. Dense basal growth prevents inspection. Minor deadwood in crown.	No works presently required	40+	B1	4.0	Retain		
T475	Sycamore	15	390	5.0	5.0	3.0	3.0	8 all	1	EM	Good	Distorted stem shape. Limited access to base. Compact crown.	No works presently required	20+	B1	4.7	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T476	Common Ash	19	660	5.0	5.0	5.0	5.0	9 all	10	M	Good	Multiple wounds on stem, with associated decay at old pruning points. Decay pocket at 1m, can be probed to 250mm depth. There does not appear to be immediate concern but will reduce life expectancy. 10m tall semi mature oak at base.	No works presently required	20+	B1	7.9	Retain		
T477	Common Horse Chestnut	16	700	6.0	6.0	6.0	6.0	3 all	2	M	Good	Partially suppressed. Crown historically lifted. Minor wounds on stem.	No works presently required	40+	B1	8.4	Retain		
T478	Common Ash	18	600	4.5	4.5	4.5	4.5	4.5	5	EM	Poor	Historically crown lifted. Crown in decline, suspected onset of Ash dieback. 5% major and minor deadwood in crown.	Remove major deadwood in crown	10+	C1	7.2	Retain		
G479	Group of 2no Sycamore	13	530	7.5	7.0	7.5	6.5	N/A	5	M	Good	Group of 2no Sycamore located adjacent to trackside boundary fenceline. Mutually suppressed. No significant defects. Fair forms.	No works presently required.	40+	B2	6.4	Retain		
T480	Sessile Oak	14	480	7.5	7.0	7.0	5.0	5 S	1.5	EM	Good	Tree located adjacent to trackside boundary fenceline. Good structural condition. Good vitality.	No works presently required.	40+	B2	5.8	Retain		
T481	Sycamore	14	400	7.0	4.0	4.5	4.0	5 S	6	EM	Good	Trackside tree, unable to access to fully inspect. Measurements and observations estimated. Fair form from preliminary inspection. Minor deadwood within crown.	No works presently required.	40+	C1	4.8	Retain		
T482	Common Beech	18	700	6.5	5.0	9.0	8.0	5.5 W	1.5	M	Good	Tree located adjacent to trackside boundary fenceline. Dense vegetation prevents full basal inspection. Good structural condition, no significant defects observed.	No works presently required.	40+	B2	8.4	Retain		
T483	Sycamore	15	600	7.5	6.5	7.5	5.5	3 NW	6	EM	Poor	Tree located adjacent to trackside boundary fenceline. Detritus around base prevents basal inspection. Crown appears to be in decline, with low foliage density when compared with nearby same species trees.	Monitor condition over the next 12 months to inform subsequent management.	10+	C2	7.2	Retain		
T484	Common Beech	20	1000	8.0	8.0	9.0	8.5	3.5 SE	4	M	Good	Tree located adjacent to trackside boundary fenceline. Stone retaining wall 1m to the east. Good structural condition, no significant defects observed.	No works presently required.	40+	B1	12.0	Retain		
T485	Common Beech	17	558	5.0	5.0	5.0	5.0	5.5 all	1.5	EM	Good	Good form. Low crown clearance over car park.	No works presently required	40+	B1	6.7	Retain		
G486	Mixed Species Group	6	100	2.5	2.5	2.5	2.5	N/A	0	Y	Fair	Group of small trees. Species include Sycamore, Hawthorn, Holly	Monitor condition over the next 12 months to inform subsequent management.	20+	C2	1.2	Retain		
H487	Mixed Species Hedgerow	6.5	150	1.5	1.5	1.5	1.5	0	0	EM	Good	Linear hedgerow extending along boundary fenceline within private garden. Heights vary throughout from 2.5m to 6.5m. Good vitality throughout.	No works presently required.	20+	C2	1.8	Retain		
G488	Mixed Species Group	5.5	150	1.0	1.0	1.0	1.0	N/A	0.5	Y	Fair	Linear trackside group of sporadic self-seeded saplings and young trees, predominantly Horse Chestnut, Ash and Sycamore. Unable to access group, measurements and observations estimated from public footpath.	No works presently required.	10+	C3	1.8	Retain		
T489	Common Oak	16	750	7.0	7.0	7.0	7.0	1.5 all	1	EM	Good	No access to tree, observations taken from opposite side of track. All measurements estimated. Stem appears to be behind railway fence. Good form.	No works presently required	40+	A1	9.0	Retain		
G490	Mixed Species Group	13	350	4.5	4.5	4.5	4.5	N/A	0.5	EM	Good	Intermittent mixed species group extending along trackside boundary fenceline. Unable to access, measurements and observations estimated from public footpath. Observations are preliminary, view of group is heavily restricted. Ages range from young to early mature. Species consist predominantly of Sycamore, Ash, Oak and Goat Willow.	No works presently required.	20+	C2	4.2	Retain		
G491	Mixed Species Group	3	80	0.5	0.5	0.5	0.5	N/A	0	Y	Fair	Linear trackside group comprised of Horse Chestnut, Ash, Holly saplings. Unable to access to view all trees.	No works presently required	10+	C2	1.0	Retain		
T492	Goat Willow	7	100+100+100	4.0	4.0	4.0	4.0	N/A	0	EM	Good	No access to inspect all measurements estimated.	No works presently required	20+	C1	2.1	Retain		
H493	Laurel Hedgerow	4.5	80	1.0	1.0	1.0	1.0	N/A	0	SM	Fair	Linear hedge of Laurel.	No works presently required	20+	C2	1.0	Retain		
G494	Mixed Species Group	16	700	5.0	7.0	6.0	4.0	N/A	0.5	M	Good	Linear group of 1no. mature Sycamore (A), 1no. Semi mature Lime (B) and 1no. Semi mature Beech extending along stone retaining wall on lower ground. Lime is heavily suppressed. Beech is heavily encroached upon with ivy throughout main stem. Otherwise fair forms.	No works presently required.	20+	B2	8.4	Retain		
T495	Unknown	4.5	500	0.5	0.5	0.5	0.5	N/A	0	M	Dead	Standing dead stem adjacent to car park area. Heavily encroaches upon in dense ivy. Lights mounted to top of stem.	No works presently required.	<10	U	6.0	Retain		
T496	Common Lime	20	780	7.0	5.0	6.5	6.5	2.5 e	1	M	Good	Dominant tree in locality. Ivy encroachment prevents basal inspection. Historically lifted. Lights attached to stem.	No works presently required	40+	A2	9.4	Retain		
T497	Sycamore	17	1100	8.0	9.0	9.0	9.5	6 W	6	M	Good	Dominant tree located on edge of car park, adjacent to stone wall. Basal epicormic growth prevents full basal inspection. Good structural form.	No works presently required.	40+	A2	13.2	Retain		
G498	Group of Beech and Sycamore	16	450	5.0	5.0	5.0	5.0	4 all	1.5	M	Good	Group of 2no Beech and 1no Sycamore in churchyard. Approx 0.5m above pavement. Middle tree leans away from road. Crown clearance over path 3.5m.	No works presently required	40+	B2	5.4	Retain		

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G499	Group of Birch and Sorbus	11	400	4.5	4.5	4.5	4.5	N/A	3.5	EM	Fair	Linear group of 3no. Birch and 2no. Sorbus in pub garden area adjacent to carriageway. Group located on lower ground. Unable to access to fully inspect. Measurements and observations estimated from public footpath. Group displays good vitality with no significant defects observed.	No works presently required.	20+	B2	4.8	Retain		
G500	Mixed Species Group	5.5	110	2.0	1.0	2.0	2.0	N/A	0	SM	Good	Linear group extending along trackside. Unable to access group, measurements and observations estimated from public footpath. Species consist of young to semi mature Birch, Oak, Willow, Sycamore and Rhododendron. Larger trees abutting stone wall appear to have been recently felled. Group width gradually tapers to the northeast.	No works presently required.	20+	C2	1.3	Remove Partial Group	46	
G501	Mixed Species Group	12	275	1.5	1.5	2.5	3.0	N/A	0	EM	Fair	Linear trackside group on steep embankment. Unable to access to fully inspect. Measurements and observations estimated from public footpath on opposite side of rail line. Species consist predominantly of dense Rhododendron with sporadic individuals and clusters of Oak, Birch, Willow and Ash ranging from young self-seeded saplings to early mature individuals. Larger individuals are predominantly on the upper side of embankment. Group width tapers gradually to the northeast. Some standing dead Ash and Birch within group.	Fell standing dead trees to ground level.	20+	C2	3.3	Remove Partial Group	111	
T502	Sycamore	15	700	7.5	7.5	7.5	7.5	3.5 all	3	M	Good	Moderate ivy encroachment prevents basal inspection. Distorted stem growth. Crown breaks at 3.5m. Historically crown lifted. Lights attached to stem.	No works presently required	20+	B1	8.4	Retain		
G503	Mixed Species Group	10	280	4.0	6.0	5.0	3.0	N/A	0	EM	Fair	Mixed group of Norway Maple, Ash, Goat Willow and Hawthorn locater between stone walls. Trees are widely and intermittently spaced. Most of the willow have been previously coppiced.	No works presently required	20+	C2	3.4	Remove Entire Group	355	
G504	Mixed Species Group	6	90	0.5	0.5	0.5	0.5	N/A	0	Y	Fair	Self-set scrub between wall and road.	No works presently required	10+	C2	1.1	Retain		
G505	Mixed Species Group	8	220	2.5	2.5	2.5	2.5	N/A	0.5	EM	Fair	Group of 2no even aged trees approx. 5m apart. Partially suppressed.	No works presently required	20+	C2	2.6	Retain		
G506	Mixed Species Group	17	430	3.5	3.5	3.5	3.5	N/A	2.5	EM	Good	Fair to good physiological condition. Informal avenue of intermittently spaced trees on both sides of partially surfaced access track. Sycamore predominates but Ash also present. 1no dead and declining Ash. Constrained root systems.	No works presently required	20+	B2	5.2	Retain		
G507	Mixed Species Group	9.5	150	3.0	3.0	3.0	3.0	N/A	0	SM-EM	Fair	Intermittently spaced group of Cypress, Ash, Sycamore, Hawthorn and Goat Willow. Dense ivy and climbers amongst trees. Appears to have been cut back to clear access road.	No works presently required	20+	C2	1.8	Retain		
T508	Dawn Redwood	20	750	3.0	3.0	3.0	3.0	3.5 all	1.5	EM	Good	Tree located in green space adjacent to canal lock. Multiple exposed structural roots to all cardinal points. Good structural condition and vitality.	No works presently required.	40+	A1	9.0	Retain		
T509	Mountain Ash	5.5	210	3.0	3.0	2.5	2.5	2 all	1.2	SM-EM	Good	Minor wounds on stem	No works presently required.	20+	C2	2.5	Retain		
T510	Common Ash	16	380	2.5	6.0	5.5	6.0	6 S	2	EM	Good	Tree located adjacent to canal. Multiple exposed structural roots. Swept form predominating heavily south due to historic suppression from larger neighbouring Willow, since heavily reduced.	No works presently required.	20+	C2	4.6	Retain		
T511	Wild Cherry	8	250	2.5	6.0	6.0	1.0	2 NE	2	EM	Poor	Exposed structural roots to all cardinal points. Swept form, crown predominates heavily east due to suppression from neighbouring trees. Poor vitality, likely limited remaining life span.	No works presently required.	10+	C2	3.0	Retain		
T512	Wild Cherry	8	290	4.5	4.5	4.5	4.5	2 all	3	EM	Fair	Included union at 2m, currently appears stable but will reduce life expectancy.	No works presently required	10+	C1	3.5	Retain		
T513	Wild Cherry	83	80	1.0	3.5	0.0	0.0	2 all	2	Y	Fair	Suppressed crown.	No works presently required	10+	C1	1.0	Retain		
T514	Crab Apple	8	330	5.0	5.0	5.0	3.0	1.8 all	1.8	EM	Good	Exposed structural roots. Historically pruned back from path. Minor crown in imbalance.	No works presently required	20+	C1	4.0	Retain		
T515	Crack Willow	12.5	1200	4.0	5.0	2.5	1.5	3 NE	1	M	Good	Tree directly abuts stone canal edge. Pronounced buttresses. Large exposed structural roots extend along canal edge. Tree appears to have been recently pollarded at approx. 11m with approx 1.5m regrowth. No significant structural defects observed.	No works presently required.	20+	C2	14.4	Retain		
T516	Common Beech	25	800	8.0	8.0	8.0	8.0	5.5 e	6.5	OM	Poor	No access to inspect all measurements estimated. Tree located 1m above tow path level. Crown displaying 5% live foliage when compared to neighbouring trees of similar age. 5% major and minor deadwood in crown.	Further inspection of base. Remove deadwood.	<10	U	9.6	Retain		
T517	Common Beech	30	1200	12.0	14.0	12.0	16.0	2 N	3.5	M	Good	Large broad spreading dominant tree on embankment adjacent to canal and footpath. Offset from stone wall at footpath edge by approx. 2.5m. Unable to access to fully inspect. Measurements and observations estimated from public footpath. Good structural condition from preliminary inspection. Good foliage density. Tree is locally notable, with high amenity value.	No works presently required.	40+	A2	14.4	Retain		

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T518	Common Beech	30	1250	9.0	9.0	9.0	9.0	5 all	6.5	M	Fair	Locally notable tree. No access to inspect all measurements estimated. Tree located 1m above tow path level. Stem set back 3.5m from wall. Crown displaying dieback in top of crown. Crown breaks into multistems at 4m. Codominant trackside appears to have previously failed at union. Decay evident at wound.	No works presently required	20+	B2	15.0	Retain		
T519	Common Beech	9	370	3.0	9.5	1.0	3.5	5.5 all	2	M	Good	Severely suppressed affecting form.	No works presently required	20+	C2	4.4	Retain		
G520	Group of Beech	7	170	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Dense group of self-seeded Beech extending along embankment, ranging in age from young to semi mature. Good vitality throughout.	No works presently required.	40+	B2	2.0	Retain		
G521	Group of 2no Sycamore	10.5	390	3.0	3.0	3.0	3.0	5 all	0	EM	Good	Group of 2no even aged Sycamore. Both previously topped at 6m. Located on side of bank.	No works presently required	20+	C2	4.7	Retain		
T522	Common Oak	13	520	5.5	5.5	5.5	5.5	5 all	2.5	M	Good	Dense ivy encroachment prevents basal inspection. Slight lean to east. Extensive epicormic growth over footpath.	No works presently required	40+	B1	6.2	Retain		
T523	Common Oak	7.5	230	2.5	2.5	2.5	2.5	0 e	4	SM	Fair	Partially suppressed.	No works presently required	40+	C1	2.8	Retain		
G524	Mixed Species Group	3.5	100	2.5	2.5	2.5	2.5	N/A	0	EM	Fair	Garden group of shrubs and small trees. All surveyed from public footpath. Species include Cotoneaster, Laurel, Aucuba, Privet.	No works presently required	20+	C2	1.2	Retain		
T525	Common Oak	5.5	230	3.0	3.0	3.0	3.0	3 all	3.5	SM	Good	Located at boundary, unable to determine ownership. No access to inspect all measurements estimated.	No works presently required	40+	C1	2.8	Retain		
G526	Mixed Species Group	5	90	1.2	1.2	1.2	1.2	N/A	0	SM	Fair	Group of 2no Leyland Cypress and 1no Holly straddling boundary fence.	No works presently required	10+	C2	1.1	Retain		
G527	Mixed Species Group	3.5	120	2.5	2.5	2.2	2.5	N/A	0	SM	Good	Group of Euonymus, Cotoneaster and Holly. 2m clearance over drive.	No works presently required	20+	C2	1.4	Retain		
T528	Common Laburnum	4	120+120	0.5	0.5	2.5	3.0	1.5 all	2	EM	Fair	Slight lean to west. Light ivy encroachment.	No works presently required	10+	C1	2.0	Retain		
G529	Group of Beech	18	450	7.0	7.0	7.0	7.0	Na	3	EM	Good	Group of approx. 10no even aged Beech trees located 1.2m from stone boundary walls. Stems are tightly spaced. Historic crown lifting evident. No access to inspect all measurements estimated.	No works presently required	40+	B2	5.4	Retain		
G530	Mixed Species Group	13	500	5.5	5.5	5.5	5.5	Na	0.5	EM-M	Good	Linear mixed deciduous trees located approx. 1.5m from stone boundary wall. Species include Horse Chestnut, Ash and Sycamore. Trees closest to building previously topped. No access to inspect all measurements estimated.	No works presently required	20+	B2	6.0	Retain		
G531	Group of Sycamore and Common Ash	13	330	6.0	5.0	5.0	5.0	Na	1.5	SM-EM	Good	Fair to good. Informal row of intermittently spaced Sycamore and Ash on bank. Most trees are closely spaced. 50% of stems with historic browsing/ mechanical damage. No access to inspect all measurements estimated.	No works presently required	20+	C2	3.9	Retain		
G532	Mixed Species Group	6	140	1.5	1.5	1.5	1.5	0	0	Y-SM	Good	Unable to access group to fully inspect. Measurements and observations estimated from roadside. Linear, sporadic trackside group of young to semi mature trees. Species include Birch, Oak and Goat Willow and small shrubs.	No works presently required.	20+	C2	1.7	Retain		
G533	Mixed Species Group	10	200	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Dense planted cluster of mixed species trees extending to trackside boundary. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species include predominantly Oak and Birch.	No works presently required.	40+	C2	2.4	Retain		
G534	Group of Oak and Birch	3	100	0.5	0.5	0.5	0.5	N/A	0	Y	Fair	Small cluster of young, planted Oak and Birch. Unable to access to fully inspect. Fair vitality. Measurements and observations estimated from roadside.	No works presently required.	10+	C2	1.2	Retain		
G535	Mixed Species Group	5.5	180	1.0	1.0	1.0	1.0	N/A	0	SM	Good	Closely planted, linear group of trees along field boundary with trackside. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species consist of Oak, Pine and Birch. Good vitality from preliminary inspection.	No works presently required.	20+	C2	2.2	Retain		
T536	Common Oak	4	200	2.0	2.0	2.0	2.0	1.5 all	1.5	SM	Good	No access to inspect all measurements and observations estimated.	No works presently required	40+	C1	2.4	Retain		
G537	Group of Oak	3.5	120	0.5	0.5	0.5	0.5	N/A	0	Y	Fair	Linear group of young planted Oaks with fair to good vitality and small dead young saplings abutting boundary wall. Unable to access to fully inspect. Measurements and observations estimated from roadside.	No works presently required.	10+	C3	1.4	Retain		
G538	Mixed Species Group	10.5	330	6.0	6.0	6.0	6.0	Na	0	EM	Good	Fair to good. Mixed deciduous group of Goat Willow, Alder, Oak, Sycamore and Ash with an understory of Hawthorn. All trees have sufficient space for future development. Soil compaction in RPAs by livestock.	No works presently required	20+	B2	3.9	Retain		
G539	A Woodland	20	700	5.0	3.5	7.5	3.5	N/A	0	Y-M	Good	Woodland strip extending along steep valley embankment and extending to trackside. Thin soils on rocky embankment with exposed roots throughout. Measurements and observations estimated from footpath extending through valley. Species include predominantly Beech and Sycamore . Ages range from young to mature. Some trees within group have been individualised.	No works presently required.	40+	B2	8.4	Retain		

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G540	Mixed Species Group	14	200	3.0	3.0	3.0	3.0	Na	1	SM-EM	Good	Large dense block of mixed deciduous trees located on steep bank adjacent to public footpath. Species include Oak, Sycamore, Beech and Birch. Unable to access most stems, measurements estimated. Suspected thin soils and potential weak roothold.	No works presently required	40+	B2	2.4	Remove Partial Group	752	
T541	Common Beech	22	900	6.5	6.5	9.0	9.0	2 S	1	M	Good	Large spreading tree within woodland group located on embankment of valley. Steep terrain prevents access to full inspect. Minor deadwood throughout crown. Fair to good structural condition from preliminary inspection. Good vitality.	No works presently required.	40+	B2	10.8	Retain		
T542	Sycamore	17	670	6.5	6.5	6.5	6.5	4 all	1.5	M	Good	Tree located on upper embankment of valley. Steep terrain prevents access to inspect. Measurements and observations estimated from footpath. Crown displays good vitality, no structural defects observed from preliminary inspection.	No works presently required.	40+	B2	8.0	Retain		
T543	Common Beech	16	770	0.5	5.0	16.0	5.0	0	0	M	Good	Large, historically windblown tree now self-supported across embankment, resting on 2no stems at ground level. Structure appears stable. Good vitality throughout. 1.5m clearance over footpath.	No works presently required.	20+	C3	9.2	Retain		
T544	Sessile Oak	15	600	5.0	5.0	8.0	8.0	3 all	1.5	EM	Good	Located toward top of bank. No access to inspect all measurements estimated. Minor crown imbalance.	No works presently required	40+	B1	7.2	Remove Individual		1
G545	Mixed Species Group	4.5	170	1.5	1.5	1.5	1.5	N/A	0	SM	Fair	Cluster of Rhododendron, Oak, Laurel, Hawthorn, and Whitebeam straddling staircase down to public footpath. Fair structural conditions throughout. Low clearance over staircase of 2m.	No works presently required.	20+	C2	2.0	Remove Partial Group	15	
G546	Mixed Species Group	4	200+150	2.0	2.0	2.0	2.0	Na	0	SM	Fair	Small group of 2no coppiced Sycamore, 1no Beech and 1no Hawthorn. Located between public footpath and fence.	No works presently required	20+	C2	3.0	Remove Partial Group	19	
G547	Mixed Species Group	15 to 25	800	7.0	7.0	7.0	7.0	Na	1	M	Good	No access to inspect all observations are estimated from distance and preliminary. Linear group of deciduous trees straddling boundaries, appear to be predominately Sycamore and Beech located generally at 2-3 spacings. Large break in group at northern end. Categorisation would need to be confirmed by access to trees.	No works presently required	40+	A2	9.6	Retain		
G548	Mixed Species Group	7	150	1.0	1.0	1.0	1.0	0	0	SM	Fair	Linear trackside group extending along embankment. Species consist of young to semi mature Birch, Sycamore, Oak and Goat Willow. Unable to access group, measurements and observations estimated from public footpath. Trees in group become widely spaced in places.	No works presently required.	20+	C2	1.8	Retain		
G549	Group of Oak and Willow	4	80	1.0	1.0	1.0	1.0	Na	0	SM	Fair	Sparse and intermittently spaced scrubby trees between stone wall and track. Species include Oak and Willow.	No works presently required	20+	C2	1.0	Retain		
G550	Mixed Species Group	13	120-370	3.5	3.5	3.5	3.5	N/A	0	Y-M	Fair	Linear group along steep trackside embankment sloping down to road on lower ground. Species include Sycamore, Goat Willow, Oak, and Birch. Some sporadic Beech and Ash. Ages range from young self-seeded saplings to mature individuals. Stem diameters range from 120-370 approx. Trees have been historically managed back from trackside.	No works presently required.	40+	C2	4.4	Retain		
G551	Mixed Species Group	12	450	4.6	4.5	4.5	4.5	N/A	0	EM	Good	Dense linear group extending between roadway, on higher ground, and canal. Unable to access group, measurements and observations estimated from footpath and roadside. Species consist predominantly of Goat Willow, Sycamore and Oak. Fairly uniform ages and sizes throughout. Some standing dead within group. Otherwise fair to good structural conditions.	No works presently required.	40+	C2	5.4	Retain		
G552	Group of Sycamore and Goat Willow	15	400	5.5	5.5	5.5	5.5	N/A	0	EM	Fair	Group located in pocket of land adjacent to railway bridge. Unable to access, measurements and observations estimated from roadside. Group consists of early mature Sycamore and Goat Willow with an understorey of predominantly Hawthorn. 2no trees within group have heavy ivy encroaching throughout. Overall fair structural conditions throughout.	No works presently required.	20+	C2	4.8	Retain		
G553	Mixed Species Group	15	410	5.0	5.0	5.0	5.0	N/A	3	EM	Fair	Linear planted group of 1no Goat Willow, 3no Sycamore and 1no Horse Chestnut. Trees are located on edge of public park,1.5m from road edge, and are of fairly uniform age and size. 3m clearance over access road. Fair to good structural conditions.	No works presently required.	20+	C2	4.9	Retain		
G554	Mixed Species Group	16	420	5.0	5.0	5.0	5.0	N/A	0	Y-EM	Good	Large group located on embankment. Unable to access group. Measurements and observations estimated from roadside. Species consist predominantly of Birch, Oak, Beech, Hawthorn, Goat Willow and Sycamore. Some Cypress are located towards the eastern extent of group adjacent to the roadway. Ground level slopes downwards to the north where it meets the road. Ages range from young to early mature. Overall fair to good structural conditions throughout, from preliminary inspection. 3.5m clearance over roadway to the north.	No works presently required.	40+	C2	5.0	Retain		
G555	Group of Birch	7.5	200	2.0	2.0	2.0	2.0	N/A	0	Y-SM	Good	Linear group of Birch extending along trackside embankment, on raised ground above underpass/ footpath. Ages range from young saplings to semi mature. Fair structural conditions, though poor future prospects given location.	No works presently required.	20+	C2	2.4	Retain		
T556	Goat Willow	4.5	13+130+1300	2.5	2.5	2.5	2.5	0	0	SM	Good	Tree abuts footpath. 1.5m clearance. Good vitality, fair structural condition. Minor deadwood throughout crown.	No works presently required.	10+	C2	2.7	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G557	Group of Birch and Goat Willow	11	230	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Cluster of 4no Birch and 1no Goat Willow adjacent to footpath. Fair structural conditions. No significant defects observed.	No works presently required.	20+	C2	2.8	Retain		
T558	Silver Birch	11	220	1.5	1.5	1.5	1.5	2 all	1.5	SM	Good	Tree growing through stone wall adjacent to footpath. Structure appears presently stable though future prospects are poor. No significant defects observed within crown structure.	No works presently required.	10+	C2	2.6	Retain		
T559	Sycamore	13	600	7.5	7.5	7.5	7.5	1.5 E	2	M	Good	Tree located on slight embankment, directly abutting low stone wall. Fair form, no significant defects observed. Minor deadwood throughout crown.	No works presently required.	40+	B2	7.2	Retain		
T560	Holly	7.5	150	2.0	5.5	2.0	2.0	0	0	M	Good	Fair form, encroaching through crown of T559. No significant defects observed.	No works presently required.	40+	C2	1.8	Retain		
G561	Group of Goat Willow	10	170	2.5	2.5	2.5	2.5	0	0	SM	Fair	Linear trackside group of Goat Willow. Unable to access group, measurements and observations estimated from footpath. Northernmost tree in group has moderate decline in upper crown and snapped, hanging limb on western side over footpath. Limited remaining safe lifespan. Remaining group has fair structural conditions, appear historically maintained with no significant defects observed.	Fell northernmost tree in group to ground level to prevent future failure.	10+	C3	2.0	Retain		
G562	Group of Birch	12	160	1.5	1.5	1.5	1.5	N/A	0	Y-SM	Good	Dense group of slender Birch extending along footpath and straddling steep rocky embankment. Multiple trees growing on or out of rocky outcrop towards centre of group. Group extends further west than plotted points. Ages range from young to semi mature. Fair structural conditions throughout.	No works presently required.	20+	C2	1.9	Retain		
G563	Group of 2no. Sycamore	20	400	7.0	7.0	7.0	7.0	N/A	0	M	Good	Group of 2no Sycamore adjacent to footpath. Northern tree has dense ivy encroaching throughout. Southern tree breaks into 3no stems at ground level. Unions presently appear stable with no signs of recent movement or cracking. Vitality of both trees appears good.	No works presently required.	20+	C2	4.8	Retain		
T564	Goat Willow	12	200	1.5	1.5	1.5	1.5	0	0	SM	Good	Tree abuts footpath. Moderately suppressed by larger neighbouring trees to the south. Slender form, otherwise fair structural condition.	No works presently required.	20+	C2	2.4	Retain		
T565	Sycamore	18	560+610	8.0	5.0	8.0	5.5	2.5 N	1.5	M	Fair	2no stems originate from included union at ground level. Decay suspected within union. Southwestern stem comprises 2no heavily included stems from ground level. No evidence of fusion or reaction growth. Further investigation of structural integrity required. Minor deadwood throughout crown. Poor structural form.	Further investigation using Resistance drilling of ground level union and inclusion of southwestern stem to assess structural integrity.	20+	C2	9.9	Retain		
T566	Common Ash	16	350+200+140+350	9.0	8.0	8.0	4.0	0	0	M	Poor	4no stems originate from ground level. Unions appear included but presently stable. Southwestern stem displays severe symptoms of severe historic canker at 1.5m. Crown is in heavy decline, major deadwood throughout, overhanging road and car park.	Fell to ground level or reduce to a safe height of 3m.	<10	U	6.6	Retain		
G567	Mixed Species Group	11	380	3.0	3.0	3.0	3.0	Na	1	SM-EM	Fair	Group of 1no Ash, 1no Goat Willow and 1no Sycamore on steep bank to road. The 2no trees closest to bridge are in significant decline.	No works presently required	10+	C2	4.6	Retain		
G568	Mixed Species Group	15	260	3.0	3.0	3.0	3.0	Na	0	SM-EM	Fair	Average stem diameter taken. Woodland block atop bridge and alongside PROW. Species include Birch, Poplar, Goat Willow, Sycamore and Ash. Many with dense ivy encroachment. Mutually competing crowns.	No works presently required	40+	C2	3.1	Retain		
G569	Group of Common Ash and Goat Willow	15	300	3.5	3.5	3.5	3.5	Na	1	EM	Fair	Group approx. 4.5m below G568. Species include Common Ash, Willow. Crowns overhanging upper level. Dense ivy on stems.	Fell dead specimens	10+	C2	3.6	Retain		
G570	Group of Ash and Sycamore	36526	90-180	3.0	0.5	1.0	1.5	N/A	0	SM	Fair	Group located on riverbank adjacent to bridge. Unable to access, measurements and observations estimated from footpath. Group consists of semi mature Ash and Sycamore. Stem diameters range from 90 to 180. Heights range from 6-13m. 2no larger Sycamore appear to have some dieback in upper crown, of no concern presently given low target area below.	No works presently required.	20+	C2	2.2	Retain		
G571	Mixed Species Group	17	650	6.0	6.0	6.0	6.0	Na	0	EM-M	Good	Group of Sycamore and occasional Ash dominant trees, located on sloped ground. Understory of Holly, Cherry, Elm and occasional Birch trees. Dense ivy encroaching stems. Average stem diameter taken.	No works presently required	20+	B2	7.8	Retain		
G572	Mixed Species Group	9	380	7.0	7.0	7.0	7.0	Na	0	EM	Poor	Group of closely spaced Common Ash and Sycamore. Understory of Alder and Privet. All trees with dense ivy encroachment preventing inspection of stem. All trees relatively recently topped.	No works presently required	10+	C2	4.6	Retain		
G573	Mixed Species Group	11	300+300+190+190	5.0	4.0	5.0	4.0	N/A	1.5	SM-EM	Fair	Linear group along riverbank edge consisting of 1no multi stemmed, early mature Goat Willow, 1no semi mature Ash and 1no young Sycamore sapling. Goat Willow displays fair vitality, with approx. 5% major deadwood. Ash is largely suppressed, with canker evident on main stem up to 2m, vitality is fair. Sycamore is suppressed by Ash, fair structural condition and vitality.	No works presently required.	20+	C2	6.0	Retain		
T574	Common Ash	13	320	6.5	6.5	6.5	6.5	3 S	2	EM	Fair	Tree located on riverbank edge. Fair vitality, good structural condition.	No works presently required.	20+	C2	3.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T575	Sycamore	13	330+260+230	6.5	6.5	6.5	6.5	1.5 all	0	EM	Good	Tree appears to be growing out of river bank edge, fairly well established. Multi stemmed from ground level. Fair form, no significant defects observed. Understorey of early mature Rhododendron.	No works presently required.	20+	C2	5.7	Retain		
G576	Mixed Species Group	25	400	2.5	2.5	2.5	2.5	Na	1	SM-EM	Good	Dense group of Lime, White Birch and Common Ash. Slender forced growth. Understory of Hawthorn.	No works presently required	20+	C2	4.8	Retain		
G577	Group of Alder and Cherry	3.5	80	1.0	1.0	1.0	1.0	1	0.5	Y	Good	Group of 1no young Alder and 1no Cherry. Closely planted/ seeded. Fair forms.	No works presently required.	20+	C2	0.9	Retain		
T578	Sycamore	13	240+190+170	5.0	5.0	5.0	5.0	1 all	1	EM	Good	Tree appears to be growing out of river bank edge, fairly well established. 3no stems from ground level. Fair form, no significant defects observed. Understorey of early mature Rhododendron.	No works presently required.	20+	C2	4.2	Retain		
W579	A Woodland	20	400	5.5	5.5	5.5	5.5	N/A	0	Y-M	Fair	Dense woodland group, consisting predominantly of Crack Willow with occasional Goat Willow. Ages range from young to mature. Understorey of dense ground vegetation and saplings. Some failed stems within group, though area is low target. Group extends up to boundary with public footpath and extends further south than plotted points. Fair structural conditions throughout.	No works presently required.	20+	C2	4.8	Retain		
T580	Elder	3.5	100+100+100+100	1.0	1.0	1.0	1.0	0	0	EM	Fair	Tree abuts stone wall. Fair form, fair vitality.	No works presently required.	10+	C2	2.1	Retain		
G581	Mixed Species Group	11	300	3.5	3.5	3.5	3.5	2.5 all	1	Y-EM	Good	Small group dominated by an em Downy Birch with swept form. Understory of Alder, Hawthorn and Sycamore. 2no dead trees.	Remove dead trees.	20+	C2	3.6	Retain		
T582	Common Ash	14	750	5.5	8.0	4.0	2.0	3 se	4	M	Poor	Early leaf fall. Multiple dead buds throughout. Dense epicormic growth on stem and scaffolds. Large diameter deadwood in crown, over low target. Appears to be in significant decline as a result of Ash dieback.	Inspect in summer for vitality.	10+	C1	9.0	Retain		
T583	Common Ash	13	210	1.5	1.5	1.5	1.5	7 S	6.5	EM	Dead	Tree located on raised ground adjacent to road, between stair case and abutting stone wall. Tree is standing dead.	Fell to ground level.	<10	U	2.5	Retain		
T584	Wild Cherry	15	250	5.5	6.0	4.0	6.0	6 W	6	M	Good	Tree located on raised ground between staircase wall and boundary wall. Unable to access to fully inspect. Measurements and observations estimated from roadside. Poor location. Fair structural form from preliminary inspection. Vitality appears good.	No works presently required.	20+	C1	3.0	Retain		
T585	Sycamore	15	350	6.5	6.5	6.5	4.5	3 E	3	EM	Good	Tree appears to be abutting boundary wall. Unable to access, measurements and observations estimated from roadside. Fair form, from preliminary inspection.	No works presently required.	20+	C1	4.2	Retain		
G586	Group of 2no. Sycamore	18	360	5.0	5.0	5.0	5.0	Na	4	EM	Good	2no even aged Sycamore on bank. No access to inspect all measurements estimated. Fair form.	No works presently required	40+	B2	4.3	Retain		
G586	Group of 2no. Sycamore	18	360	5.0	5.0	5.0	5.0	Na	4	EM	Good	2no even aged Sycamore on bank. No access to inspect all measurements estimated. Fair form.	No works presently required	40+	B2	4.3	Retain		
G587	Group of Common Ash and Goat Willow	16	350	5.0	5.0	5.0	5.0	Na	0	EM	Good	Group of Ash, Goat Willow and dead stem. Stems abut stone wall. Understory of Holly.	No works presently required	20+	C2	4.2	Retain		
T588	Goat Willow	22	530+400	6.0	6.0	6.0	6.0	0.5 s	5	M	Good	Huge structure for species. Included union at 2.5m. Small crack in bark evident extending beneath union at 2.5m.	Further inspection of union with Resistance drill.	10+	C1	8.0	Retain		
G589	Group of Leyland Cypress and Fir	7	150	2.0	2.0	2.0	2.0	Na	0	SM	Fair	boundary planting of Leyland Cypress and Fir of domestic garden. Small trees, that appear to be managed as informal hedge. No access to inspect all measurements estimated.	No works presently required	20+	C2	1.8	Retain		
G590	Mixed Species Group	4	180	1.5	1.5	1.5	1.5	N/A	0	SM	Fair	Sporadic, linear trackside embankment group. Unable to access, measurements and observations estimated from public footpath. Species consist of Oak, Goat Willow, Hawthorn and Birch. Structural conditions appear fair from preliminary inspection.	No works presently required.	20+	C2	2.2	Retain		
G591	Mixed Species Group	4	180	1.5	1.5	1.5	1.5	N/A	0	SM	Fair	Sporadic, linear trackside embankment group. Unable to access, measurements and observations estimated from public footpath. Species consist of Ash, Goat Willow, Hawthorn and Birch. Structural conditions appear fair from preliminary inspection.	No works presently required.	20+	C2	2.2	Retain		
G592	Mixed Species Group	4.5	130	2.0	2.0	2.0	2.0	N/A	0	SM	Fair	Linear group along footpath edge adjacent to footpath and extending up to footbridge. Species include Birch, Goat Willow and Elder. Group straddles raised ground atop stone retaining wall as well as footpath edge. Fair forms.	No works presently required.	10+	C3	1.6	Remove Partial Group	6	
G593	Group of Oak and Rhododendron	4.5	170	1.0	1.0	1.0	1.0	0	0	SM	Good	Trackside group extending along steep rocky embankment. Unable to access, measurements and observations estimated from footbridge. Species consist predominantly of Rhododendron with sporadic semi-mature individual Oaks.	No works presently required.	20+	C2	2.0	Retain		
G594	Mixed Species Group	4	100	100.0	100.0	100.0	100.0	Na	0	SM	Fair	No access to inspect all measurements estimated from bridge approx. 300m from property. Garden appears to contain coniferous hedging/ small trees.	No works presently required	10+	C2	1.2	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G595	Mixed Species Group	15	450	6.0	4.0	6.0	6.0	N/A	0	Y-M	Good	Group extends along steep embankment between trackside and canal. Trees located closer to trackside appear historically managed. Embankment bound by stone wall to the northwest. Unable to access fully due to steep terrain. Measurements and observations estimated from public footpaths. Species consist predominantly of Oak, Sycamore, Birch, Elder and Hawthorn. Ages range from young to mature. Fair forms throughout.	No works presently required.	20+	C2	5.4	Retain		
G596	Mixed Species Group	22	500	8.0	8.0	8.0	8.0	Na	0	M	Good	Linear group located just behind timber fence. No access to inspect all measurements estimated. Dense stand of Larch, Spruce and Pine. Crowns overhang trackside. No evidence of recent management.	No works presently required	40+	B2	6.0	Retain		
G597	Mixed Species Group	8	250	3.5	3.5	3.5	3.5	Na	0.5	EM	Fair	Intermittently widely spaced group at path level leading to railway bridge. Species include Whitebeam, Downy Birch, Elder and Goat Willow. Most trees with minor mechanical damage to stems.	No works presently required	10+	C2	3.0	Retain		
G598	Group of Downy Birch and Goat Willow	15	350	4.5	4.5	4.5	4.5	Na	1	SM-M	Good	Fair to good. Group of Downy Birch and Goat Willow at edge of wider block. Trees are located behind stone wall approx. 1.5m above path level.	No works presently required	20+	B2	4.2	Retain		
G599	Mixed Species Group	22	600	9.0	9.0	9.0	9.0	Na	0	SM-M	Good	Medium group of mixed deciduous trees on steep embankment. No access to inspect all measurements and observations estimated. Mature species include Common Oak, Downy Birch, Alder, Common Ash, Sycamore. Understory of Elder. Trees are widely spaced allowing good form. Evidence of minor storm damage.	No works presently required	40+	B2	7.2	Retain		
G600	Group of Goat Willow and Alder	16	250	4.0	4.0	4.0	4.0	Na	2.5	EM	Good	Linear, intermittently spaced group adjacent to stone wall. Species include Goat Willow, Alder, Goat Willow. Average stem diameter given. Some Multi stemmed trees.	No works presently required	40+	C2	3.0	Retain		
G601	Mixed Species Group	7	300	2.0	2.0	2.0	2.0	Na	0	SM-EM	Good	Widely spaced group of Sorbus, Birch, Goat Willow, Blackthorn and Common Oak on embankment. Average dimensions recorded.	No works presently required	40+	C2	3.6	Retain		
G602	Group of Goat Willow and Sycamore	11	300+300+300	6.0	6.0	6.0	6.0	Na	0	EM	Good	Group of Goat Willow and Sycamore. Sycamore at northern end of group previously topped.	No works presently required	20+	C2	6.2	Retain		
G603	Group of Whitebeam	10	200+200+200	5.0	5.0	5.0	5.0	Na	0	SM-EM	Fair	Group of widely spaced trees on embankment, predominantly Sorbus. No access to inspect all measurements estimated. Average dimensions recorded.	No works presently required	40+	C1	4.2	Retain		
G604	Mixed Species Group	17	350	3.0	3.0	3.0	3.0	Na	0.5	EM	Good	Intermittently spaced group of Downy Birch, Sorbus, Sycamore on embankment.	No works presently required	20+	C2	4.2	Retain		
T605	Whitebeam	5.5	170+150	2.0	2.0	2.0	2.0	1 all	0	SM	Good	Tree growing on edge of 3m stone wall. Poor future prospects due to location. Otherwise fair form.	No works presently required.	10+	C2	2.7	Retain		
G606	Group of Sycamore and Silver Birch	12	330	6.0	6.0	6.0	6.0	N/A	0	EM	Good	Linear group located along embankment bound by 3m stone wall to the west and sloping upwards to stone wall to the east. Group consists of 1no silver birch, and 3no Sycamore. Fair forms throughout.	No works presently required.	20+	C2	4.0	Retain		
G607	Group of Goat Willow and Birch	7	200	3.0	3.0	3.0	3.0	N/A	0	EM	Fair	Linear group extending along edge of trackside access road. Species consist predominantly of Goat Willow with occasional Birch. Group has been historically regularly cut back from the access road. Fair forms.	No works presently required.	20+	C2	2.4	Retain		
G608	Mixed Species Group	7	210	1.5	1.5	1.5	1.5	0.5	0	SM	Fair	Group located on steep embankment adjacent to access road consisting of Goat Willow, Ash, Oak and Whitebeam. Fair forms. Historically cut back from access road.	No works presently required.	20+	C2	2.5	Retain		
G609	Mixed Species Group	5	170	1.0	1.0	1.0	1.0	0	0	SM	Good	Group extending along embankment adjacent to access road consisting of semi-mature Oak, Sycamore and Ash. Fairly sporadic. Some trees appear historically coppiced.	No works presently required.	20+	C2	2.0	Retain		
G610	Group of Ash and Goat Willow	9.5	220	2.0	2.0	2.0	2.0	N/A	0	SM	Fair	Group located on embankment adjacent to access road. Species consist predominantly of Ash and Goat Willow of fairly uniform age and size. Dense ivy encroaches throughout Goat Willow to the southern extents, preventing full inspection. Understorey of sporadic Hazel. Ash appear to display signs of dieback. Some standing dead Ash stems abutting edge of access road.	Fell dead Ash stems to ground level. Sever ivy on Goat Willows to facilitate future inspections.	10+	C3	2.6	Retain		
G611	Mixed Species Group	7.5	220	3.0	3.0	3.0	3.0	0	0	SM	Good	Linear group along upper embankment adjacent to access road. Species consist of Oak, Hawthorn and Whitebeam. Fair forms.	No works presently required.	20+	C2	2.6	Retain		
G612	Group of Oak and Ash	3.5	110	1.0	1.0	1.0	1.0	0	0	SM	Fair	Sporadic linear trackside group consisting of young to semi mature Oak and Ash. Trees appear historically managed.	No works presently required.	20+	C3	1.3	Retain		
G613	Group of Elder and Birch	4	80	1.0	1.0	1.0	1.0	Na	0	SM	Fair	Group of very occasional Elder and Birch trackside growing against fence.	No works presently required	20+	C2	1.0	Retain		
G614	Group of Downy Birch and Oak	11	220	2.0	2.0	2.0	2.0	Na	0.5	SM	Good	Group of intermittently spaced trees on embankment. Species include Downy Birch, Common Oak. Several trees previously topped.	No works presently required	40+	C2	2.6	Retain		
T615	Common or Black Elder	3.5	130+130	2.0	2.0	2.0	2.0	1.2 all	0.5	EM	Poor	No comment	No works presently required	<10	U	2.2	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G616	Mixed Species Group	15 - 19	260+260+260	6.0	6.0	6.0	6.0	Na	1	EM-M	Fair to Good	Group of deciduous trees located on embankment. Mix of dense and wide-spacing. Species include EM-M Goat Willow, EM Sorbus, Sycamore and Birch. Hawthorn also at margins. Multi stemmed Goat Willow close to track will require regular monitoring.	No works presently required	20+	C2	5.4	Remove Partial Group	51	
G617	Group of 2no Oak	10	280	5.0	5.0	5.0	5.0	0.5 all	1.2	SM	Good	Group of 2no even aged Common Oak. Closely spaced, but fair form.	No works presently required	40+	B2	3.3	Retain		
G618	Group of Holly and Oak	10	260	4.0	4.0	4.0	4.0	Na	0	SM-EM	Good	Linear sparsely spaced group of Holly and Common Oak.	No works presently required	40+	B2	3.1	Retain		
T619	Apple	5.5	240+240	2.5	3.5	3.5	3.0	0.5 all	0.2	EM	Fair	Historically cut back from road.	No works presently required	20+	C1	4.1	Retain		
G620	Group of Common Ash	13	330	6.5	6.5	6.5	6.5	N/A	2	EM	Poor	Linear group of 4no Ash in private garden, abutting stone wall, adjacent to embankment and bridge. Unable to access, measurements and observations estimated. All trees appear to be in severe decline. 1no Ash has significant ivy encroachment throughout.	Advise tree owner to arrange for suitable inspection.	<10	C3	4.0	Retain		
T621	Scots Pine	14	400	5.0	5.0	5.0	5.0	4 S	2	M	Good	Tree located in private garden abutting stone wall, adjacent to embankment. Unable to access to inspect. Measurements and observations estimated from roadside. Vitality appears good, no significant defects observed from preliminary inspection.	No works presently required.	20+	B2	4.8	Retain		
G622	Mixed Species Group	12	300	3.0	3.0	3.0	3.0	N/A	0	Y-SM	Fair	Linear group extending between trackside access road and boundary with public footpath. Unable to access, measurements and observations estimated from public footpaths. Group widens heading north, to include steep embankment. Species on upper embankment include young to semi mature Oak, Birch, Whitebeam, Hawthorn and Rhododendron. Species otherwise consist predominantly of Goat Willow, Birch, Alder and Ash. Ash within group appear to be in decline. Group appears regularly cut back from edge of access road. Some uprooted trees within group along road edge, some dead stems within group. Otherwise fair forms.	Fell dead stems within group.	10+	C3	3.6	Remove Entire Group	8852	
T623	Goat Willow	9	420+420+300	5.5	5.5	5.5	5.5	0.5 all	2.5	M	Good	Located outside fence of trackside, stem straddles old stone wall. Decay at unions, not currently of concern, but will reduce life expectancy. Exposed roots in towpath.	No works presently required	10+	C1	8.0	Retain		
T624	Sycamore	12	400	6.0	6.0	6.0	6.0	2 all	2	EM	Good	Tree located in private garden adjacent to footbridge and abutting fence line. Unable to access to fully inspect, measurements and observations estimated. No significant structural defects observed from preliminary inspection. Fair form.	No works presently required.	20+	C1	4.8	Retain		
H625	Mixed Species Hedgerow	3 to 8	150	2.0	2.0	2.0	2.0	0	0	SM	Fair	Linear hedge line located in private garden and abutting footpath fence line. Historically cut back on footpath side. Some Privet within hedgerow. Hedge height ranges from 3-8m. 0.5-1m encroachment into footpath.	No works presently required.	20+	C2	1.8	Retain		
T626	Sycamore	12	400+400	6.0	6.0	6.0	6.0	3 all	2	EM	Good	Tree located in private garden adjacent abutting fence line. Unable to access to fully inspect, measurements and observations estimated. Stem bifurcates at 1m, union appears tensile. No significant structural defects observed from preliminary inspection. Fair form.	No works presently required.	20+	C1	6.8	Retain		
G627	Common Ash	8.5	160	1.5	1.5	1.5	1.5	N/A	0	SM	Poor	Linear group of semi mature Ash extending along roadside. All trees in varying stages of decline. Suspected Chalara Fraxinea. Some standing dead within group. Poor structural conditions.	Fell group to ground level.	<10	U	1.9	Retain		
T628	Larch	18	420	5.0	5.0	5.0	5.0	3.5 all	3.5	M	Fair	Tree located in private garden adjacent to public footpath and carriageway. Minor deadwood throughout, otherwise fair form.	No works presently required.	20+	B2	5.0	Retain		
H629	Mixed Species Hedgerow	4	100	0.5	0.5	0.5	0.5	0	0	EM	Good	Linear hedgerow located in private garden adjacent to public footpath. Regularly maintained. Species consist of Holly and Laurel.	No works presently required.	20+	C2	1.2	Retain		
T630	Common Hawthorn	4	180+180	3.0	3.0	3.0	3.0	0.3 all	0.3	EM	Fair	Located behind stone wall approx. 1.2m above towpath level.	No works presently required	20+	C1	3.1	Retain		
H631	Mixed Species Hedgerow	4	270	2.0	0.5	2.0	2.0	Na	0	SM	Fair	Mixed hedge of Leyland Cypress and Ivy. Cypress previously topped.	No works presently required	10+	C2	3.2	Retain		
G632	Group of 2no. Sycamore	18	480	8.0	8.0	8.0	8.0	Na	3	EM	Good	Group of 2no Sycamore. Included as crowns overhang highlighted orange area. Fair form.	No works presently required	20+	B2	5.8	Retain		
T633	Lawson Cypress	9	250	2.0	2.0	2.0	2.0	Na	0	SM	Good	No access to inspect all measurements and observations estimated. Located at rear of third-party property.	No works presently required	20+	C1	3.0	Retain		
G634	Mixed Species Group	6	200	2.0	2.0	2.0	2.0	Na	0.5	SM	Fair	Group of small trees and shrubs located in front of property. Species include Purple Plum, Lilac.	No works presently required	20+	C2	2.4	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G635	Mixed Species Group	28	750	5.5	5.5	5.5	5.5	Na	1	EM	Good	Linear group of trees. Dominant trees are Hybrid Black Poplar at varying spaces infilled with Norway Maple and Sycamore. The Poplars are generally 25-27m tall. Sycamore and Norway Maple 14-20m. Understory of Goat Willow and Norway Maple. Trees are generally spaced 1-4m apart. Further north beyond signal box (mid), spacings of the Poplar become more regimented at approx. 3-4m and Birch become evident.	Fell any dead specimens.	20+	B2	9.0	Remove Partial Group	1244	
G636	Group of 2no. Alder	10	200+130	4.0	4.0	4.0	4.0	Na	0	EM	Fair	2no scrubby Alder.	No works presently required	10+	C2	2.9	Retain		
T637	Sycamore	18	450+450	7.5	7.5	7.5	7.5	0.5 all	2	M	Good	Located behind timber fence. No access to inspect all measurements and observations estimated. Wide spreading vigorous crown.	No works presently required	20+	B1	7.6	Retain		
G638	Group of Alder	5 to 11	150-220	3.5	3.5	3.5	3.5	N/A	1.5	EM	Good	Group of 3no Alder straddling boundary line. Unable to access, measurements and observations estimated from public footpath. Heights range from 5m to 11m. Stem diameters range from approx. 150 to 220mm. Fair forms from preliminary inspection.	No works presently required.	20+	C2	4.4	Retain		
G639	Mixed Species Group	9	80-190	3.5	3.5	3.5	3.5	N/A	0	Y-SM	Fair	Linear group consisting of predominantly Goat Willow, Laurel, Ash, Birch and Whitebeam. Group is located on mounded ground between car park areas. Ages range from young to semi mature. Stem diameters range from approx. 80-190mm. Fair forms, no significant defects observed.	No works presently required.	20+	C2	2.2	Retain		
T640	Lawson Cypress	10	190	2.5	2.5	2.5	2.5	0	1.5	SM	Good	Tree located in private garden adjacent to public footpath. Unable to access, measurements and observations estimated. Vitality appears good, no significant defects observed. Fair form.	No works presently required.	20+	C2	2.2	Retain		
T641	Sycamore	7.5	150+150+150+150	3.0	3.0	3.0	3.0	0.5	0	SM	Good	Multi stemmed, self-seeded tree directly abutting stair case. Poor location. Likely to become a nuisance in near future. No significant defects observed.	No works presently required.	10+	C3	3.6	Retain		
G642	Mixed Species Group	13	180	3.0	3.0	3.0	3.0	Na	0	SM	Good	Mixed group of Birch, Goat Willow and Pine. Mutually competing crowns. Materials in RPA.	No works presently required	40+	C2	2.2	Remove Entire Group	156	
G643	Group of 3no. Alder	5	130	3.0	3.0	3.0	3.0	Na	0	SM	Good	Group of 3no even aged Alder.	No works presently required	20+	C2	1.6	Remove Entire Group		3
G644	Group of Silver Birch	15	220	4.0	4.0	4.0	4.0	N/A	0	M	Good	Linear group of closely planted Birch. Slender forms. No significant defects observed. Group extends further south west than plotted points.	No works presently required.	20+	B2	2.6	Retain		
G645	Mixed Species Group	6	200	1.5	1.5	1.5	1.5	Na	0	SM	Good	Group of Silver Birch, occasional Oak, Whitebeam and Goat Willow.	No works presently required	40+	C2	2.4	Retain		
G646	Group of 4no Goat Willow	10	210+210+210+210	6.0	6.0	6.0	6.0	Na	0	EM-M	Good	Group of 4no Goat Willow, all Multi stemmed .	No works presently required	20+	C2	5.0	Retain		
G647	Mixed Species Group	5.5	150	1.0	1.0	1.0	1.0	N/A	0	Y-SM	Good	Linear trackside group. Unable to access, measurements and observations estimated from public footpath. Group tapers drastically heading north, with stems directly abutting or growing out of stone boundary wall. Species consist of predominantly Oak, Birch, Alder and Goat Willow of fairly uniform age and size.	No works presently required.	20+	C2	2.2	Retain		
G648	Mixed Species Group	17	420	6.0	6.0	6.0	6.0	Na	3	EM	Good	Fair to good. Group of 5no Norway Maple, interspersed with Alder, Sycamore and Fir. Individual stems of the Norway Maple (A-E) and Goat Willow (F) plotted. Trees straddle towpath. Norway Maple to south leans to east and has large mechanical wounds on stem, saprophytic fungi attachments to 1.8m and multiple lesions indicative of Phytophthora.	Monitor condition of Norway Maple with Phytophthora summer 2025.	20+	B2	1.6	Retain		
T649	Norway Maple	11	400	6.5	6.5	3.5	6.5	4 N	5	EM	Fair	Tree located on slight embankment. Codominant stem has historically failed at approx. 2.5m resulting in large open wound and unbalanced crown. Safe useful life expectancy considered to be diminished. Minor deadwood throughout crown.	Fell to ground level.	10+	C3	2.6	Retain		
G650	Group of Downy Birch	17	340	4.5	4.5	4.5	4.5	2.5 all	2	EM	Good	Fair to good. Group of 14no Downy Birch of varying ages. Dominant trees are of fair fork. Smaller trees with poor form. Overall trees are considered to be of moderate value. 1no tree previously topped.	No works presently required	20+	B2	2.4	Retain		
G651	Group of Whitebeam	10	210	2.0	2.0	2.0	2.0	N/A	2	SM	Fair	Group of 2no Whitebeam. Southern tree is multi stemmed, with historical wounding evident on eastern side, not currently of concern. Northern tree has historic mechanical damage to stem base, no associated decay observed. Otherwise fair forms.	No works presently required.	10+	C2	2.5	Remove Partial Group		1
T652	Goat Willow	11	300+290+270+340	5.5	5.5	5.5	4.0	2 all	1.5	M	Good	Multi stemmed tree located on car park edge. Stem historically removed at ground level to the west. Some minor associated decay at pruning points. Percussive mallet test of larger central stem suggests some minor decay at approx. 1m. Not considered to be of concern at present. Crown predominates largely east due to historic pruning back from car park.	No works presently required.	20+	C1	7.2	Remove Individual		1
T653	White Willow	6	350	4.5	4.5	4.5	4.5	1.2 all	2	EM	Fair	Minor wounds on stem. Stems car park side previously coppiced.	No works presently required	10+	C1	4.2	Retain		
T654	Common Hawthorn	5.5	120+160	2.0	2.0	2.0	2.0	1.5 all	1	EM	Good	Tree located adjacent to trackside boundary wall. Fair form.	No works presently required.	20+	C1	2.4	Remove Individual		1

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T655	Silver Birch	7.5	200	3.0	2.0	1.0	1.5	5.5 N	5	SM	Good	Tree located on verge between car park and trackside boundary wall. Slender form. No significant defects observed.	No works presently required.	20+	C1	2.4	Remove Individual		1
G656	Group of 2no. Hawthorn	3.5	150	0.5	2.0	2.0	0.5	N/A	1	SM	Good	Group of 2no Hawthorn immediately adjacent to trackside boundary wall. Suppressed by large neighbouring tree. Otherwise fair forms.	No works presently required.	10+	C2	1.8	Remove Entire Group	20	
T657	Sycamore	12.5	310+310+310+310+300	6.5	6.5	6.5	6.5	2 E	1.5	EM	Good	Tree directly abuts stone trackside boundary wall. 5no stems originate from ground level. Unions appear included. No signs of recent cracking or movement. Minor deadwood throughout crown. Otherwise fair form.	No works presently required.	20+	C1	8.3	Remove Individual		1
G658	Mixed Species Group	14	350	5.5	5.5	5.5	5.5	N/A	2	EM	Good	Group of 1no Horse Chestnut, 1no Goat Willow, 1no Alder and 4no Silver Birch located between car park and road, adjacent to trackside boundary. Trees are of fairly uniform age and size. Fair structural conditions throughout.	No works presently required.	40+	B2	4.2	Remove Entire Group	173	
G659	Group of 3no. Alder	10	160	2.5	2.5	2.5	2.5	Na	3	SM	Fair	Group of 3no even aged Alder.	No works presently required	20+	C2	1.9	Retain		
T660	Goat Willow	11	270+270+270+270	5.5	5.5	5.5	5.5	O all	3.5	M	Good	Wide spreading form. Decay at wounds on two stems at 1.5-2m extensive response growth utility cable touching stem at 4m. 5% minor deadwood in crown.	No works presently required	10+	C1	6.5	Retain		
T661	Goat Willow	9.5	300+300	4.5	4.5	4.5	4.5	O.5 all	3.5	EM	Good	Large laterals previously removed leaving wounds and exposed desiccated wood. Utility cable touching stem at 4m.	No works presently required	10+	C1	5.1	Remove Individual		1
G662	Mixed Species Group	9	200	3.0	3.0	3.0	3.0	N/A	0	SM	Good	Linear trackside group. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species consist of semi-mature Ash, Birch, Alder, Goat Willow and Elder. Group tapers to the south West. Understorey of ground vegetation. Trees are of fairly uniform age and size. Fair forms throughout from preliminary inspection.	No works presently required.	20+	C2	2.4	Remove Partial Group	140	
G663	Mixed Species Group	7.5	200	3.5	3.5	3.5	3.5	N/A	0	SM	Good	Linear trackside group. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species consist of semi-mature Sycamore, Ash, Goat Willow and Hawthorn. Group tapers to the south West. Trees are of fairly uniform age and size. Fair forms throughout from preliminary inspection.	No works presently required.	20+	C2	2.4	Remove Partial Group	192	
G664	Mixed Species Group	8	200	2.5	2.5	2.5	2.5	N/A	0	Y-SM	Good	Linear trackside group. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species consist of predominantly semi-mature Sycamore, Goat Willow, Birch and Ash. Ages range from young to semi-mature. Fair forms throughout from preliminary inspection.	No works presently required.	20+	C2	2.4	Remove Partial Group	199	
G665	Group of Goat Willow and Sycamore	5	80+80+80	1.5	1.5	1.5	1.5	Na	0	SM	Fair	Linear self-set group of Goat Willow and Sycamore located directly adjacent to stone wall. Previously coppiced.	No works presently required	10+	C2	1.7	Retain		
G666	Mixed Species Group	11	200+200+200	5.5	5.5	5.5	5.5	Na	0	SM-EM	Good	Intermittently spaced group of deciduous trees on steep slope. Approx 6no trees. Species include Whitebeam, Sycamore, Ash and Goat Willow.	No works presently required	20+	C2	4.2	Retain		
T667	Whitebeam	4	100+100	1.0	1.0	1.0	1.0	0	0	SM	Good	Individual Whitebeam located on embankment. Fair form.	No works presently required.	20+	C1	1.7	Retain		
T668	Goat Willow	10	200+200+200	5.0	5.0	5.0	5.0	1	1	EM	Good	No access to inspect, limited views, all measurements estimated.	No works presently required	20+	B1	4.2	Retain		
T669	Downy Birch	11	450	5.0	8.0	8.0	5.0	2 all	0	M	Good	No access to inspect, limited views all measurements estimated. Located behind stone wall. Poor form, previously topped.	No works presently required	20+	C1	5.4	Retain		
T670	Sessile Oak	4	210	1.5	1.5	1.5	1.5	0	0	SM	Good	Fair form, no significant defects observed.	No works presently required.	20+	C1	2.5	Retain		
T671	Wild Cherry	5.5	130	1.5	1.5	1.5	1.5	0.5	0	SM	Good	Fair form, no significant defects observed.	No works presently required.	20+	C1	1.5	Retain		
T672	Common Hawthorn	4	110+110	3.0	3.0	3.0	3.0	0	0	EM	Good	Fair form, no significant defects observed. Tree located immediately adjacent to utility pole.	No works presently required.	20+	C1	1.9	Retain		
T673	English Elm	10	250	1.5	4.5	5.0	4.0	3 S	0	SM	Good	Tree located immediately adjacent to roadside. Dense basal epicormic. Crown predominates heavily south west due to suppression from neighbouring trees. No significant defects observed.	No works presently required.	20+	C1	3.0	Retain		
T674	Common Ash	4.5	100+100+100+100	1.5	1.5	1.5	1.5	0	0	SM	Poor	Multi stemmed Ash, abutting footpath. Tree is in moderate decline, poor vitality.	No works presently required.	<10	C3	2.4	Retain		
G675	Mixed Species Group	20	1050	6.0	6.0	6.0	6.0	Na	1	M	Good	Tree group located behind stone wall in domestic garden. No success to inspect all measurements estimated. Trees are approx. 1.4m above path level. Dominant trees 2no Sycamore, 1no Italian Alder. Understory of Norway Maple and Beech hedging.	No works presently required	40+	A2	12.6	Retain		
G676	Group of Common Ash	6	150	1.0	1.0	1.0	1.0	N/A	0	SM	Fair	Small cluster of approx. 4 no self-seeded Ash, ranging from young to semi mature. Poor structural conditions.	No works presently required.	10+	C3	1.8	Retain		
T677	Goat Willow	8	380+250+250	5.5	5.0	9.0	5.5	1.2	1.5	M	Good	Aerial roots. Minor crown imbalance. Stems resting on Stine well. 5%;Major and minor deadwood in crown.	Remove major deadwood in crown	10+	C1	6.2	Retain		
T678	Goat Willow	5.5	150	3.5	3.0	1.0	3.0	1 all	1.5	SM	Good	Tree directly abuts stone wall, swept form due to suppression from neighbouring, larger tree.	No works presently required.	10+	C2	1.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T679	Goat Willow	6.5	180+180+180	4.0	4.0	4.0	4.0	O s	1.5	EM	Good	Exposed structural roots projecting southwest for 1.5m.	No works presently required	20+	C1	3.7	Retain		
T680	Sycamore	8	180	1.5	1.5	2.0	1.5	0	0	SM	Good	Self-seeded tree abutting stone wall. Browsing damage observed throughout main stem. Life expectancy considered to be reduced.	No works presently required.	10+	C3	2.2	Retain		
G681	Mixed Species Group	15	400	4.5	4.5	6.0	4.5	N/A	0	SM-M	Good	Group of trees extending behind stone wall on lower ground to the northwest and across steep bridge 'embankment' in front of stone wall where ground level is higher. Species consist predominantly of Sycamore, Ash, Spruce, Oak and Hawthorn. Ages range from semi mature to mature. To the northwestern extents of group, encroachment over stone wall is approx. 4m. Fair forms throughout.	No works presently required.	20+	B2	4.8	Retain		
T682	Sycamore	10	270+100	4.0	4.0	4.0	4.0	0.5 all	1	SM	Good	No comment	No works presently required	40+	B1	3.5	Retain		
G683	Group of Horse Chestnut and Ash	16	270+270	4.0	4.0	4.0	4.0	Na	0.5	SM-EM	Good	Group of 4no Horse Chestnut, 3no Ash. Mutually competing crowns. Dominant tree with included union, currently appears stable but will reduce life expectancy.	No works presently required	20+	C2	4.6	Retain		
T684	Sycamore	12	470	4.0	4.0	4.0	4.0	1.6 n & s	1	EM	Good	No comment	No works presently required	40+	B1	5.6	Retain		
G685	Mixed Species Group	11	200	4.0	4.0	4.0	4.0	N/A	0	SM	Fair	Group straddling upper and lower embankments divided by public footpath. Species consist of Hawthorn, Sycamore, Whitebeam and Ash. Trees are sporadic in location. Fair forms.	No works presently required.	20+	C2	2.4	Retain		
T686	Sycamore	11.5	450+380	7.0	7.0	7.0	7.0	0.5 all	1.5	M	Good	Twin stemmed from ground level. Good form.	No works presently required	20+	B1	7.1	Retain		
G687	Mixed Species Group	12	350	5.0	5.0	5.0	5.0	N/A	0	EM	Good	Linear group extending along edge of car park, offset by 2m. Crowns historically cut back from car park. Species consist of Wild Cherry, Ash, Goat Willow and Whitebeam. No significant defects observed. Fair structural conditions throughout.	No works presently required.	20+	C2	4.2	Remove Partial Group	34	
G688	Mixed Species Group	13	360	5.0	6.0	3.0	4.5	N/A	0	SM-EM	Fair	Group located on steep embankment adjacent to road, sloping down to car park area. Species include 4no early mature Sycamore, 1no semi mature Ash and 2no Whitebeam. Ash appears to be in moderate decline, with 1no Whitebeam growing into the crown. Sycamores appear to be in fair to good physiological condition.	No works presently required.	20+	C2	4.3	Retain		
H689	Laurel Hedgerow	4.5	110	0.5	0.5	0.5	0.5	0	1	SM	Good	Linear, managed Laurel hedgerow growing atop raised ground, bound by stone wall. Fair form. Hedgerow extends further East than plotted points.	No works presently required.	20+	C2	1.3	Retain		
G690	Group of Sycamore	14	400	7.5	7.5	7.5	7.5	N/A	6	M	Good	Group of 3no mature Sycamore located in private garden. Unable to access to inspect, measurements and observations estimated. Group located on higher ground than access road and is bound by 2m stone wall. Fair forms from preliminary inspection. 5.5m clearance over access road.	No works presently required.	20+	B2	4.8	Retain		
G691	Mixed Species Group	12	300	2.0	2.0	2.0	2.0	N/A	0	Y-EM	Good	Linear mixed species group extending between trackside and railway owned access road. Unable to access group, measurements and observations estimated from roadside and footpath. Species consist of predominantly Goat Willow, Birch and Whitebeam. Ages range from young to early mature. Group becomes sparse to the southwest.	No works presently required.	20+	C2	3.6	Remove Partial Group	112	
G692	Mixed Species Group	13	360	4.0	4.0	4.0	4.0	N/A	0	EM	Fair	Linear group extending adjacent to railway owned access road. Unable to access group. Measurements and observations estimated from roadside/ footpaths. View of group is largely restricted, assessment is preliminary in nature. Species include Ash, Sycamore, Goat Willow and Whitebeam. Some Ash within group exhibit signs of moderate dieback.	No works presently required.	20+	C2	4.3	Remove Partial Group	187	
T693	Sycamore	14	550	7.0	7.0	7.0	7.0	5 all	8	M	Good	Large tree located within private garden, on raised ground, bound by 1m stone wall. Unable to access, measurements and observations estimated from roadside. Good structural condition from preliminary inspection.	No works presently required.	20+	B1	6.6	Retain		
T694	Sycamore	14	300+300+300	6.0	4.0	6.5	6.5	6 S	6	EM	Good	Tree located within private garden. Unable to access to inspect. Measurements and observations estimated from roadside. 3no stems originate from ground level, unable to assess unions. Crown predominates west due to suppression from neighbouring tree. Young Leyland Cypress growing at base to a height of approx. 5m.	No works presently required.	20+	B2	6.2	Retain		
T695	Goat Willow	6	120+120+120	2.0	2.0	2.0	2.0	0	0	SM	Good	Tree located in private garden adjacent to stone wall. Unable to access to inspect. Measurements and observations estimated from roadside. Fair form from preliminary inspection.	No works presently required.	10+	C2	2.5	Retain		
G696	Mixed Species Group	10 to 17	340+200	5.0	5.0	5.0	5.0	Na	1.6	SM-EM	Good	Fair to good. Group of mixed trees located on both sides of running stream at lower level than road. Constrained root systems. Species include Sycamore, Common Ash, Goat Willow, Alder. Individually trees are if relatively lie value, but collectively provide visual screening. Occasional smaller trees growing at too if bank.	No works presently required	20+	B2	4.7	Retain		
G697	Mixed Species Group	7	230	1.5	1.5	1.5	1.5	0.5 all	3.5	SM	Fair	Group of Ash, Sorbus, Hawthorn adjacent track. Occasional exposed roots evident in road surface. Crowns historically cut back from road.	No works presently required	20+	C2	2.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G698	Group of 2no. Sycamore	12	470	3.5	3.5	3.5	3.5	0.5 all	1	EM	Good	Group of 2no even aged Sycamore. Tree to south situated at lower level. Fair form.	No works presently required	40+	B2	5.6	Retain		
G699	Group of Common Ash and Hawthorn	5	120	1.0	1.0	1.0	1.0	Na	3	SM	Fair	Widely spaced self-set trees located between stone wall and track. Crown historically cut back from track. Species are predominantly Common Ash to south and Hawthorn to the north. .	No works presently required	20+	C2	1.4	Retain		
G700	Group of Hawthorn	6	380	3.5	3.5	3.5	3.5	Na	0.5	EM-M	Good	Suspected remnant hedging of Hawthorn. Some dieback and browsing evident. Trees are widely spaced. No access to inspect all measurements estimated and made in foggy weather from distance.	No works presently required	20+	B3	4.6	Retain		
H701	Group of Hawthorn	4	200+200	2.5	2.5	2.5	2.5	1 all	0.5	EM	Good	2no Hawthorn trees suspected remnant hedging.	No works presently required	40+	C2	3.4	Retain		
G702	Mixed Species Group	3 to 5.5	130	1.0	1.0	1.0	1.0	Na	3	SM	Fair	Widely spaced self-set trees located between stone wall and track. Crowns historically cut back from track. Species are Common Ash, Elder, Goat Willow	No works presently required	20+	C2	1.6	Retain		
G703	Mixed Species Group	17	450	6.5	6.5	6.5	6.5	Na	1	EM	Good	Group of 6no Sycamore, 1no Wild Cherry, 1no Goat Willow. No access to inspect. Sycamore are dominant. Closely spaced with mutually competing crowns.	No works presently required	40+	B2	5.4	Retain		
G704	Group of Downy Birch	10.5	200	3.0	3.0	3.0	3.0	1.2 w	3	SM-EM	Good	Linear group of Downy Birch behind stone wall and barbed wire fence. Fair form. Crowns historically cut back from track.	No works presently required	40+	C2	2.4	Retain		
G705	Mixed Species Group	7	100+100	1.0	1.0	1.0	1.0	Na	3	SM	Good	Linear mixed group located above track. Species include Ash, Hawthorn, Alder,	No works presently required	20+	C2	1.7	Retain		
T706	Common Hawthorn	8	450	3.5	3.5	3.5	3.5	1.6 all	1.85	M	Good	Fair to good. Decay pock at base. Decay beneath Union at 1.3m.	No works presently required	10+	C1	5.4	Retain		
T707	Common Ash	13	200+150	5.0	5.0	5.0	5.0	0.5n	2.5	SM-EM	Fair	Located atop stone wall. Top stones are displaced, which appears to be due to tree. Crown unbalanced.	No works presently required	10+	C1	3.0	Retain		
G708	Group of Ash and Hawthorn	9.5	320	3.5	3.5	3.5	3.5	3 all	3.5	SM-EM	Fair	Group of 1no Ash and 1no Hawthorn closely spaced on top of stone wall which displaced stones. Mutually competing crowns.	No works presently required	<10	C2	3.8	Retain		
G709	Group of Sycamore and Goat Willow	16	400	8.0	8.0	8.0	8.0	N/A	0	EM-M	Fair	Group bound by river to the east and railway access road to the west. Unable to access, measurements and observations estimated from public footpath/ roadside at considerable distance. Assessment is preliminary in nature and site visit would be required to fully assess. Species consist of predominantly early mature to mature Sycamore and Goat Willow.	No works presently required.	20+	B2	4.8	Retain		
G710	Mixed Species Group	13	300	5.0	5.0	5.0	5.0	N/A	0	EM	Good	Linear group extending along boundary line. Unable to access, measurements and observations estimated from roadside at considerable distance. Assessment is preliminary in nature and site visit will be required to gain more information. Species consist predominantly of Birch, Sycamore, Ash and Cherry of fairly uniform age and size.	No works presently required.	20+	B2	3.6	Remove Partial Group	548	
G711	Mixed Species Group	18	500	7.0	7.0	7.0	7.0	Na	5	EM-M	Good	Large group in garden. No access to inspect all measurements estimated. Trees are intermittently spaced and between 1-3m from boundary. Species include Alder, Wild Cherry, and Sycamore which predominates. Historic pruning and lifting noted.	No works presently required	40+	B2	6.0	Retain		
T712	Sycamore	13	280	2.5	2.5	2.5	2.5	4 all	4	EM	Good	Tree located within compound. No access to inspect all measurements estimated. Appears to have been topped at 6-7m in past.	No works presently required	20+	C1	3.4	Retain		
G713	Group of Silver Birch and Goat Willow	5.5	100	1.0	1.0	1.0	1.0	N/A	0	Y-SM	Good	Linear trackside group consisting of predominantly young to semi mature Birch and Goat Willow. Unable to access to fully inspect. Measurements and observations estimated from public footpaths. Trees are likely historically coppiced. Group is fairly continuous with some gaps in places.	No works presently required.	10+	C2	1.2	Remove Partial Group	1986	
G714	Mixed Species Group	10	200	1.5	1.5	1.5	1.5	N/A	0	Y-SM	Fair	Linear mixed species group dividing railway access roads. Unable to access, measurements and observations estimated from bridge. Species include young to semi mature Ash, Birch, Spruce and Pine and Goat Willow. Ash closest to bridge exhibits severe dieback. Otherwise fair forms.	No works presently required.	10+	C3	2.4	Retain		
T715	Magnolia	4.5	280	3.5	3.5	3.5	3.5	2 all.	1	EM	Good	No access to inspect all measurements estimated. Crown touching roof of shed.	No works presently required	20+	C1	3.4	Retain		
G716	Mixed Species Group	7	100	2.0	2.0	2.0	2.0	Na	0	SM	Good	Group of small trees and Shrubs located in rear gardens/ edge if access road. No access to good inspect all measurements estimated. Species include Mahonia, Prunus, Cypress, Lavatera.	No works presently required	20+	C2	1.2	Retain		
T717	Common Hawthorn	3.5	175	1.0	1.0	1.0	1.0	0.5	1	EM	Good	Historically managed Hawthorn adjacent to fence line. Fair form.	No works presently required.	20+	C1	2.1	Retain		
G718	Group of 3no. Sycamore	17	650	7.5	7.5	7.5	7.5	3.5 all	2.5	M	Good	Group of 3no even aged Sycamore, located behind stone wall. Good form. Existing track has concrete surface.	No works presently required	40+	B2	7.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G719	Mixed Species Group	15	400	7.5	2.0	7.5	5.0	N/A	4	M	Fair	Linear group of 1no Ash, 1no Whitebeam and 2no Sycamore. Ash has been pollarded historically at 3m with 1no regenerating stem forming new crown. Poor structural condition. Whitebeam is heavily suppressed by larger neighbouring trees. 2no Sycamore are in fair form. 4m clearance over access road.	No works presently required.	20+	B2	4.8	Retain		
T720	Sycamore	18	600	7.5	7.5	7.5	7.5	4 all	4.5	M	Good	Located behind 1m stone wall. No access to inspect all measurements estimated. Good form. Track hard surfaced in root-zone.	No works presently required	40+	B2	7.2	Retain		
G721	Group of Sessile Oak and Sycamore	18	530	6.0	6.0	6.0	6.0	Na	3	EM-M	Good	Group of 7no Sycamore and Sessile Oak specimens set back 1-2m from edge of track. Most trees are at slightly higher level than track which is hard surfaced. 1no Oak has partially fallen but currently stable.	No works presently required	40+	B2	6.4	Retain		
G722	Group of 2no. Sycamore	11	240	4.5	4.5	4.5	4.5	N/A	3	EM	Good	Group of 2no Sycamore straddling small river. Fair forms, 3m clearance over access road.	No works presently required.	20+	C2	2.9	Retain		
G723	Group of Holly and Hawthorn	7	160	3.0	3.0	3.0	3.0	N/A	0	EM	Fair	Group of semi mature Holly and early mature Hawthorn. Fair forms, 3.5m clearance over access road.	No works presently required.	20+	C2	1.9	Remove Partial Group	521	
T724	Sycamore	7.5	300	4.0	4.0	4.0	4.0	3 all	4	SM	Good	Tree located behind stone wall. Good structural condition. 1no semi mature Hawthorn under crown. 3.5m clearance over access road.	No works presently required.	20+	B2	3.6	Retain		
G725	Mixed Species Group	7.5	200	2.5	2.5	2.5	2.5	N/A	3.5	SM	Poor	Linear group adjacent to access road behind stone wall. Species consist of Whitebeam, Ash and Sycamore. Ash display dieback throughout. Sycamore at southern extents of group has been historically pollarded at approx. 3m with 5m regrowth and is directly abutting and damaging wall. Poor forms throughout group.	No works presently required.	10+	C3	2.4	Retain		
G726	Group of 3no. Ash	5.5 to 8.5	100-170	1.0	1.0	1.0	1.0	N/A	1.5	SM	Fair	Group of 3no evenly spaced, self-seeded Ash directly abutting roadside stone wall. Heights range from 5.5 to 8.5m. Stem diameters range from 100-170mm. Poor forms, minimal encroachment over access road, 6m clearance.	No works presently required.	10+	C3	2.0	Retain		
T727	Common Ash	17	750	7.0	7.0	7.0	7.0	4e	3.5	M	Good	No access to inspect all measurements estimated. Set back 4m from edge of track. Storm damage throughout crown. Decay at old wounds. 5% deadwood in crown over low target area.	No works presently required	20+	B1	9.0	Retain		
G728	Mixed Species Group	15	250	2.5	2.5	2.5	2.5	Na	3.5	SM	Fair	Scrubby group of Sycamore, Goat Willow and Ash located 1-2m from edge of track. Mutually competing crowns.	No works presently required.	20+	C2	3.0	Retain		
G729	Group of Sycamore and Ash	20	550	8.0	6.0	8.0	8.0	N/A	5	M	Fair	Linear group extending along roadside edge, consisting of 3no Ash and 1no Sycamore. Uniform age and size. Northernmost Ash is standing dead. Otherwise fair forms, 5m clearance over access road.	Fell standing dead Ash tree.	20+	B3	6.6	Retain		
G730	Group of Sycamore and Common Ash	19	480	6.0	6.0	6.0	6.0	Na	2.5	M	Good	Group of even aged 7no Sycamore and 1no Ash located on bank to water course. Ash is in decline with 5% major and minor deadwood over track. Sycamore with fair form.	Remove deadwood from crown of Ash that overhangs track.	20+	B2	5.8	Retain		
G731	Mixed Species Group	10	200	1.0	1.0	1.0	1.0	N/A	0	Y-SM	Poor to fair	Linear group extending alongside access road on slightly raised ground, bound by 0.5m stone wall. Species consist of Laurel, Hawthorn, Leyland Cypress and ground vegetation, with some sporadic self-seeded Ash abutting roadside edge. Generally poor to fair forms. Group is 0.5m from roadside edge at closest point.	No works presently required.	20+	C2	2.4	Retain		
G732	Group of Sycamore and Common Ash	10.5	200	3.0	3.0	3.0	3.0	Na	3.5	SM	Fair	Group of 8no Sycamore and Common Ash trees located on bank between track and watercourse. Constrained root systems. Mutually competing crowns.	No works presently required	20+	C2	2.4	Retain		
G733	Mixed Species Group	15	450	5.5	5.5	5.5	5.5	N/A	0	EM	Fair	Linear group extending along steep trackside embankment between trackside and sloping down towards residential properties/ gardens. Unable to access to inspect. Measurements and observations estimated from roadside between dwellings. Assessment is preliminary in nature and a full site visit would be required to fully inspect. Species include Sycamore, Ash, Goat Willow, Alder, Laurel, Beech, Birch, occasional Spruce and Pine. Evidence of historical management to include coppicing. Eastern extents of group appears to be bound by high stone wall.	No works presently required.	20+	B2	5.4	Retain		
G734	Mixed Species Group	11	250	4.0	4.0	4.0	4.0	N/A	0	EM	Good	Dense mixed species group located on trackside embankment sloping down to roadside. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species include Birch, Beech, Sycamore, Spruce, Goat Willow, Horse Chestnut and Ash. Group extends from boundary with residential property up to public footpath.	No works presently required.	20+	C2	3.0	Retain		
G735	Mixed Species Group	5	100	2.5	2.5	2.5	2.5	Na	0	SM	Fair	Limited views of trackside indicates intermittently and generally widely spaced trees and shrubs, including Laurel and Hawthorn. No access to inspect all measurements and observations estimated.	No works presently required	20+	C2	1.2	Retain		
T736	Sycamore	9	250+100	3.0	3.0	3.0	3.0	GI	0.5	SM	Good	Selfset tree within 0.5m of boundary wall. Dense ivy encroachment.	No works presently required	20+	C1	3.2	Retain		

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G737	Mixed Species Group	14	350	4.0	4.0	4.0	4.0	N/A	0	EM	Fair	Large mixed species group. Unable to access due to dense understorey. Fairly steep ground gradient. Measurements and observations estimated from public car park to south. Species consist of Sycamore, Ash, Goat Willow. Some alders to northern extent of group abutting roadside. Understorey of Elder, Goat Willow, Ivy and Buddleia. Many large trees heavily encroached in ivy. Some fallen trees within group. Western extent of group appears to overhang railway land. Ages range from SM-EM.	No works presently required.	20+	C2	4.2	Retain		
T738	Goat Willow	5.5	3x100	2.5	2.5	2.5	2.5	GI	0	SM	Good	Directly against wall, limited space for future development.	No works presently required	10+	C1	2.1	Retain		
T739	Hybrid Black Poplar	8	230	3.0	3.0	3.0	3.0	1.5nw	1.5	SM	Good	Part of eider group extending sw. Previously topped.	No works presently required	20+	C2	2.8	Retain		
G740	Mixed Species Group	10	275	3.0	3.0	3.0	3.0	N/A	0	SM	Fair	Linear group between properties and trackside. Unable to access area, measurements and observations estimated from roadside. View of group greatly obstructed by houses. Species appear to include Birch and Ash on ground that slopes downwards to trackside. Ash appear to be in decline. Trees closer to trackside appear to be smaller and possibly historically managed. Heights range approximately from 8-10m.	No works presently required.	20+	C2	3.3	Retain		
G741	1no Cherry, 1no Leyland Cypress, 1no Plum	9	290	2.5	2.5	2.5	2.5	Na	0.5	EM	Fair	Group of 1no Cherry, 1no Leyland Cypress, 1no Plum. Closely spaced, competing crowns. Cherry previously severely pruned. No access to inspect.	No works presently required	20+	C2	3.5	Retain		
G742	Mixed Species Group	5	250	2.5	2.5	2.5	2.5	Na	0	EM	Fair	No access to inspect all measurements estimated from pavement. Linear Group including Ash & Sycamore with Hawthorn growing at sides. All trees visible appear to have been topped previously. Dense ivy encroaching stems.	No works presently required	20+	C2	3.0	Remove Partial Group	163	
T743	Sycamore	7.5	300	2.5	2.5	2.5	2.5	1.5	1.5	SM	Good	Tree located abutting rear of private property fenceline on upper embankment. Unable to access, measurements, and observations estimated from roadside. Fair form, appears historically managed.	No works presently required.	20+	C2	3.6	Retain		
G744	Mixed Evergreen Group	3.5	150	0.5	0.5	0.5	0.5	Na	0	SM	Fair	No access to inspect all measurements estimated. Group of small trees, suspected Holly in rear gardens.	No works presently required	20+	C2	1.8	Retain		
T745	Whitebeam	7	280	3.5	3.0	3.5	3.5	2 all	2	EM	Good	Tree located on verge between road and pavement, included main union at 1.5m. Otherwise fair form.	No works presently required.	20+	C1	3.4	Retain		
T746	Whitebeam	7	280	3.5	3.0	3.5	3.5	2 all	2	EM	Good	Tree located on verge between road and pavement, bark inclusion from ground level to 1.5m, not currently of concern. Otherwise fair form.	No works presently required.	20+	C1	3.4	Retain		
T747	Wild Cherry	5	230	5.0	2.0	4.5	2.5	2.5 all	2	EM	Good	Tree located on verge between road and pavement, Historic codominant failure resulting in wound from 1.5m down to ground level approx. 30cm dia. No evidence of associated decay. Otherwise fair form.	No works presently required.	20+	C1	2.8	Retain		
T748	Swedish Whitebeam	6.5	250	4.0	3.0	4.0	3.0	2.5 all	2	EM	Good	Tree located on verge between road and pavement, fair form.	No works presently required.	20+	C1	3.0	Remove Individual		1
G749	Mixed Species Group	19	400	5.0	5.0	5.0	5.0	Na	1.5	EM	Good	SM-EM. Large group on steep embankment. No access to inspect all measurements estimated. Species include Common Oak, Hawthorn, Holly and Birch. Trees are >1m above pavement level behind stone wall. Crown clearance over pavement 1.5-2m. Section of remnant hedge at northern end of group.	No works presently required	40+	B2	4.8	Retain		
G750	Mixed Species Group	4.5	120	3.5	3.5	3.5	3.5	N/A	2	EM	Good	Group of Hawthorn, Ash, Horse Chestnut saplings and Elder adjacent to pavement on raised ground bound by 1m stone wall. Ash is in severe decline. Ages range from Y to EM.	No works presently required.	20+	C2	1.4	Retain		
T751	Common Ash	15	440	5.5	5.5	5.5	5.5	3w	1	EM	Fair	Located behind stone wall. Ash saplings growing at base. Displaying Ash dieback symptoms. Tip dieback and vigorous epicormic growth.	No works presently required	10+	C1	5.3	Retain		
T752	Common Horse Chestnut	19	1050	9.0	10.0	6.0	8.0	1.8 all	0	M	Good	Located behind stone boundary wall, set back 2.5m. No access to inspect all measurements estimated. Crown breaks at 1.8m. Selective crown lifting over road to east.	No works presently required	40+	B1	12.6	Retain		
G753	A Group	15	400	5.5	5.5	5.5	5.5	N/A	5	M	Fair	Linear group of trees within private garden adjacent to boundary wall and public carriageway. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species consist of Lime, Sycamore, Ash and Beech. Ages range from EM to M. Ash appear to be in decline, suspected Ash dieback. Some understorey semi mature Holly to northeastern and southeastern extents of group.	No works presently required.	40+	B2	4.8	Retain		
G754	Group of Ash	11	310+280+260+260	6.5	6.5	6.5	6.5	N/A	2	EM	Fair	Clump of Ash abutting boundary stone wall adjacent to carriageway. No access to fully inspect. Fusion of stems at 1m appears stable. Minor deadwood throughout. Otherwise fair form.	No works presently required.	20+	C1	6.7	Retain		
T755	Sycamore	11	2x310	5.5	5.5	5.5	5.5	2 all	1	EM	Good	Tree located abutting field boundary stone wall, adjacent to public carriageway. Unable to access to fully inspect. Inclusion of old barbed wire fenceline at 1m. Otherwise fair form from preliminary inspection.	No works presently required.	40+	B2	5.3	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T756	Ash	12.5	420	6.5	4.5	6.5	7.0	1 W	2	M	Fair	Ash abutting boundary stone wall adjacent to carriageway. No access to fully inspect. Minor deadwood throughout, suspected apical dieback. Otherwise fair form.	No works presently required.	20+	C1	5.0	Retain		
T757	Ash	8	250	2.5	2.5	2.5	1.0	3 all	4	SM	Fair	Ash abutting boundary stone wall adjacent to carriageway. No access to fully inspect. Historically managed as a pollard. 2m regrowth. Fair form.	No works presently required.	20+	C1	3.0	Retain		
T758	Plum	5	165+100	0.5	0.5	3.0	0.5	N/A	0.5	EM	Poor	Tree located adjacent to carriageway behind stone wall. Fungal bracket at base visually identified to most closely resemble Ganoderma sp. Larger stem has failed and is resting in neighbouring tree but retains fair vitality. Appears presently stable. Smaller stem is standing dead.	No works presently required.	<10	U	2.3	Retain		
T759	Sycamore	10	2x260	4.0	5.0	5.0	5.0	0	0	SM	Good	Tree located adjacent to field boundary stone wall. Unable to access to fully inspect. Dense basal epicormic beginning to establish. Crown historically topped due to location below power lines. Fair structural form.	No works presently required.	20+	C2	4.4	Retain		
G760	Mixed Species Group	11	350	4.0	4.0	4.0	4.0	N/A	0	EM	Fair	Mixed group of 2no Common Ash and 1no Sycamore dominant trees with multiple smaller but well established Hawthorn and occasional semi-mature Sycamore. Central Ash displaying Ash dieback symptoms and 15% dieback. Group is on slope down toward railway track. No access to inspect all measurements estimated.	No works presently required	10+	C2	4.2	Retain		
G761	Mixed Group of Small trees	4	120	1.0	1.0	1.0	1.0	N/A	0	SM	Fair	SM-EM. No access to inspect all measurements estimated. Approx 8no small trees including Hawthorn and Elder species.	No works presently required	10+	C2	1.4	Retain		
T762	Apple	6	100+80+80	2.0	4.0	5.0	3.0	N/A	1	EM	Fair	Tree abuts boundary stone wall. Fair form.	No works presently required.	20+	C2	1.8	Retain		
T763	Sycamore	18	3x290	4.5	4.5	4.5	4.5	Gl	4	EM	Good	Located along fence line. Remnant hedge beneath. Historically crown lifted. No access to inspect all measurements estimated.	No works presently required	40+	B1	6.0	Retain		
G764	Mixed Species Group	17	370	4.5	4.5	4.5	4.5	N/A	3.5	EM	Good	Linear mixed species group on steep trackside embankment extending up to private gardens. Unable to access to fully inspect. Measurements and observations estimated from roadside. Species include Maple, Cherry, Larch, Lime, Ash and Beech. Ages range from SM-EM. Stem diameters range from 120mm to 370mm approx. Trees closest to trackside appear to have been historically cut back.	No works presently required.	40+	B2	4.4	Remove Partial Group	242	
T765	Beech	11	320	5.0	5.0	5.0	5.0	4.5 all	4.5	EM	Good	Tree located within private garden. Unable to access to fully inspect. Measurements and observations estimated from roadside. Fair to good form from preliminary inspection.	No works presently required.	40+	B2	3.8	Retain		
G766	Group of 2no Cherry	8	300	5.5	5.0	5.5	4.5	N/A	1.5	M	Good	Group of 2no evenly aged Cherry. Unable to access to fully inspect. Measurements and observations estimated from roadside. Northernmost tree is directly adjacent to field entrance gate with 2m vertical clearance over entranceway. Understorey of Hawthorn hedgerow.	No works presently required.	20+	C2	3.6	Retain		
G767	Mixed Species Group	16	450	6.0	6.0	5.5	6.0	N/A	5	M	Good	Linear group of Sycamore, Ash and Alder along field boundary. Unable to access to fully inspect. Measurements and observations estimated from roadside. Trees are fairly evenly aged. Dense ivy encroachment throughout all trees restricts assessment of structural conditions. Understorey of Hawthorn hedgerow.	No works presently required.	40+	B2	5.4	Retain		
T768	Common Ash	8	290	2.5	3.0	1.5	2.5	3.5 n	2.5	EM	Fair	No access to inspect all measurements estimated. Multiple lesions and sunken areas on stem, suspect I. Hispidus. 10% dieback in crown. Ash dieback symptoms.	Remove deadwood over build.	<10	U	3.5	Retain		
H769	Hawthorn and Blackthorn Hedge	5.5	150	1.5	2.0	4.5	2.0	N/A	0	EM	Fair	SM-EM. Recently unmanaged hedge located between fencelines. Species include Hawthorn and Blackthorn. Crowns overhang structures in field. No access to inspect all measurements estimated.	No works presently required	20+	C1	1.8	Retain		
G770	Mixed Species Group	19	350	5.0	5.0	5.0	5.0	N/A	1	EM	Good	SM-EM. Group located outside existing fence on edge of bank down to watercourse. Trees are tightly spaced, 2-3 trees wide in places. Species include Ash and Sycamore and Pine. Understory of Hawthorn.	No works presently required	40+	B2	4.2	Retain		
G771	Mixed Species Group	25	450	7.0	7.0	7.0	7.0	N/A	0	M	Good	EM-M. Fair to good. Mixed species group located at edge of, and down steep bank toward canal metal boundary fence and working yard. Species include Common Ash, Goat Willow, Oak, Alder, Cypress. Trees are densely spaced in places with slender forced growth. Most stems with dense ivy encroachment.	No works presently required	40+	B2	5.4	Retain		
G772	Mixed Species Group	25	400	5.0	5.0	5.0	5.0	N/A	0	EM	Good	Fair to good. Continuation of previous group, slightly wider spaced, little ivy and younger trees. Species include Common Ash, Goat Willow, Cherry and Poplar. Occasional mature Goat Willow throughout group. Understorey of Hazel and Hawthorn. Occasional fallen trees. Slender, forced growth in places.	Remove dead trees within falling distance of canal towpath.	40+	B2	4.8	Retain		
T773	Grey Poplar	33	650	10.0	10.0	10.0	10.0	10 all	12.5	M	Good	Tree located on embankment. Large example of species. Minor deadwood in crown otherwise fair to good form.	No works presently required.	40+	B1	7.8	Retain		
G774	Group of 3no Poplar	32	700	11.0	12.0	11.0	9.0	N/A	7	M	Good	Group of 3no Poplar of fairly even age and size located on upper embankment adjacent to property boundary fence. Minor deadwood throughout group. Otherwise fair forms.	No works presently required.	40+	B2	8.4	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T775	Common Ash	30	420+420+400+400+400	9.0	9.0	9.0	9.0	4.5 all	5	M	Good	Multistemmed from 0.5m. Wounds on stems. Located halfway up bank.	No works presently required	20+	B2	11.0	Retain		
G776	Group of Laurel	6	100	4.0	4.0	4.0	4.0	N/A	0	EM	Good	Linear group of Laurel extending along and through boundary fenceline.	No works presently required.	40+	C2	1.2	Retain		
G777	Mixed Species Group	12	200	3.5	3.5	3.5	3.5	N/A	4.5	SM	Fair	Group of densely planted Ash, Birch, Sessile Oak and Field Maple extending up to property boundary. Fair forms throughout. Group extends further southwest than plotted points.	No works presently.	20+	C2	2.4	Retain		
G778	Group of Laurel	6	200	3.0	3.0	3.0	3.0	N/A	0	EM	Good	boundary planting close to metal fence. Provides visual screening. Stems are growing through fence in places. Some pruning evident at northern end. Trees in northern end of group slender growth.	No works presently required	20+	C2	2.4	Retain		
G779	Mixed Species Group	20	320	3.5	3.5	3.5	3.5	N/A	2	EM	Good	Ht 12-20m. Mixed intermittently spaced group of Larch, Birch, Alder, Pine generally located between the internal access roads and Laurel group.	No works presently required	20+	B2	3.8	Retain		
T780	Goat Willow	9	400+330+275	5.5	0.5	5.0	2.5	2 all	3	M	Poor	Tree located adjacent to access track, abuts boundary fenceline. Decay observed at base. Central stem is standing dead. Poor structural condition.	No works presently required.	20+	C2	7.0	Retain		
G781	Group of Poplar	25	600	9.0	9.0	9.0	9.0	N/A	7	M	Good	Linear group of early mature to mature Poplar. Unable to access to inspect. Measurements and observations estimated from public access road at considerable distance. Northern half of group appear to have been historically managed as pollards. Some gaps in group. Sporadic Alder and Birch within group. Unable to view understorey. Plotted locations are estimated and will need to be refined with aerial photography.	No works presently required.	20+	B2	7.2	Retain		
G782	Mixed Species Group	13	300	3.0	3.0	3.0	3.0	N/A	0	EM	Fair	SM-EM. Surveyed with very limited views. Group of Leyland Cypress, Laurel and Beech. Trees are located in grass verge at edge of access road. No access to inspect all measurements estimated.	No works presently required	20+	C2	3.6	Retain		
G783	Group of Leyland Cypress	11	220	3.5	3.5	3.5	3.5	1 all	1	EM	Good	Linear group of Leyland Cypress between two fencelines adjacent to site entrance. Ownership unclear. Unable to access to inspect. Measurements and observations estimated. Fair forms from preliminary inspection.	No works presently required.	20+	C2	2.6	Retain		
G784	Mixed Species Group	13	300	6.0	3.5	3.5	5.0	N/A	3	EM	Good	Group located on 1m raised ground bound by stone wall adjacent to Plevin site entrance. Unable to access to fully inspect. Measurements and observations estimated. Species consist of Sycamore, Leyland Cypress and Bay Laurel. Fair forms.	No works presently required.	20+	C2	3.6	Retain		
G785	Group of Leyland Cypress	17	350	4.5	4.5	4.5	4.5	N/A	0	EM	Good	Group of intermittently spaced Leyland Cypress. Approx 8no in group. Trees straddle fence lines. No access to inspect all measurements estimated. Barrier planting.	No works presently required	20+	C2	4.2	Retain		
G786	Mixed Species Group	17	2x350	5.0	5.0	5.0	5.0	N/A	0	M	Good	EM-M. Fair to good. Group of Birch, Ash, Goat Willow and Sycamore. Cypress and Ash become more prominent at northern end of group. located on bank between boundary fence down to yard. No access to inspect all measurements estimated. Minimal views of trees from public access.	No works presently required	20+	B2	5.9	Retain		
G787	Mixed Species Group	15	500	5.0	5.0	5.0	5.0	N/A	4.5	EM	Fair	Linear group on edge of woodland. Group extends further west than plotted points. Average stem diameter taken. Group located on embankment sloping down to road level, bound by 1.5m high stone wall. Trees are predominantly on ground 1-2m higher than road level. Species include Cherry, Ash, Hazel, Holly and Alder. Some sporadic Sessile Oak. Ash throughout group display symptoms of Ash dieback to varying degrees of severity. Ages range from Y-EM.	No works presently required.	20+	B3	6.0	Retain		
G788	Group of 3no Goat Willow	8.5	2x280	5.0	5.0	5.0	5.0	N/A	2	EM	Good	Group of 3no Goat Willow located on embankment. No access to inspect all measurements estimated. Tree to south previously topped. Understory of Hawthorn and Willow beneath crowns.	No works presently required	20+	C2	4.8	Remove Entire Group		3
T789	Common Ash	11.5	350	6.0	6.0	4.0	6.0	4 N	2.5	M	Poor	Tree located on trackside embankment, directly abutting boundary wall. Unable to access to fully inspect, measurements and observations estimated from roadside. Stem has flattened against wall, resulting in wounding, unable to investigate further due to lack of access. Crown appears to be in decline, suspected Ash dieback. Limited remaining safe useful life expectancy.	Consider felling to ground level.	<10	U	4.2	Remove Individual		1
G790	Mixed Species Group	13	350	3.5	3.5	3.5	3.5	N/A	0	EM	Good	Large mixed species group located in open space extending up to property boundaries to the west and public footpath to the north. Species consist predominantly of Sycamore, Goat Willow and intermittent Ash with understorey Holly and Hazel. Some Goat Willow in group have historically fallen. Ash within group display signs of Ash dieback. Group becomes sparser to southern extents.	No works presently required.	20+	C2	4.2	Retain		
T791	Goat Willow	19	650+500+450+350	9.0	6.0	4.0	10.0	GI	1	M	Good	Multistemmed from ground level. 5% major deadwood in crown.	No works presently required	20+	B2	10.6	Retain		
G792	Group of 3no Goat Willow	11	550+500+350	10.0	10.0	10.0	10.0	GI	0	OM	Fair	Group of 3no Goat Willow in various stars of collapse. Fallen stems are resting on ground. Decay in stems. Wide spreading crowns.	No works presently required	20+	B3	9.9	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T793	Sycamore	19	5x380	5.0	5.0	5.0	5.0	GI	1.2	M	Good	Grown from coppice. 5% major deadwood in crown.	Remove major deadwood over public footpath.	40+	B2	10.2	Retain		
T794	Sycamore	14	380	4.5	4.5	1.0	1.0	0.5	2.5	EM	Good	Suppressed crown predominates to north.	No works presently required	20+	C2	4.6	Retain		
T795	Goat Willow	7	270+270+240+200+200	2.0	3.0	4.5	4.0	GI	1.5	M	Fair	Decay in central stem. Suppressed crown.	No works presently required	20+	C2	6.4	Retain		
G796	Group of Field Maple and Hawthorn	10.5	200	5.0	5.0	5.0	5.0	N/A	4	SM	Good	Linear group extending along footpath edge consisting of closely planted and established Field Maple and understorey Hawthorn, appears regularly cut back from footpath. Fair forms throughout.	No works presently required.	20+	C2	2.4	Retain		
G797	A Group	13	310	4.0	4.0	4.0	4.0	N/A	0.5	EM	Good	Mixed species group located on fairly steep gradient, extending from property boundaries to northeast and public footpath to southwest. Species consist of predominantly Ash, Cherry, Whitebeam, Sycamore, Hazel, Hawthorn, and Goat Willow. Some intermittent coniferous trees within group. Ages range from semi mature to early mature. Stem diameters range from approx 85mm to 310mm.	No works presently required.	20+	C2	3.7	Retain		
H798	A Hedgerow	9	280	4.5	4.5	4.5	4.5	N/A	2	EM	Good	SM-EM. Suspected unmanaged hedge of Hazel, Hawthorn, Common Ash, Field Maple, Goat Willow. Located alongside public footpath. Most trees are densely spaced but occasional gaps of up to 2.5m along length.	No works presently required	20+	C2	3.4	Retain		
H798	A Hedgerow	9	280	4.5	4.5	4.5	4.5	N/A	2	EM	Good	SM-EM. Suspected unmanaged hedge of Hazel, Hawthorn, Common Ash, Field Maple, Goat Willow. Located alongside public footpath.	No works presently required	20+	C2	3.4	Retain		
G799	Mixed Species Group	5	350	1.5	1.5	1.5	1.5	N/A	1.5	M	Fair	Group of 2no even aged Cherry in edge if field by public footpath.	No works presently required	10+	C2	4.2	Retain		
G799	A Group	5	350	1.5	1.5	1.5	1.5	N/A	1.5	M	Fair	Group of 2no even aged Cherry in edge if field by public footpath.	No works presently required	10+	C2	4.2	Retain		
G800	Group of 4no Sycamore	12.5	400	5.0	5.0	5.0	5.0	N/A	3.5	EM	Good	Group of 4no Sycamore adjacent to access track. Fair forms.	No works presently required.	20+	C2	4.8	Retain		
G801	Group of Leyland Cypress	3.5	80	0.8	0.8	0.8	0.8	N/A	0	SM	Good	Group of Leyland Cypress located in garden 1m above path.	No works presently required	20+	C2	1.0	Retain		
G801	A Group	3.5	80	0.8	0.8	0.8	0.8	N/A	0	SM	Good	Group of Leyland Cypress located in garden 1m above path.	No works presently required	20+	C2	1.0	Retain		
G802	Group of 3no Beech	14	350	7.0	7.0	4.0	7.0	N/A	5	EM	Good	Group of 3no closely planted Beech. Good forms, no significant defects observed.	No works presently required.	20+	C2	4.2	Retain		
G803	Group of 2no Lime and 1no Common Beech	18	420	4.0	4.0	4.0	4.0	N/A	1	EM	Good	EM-M. Small group in row of 2no Lime and 1no Common Beech. Trees are located in garden, set back 1.5m from access road. No access to inspect all measurements estimated. Wounds noted on stems. Like to west with dense ivy encroachment. Crowns historically pruned to clear power line at 7m height. Crown clearance over road 5.5m.	No works presently required	20+	B2	5.0	Retain		
G803	A Group	18	420	4.0	4.0	4.0	4.0	N/A	1	EM	Good	EM-M. Small group in row of 2no Lime and 1no Common Beech. Trees are located in garden, set back 1.5m from access road. No access to inspect all measurements estimated. Wounds noted on stems. Like to west with dense ivy encroachment. Crowns historically pruned to clear power line at 7m height. Crown clearance over road 5.5m.	No works presently required	20+	B2	5.0	Retain		
G804	Group of 3no Hawthorn	4.5	2x100	0.8	0.8	0.8	0.8	0	0	SM	Poor	Group of 3no historically managed Hawthorn forming end of hedgerow that extends southwest, and 1no Ash sapling on verge adjacent to access road. Minimal encroachment over access road. Ash appears to be in significant decline.	No works presently required.	10+	C3	1.7	Retain		
T805	Common Hawthorn	6.5	260	1.5	2.0	4.0	1.5	GI	0	EM	Fair	Codominant has split and fallen to ground in field. Remaining stem with thinning crown. Vigorous epicormic growth.	No works presently required	10+	C1	3.1	Retain		
G806	Group of 2no Sycamore	11	310	5.5	5.5	5.5	5.5	2 all	3	EM	Good	Group of 2no companion Sycamore adjacent to access road. Trees situated on field edge, ground level 1m lower than access road. Unable to access to fully inspect, measurements and observations estimated from roadside. Fair forms from preliminary inspection.	No works presently required.	40+	B2	3.7	Retain		
G807	Mixed Species Group	6	150	1.5	1.5	1.5	1.5	N/A	0	SM	Good	SM. Height 3-6m. Group located along old hedge line. No-longer functioning as hedge. Group widens in places. Species include Hawthorn, Common Ash, Holly, Elder, Cherry, Oak. Group is non-continuous with spacings of up to 10m. 2no Cherry trees at northern end heights up to 8m.	No works presently required	40+	C2	1.8	Remove Partial Group	151	
T808	Holly	7	2x180	2.5	2.5	2.5	2.5	0.2	0	SM	Fair	Supressed by adjacent Oak, but adequate.	No works presently required	40+	C1	3.1	Retain		
T809	Common Hawthorn	5.5	280	3.0	3.0	3.0	3.0	GL	0	EM	Fair	Located in corner of garden no access to inspect all measurements estimated. Dense ivy encroachment.	No works presently required	20+	C1	3.4	Retain		

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G810	A Group	12	300	5.5	5.5	5.0	5.5	N/A	4.5	EM	Good	Linear group along edge of hard standing access road. Trees are generally 0.5 to 0.75 from road edge. Species consist predominantly of Goat Willow, Ash, Alder and Sycamore with some understorey Hawthorn. Ages range from SM-EM. Approx 4.5m clearance over access road to east. 2.5m clearance over access road to north leading to bridge.	No works presently required.	20+	C2	3.6	Retain		
T811	Sycamore	11.5	150+130+310	4.5	4.5	4.5	4.5	2 E	5	SM	Good	Tree located 0.75m from edge of access road. Fair form, approx 5m clearance over road.	No works presently required.	20+	C1	4.4	Retain		
T812	Sessile Oak	10.5	210	3.5	4.0	4.0	4.5	2 W	4	SM	Good	Tree located immediately adjacent to access road. Minor stem damage on eastern side of stem at 0.5m. Otherwise fair form.	No works presently required.	20+	C1	2.5	Retain		
T813	Sycamore	13	370+220	6.0	2.0	3.5	3.5	2 all	2	EM	Good	Tree located immediately adjacent to river. Fair form, canopy overhangs bridge by 0.75m. 2m clearance at present.	No works presently required.	20+	C1	5.2	Retain		
G814	Mixed Species Group	7	135	1.0	1.0	1.0	0.5	N/A	0	SM	Good	Intermittent group of Hawthorn and Sycamore extending down slope towards field. Ages range from Y-SM. Fair forms.	No works presently required.	20+	C2	1.6	Retain		
H815	Mixed Species Hedgerow	2.5	160	1.2	1.2	1.2	1.2	N/A	0	SM	Fair	Hedgerow at boundary of garden. No access to inspect all measurements estimated. Hedge comprised predominantly of Leyland Cypress. Trees to west on slope not recently managed. Trees to east appear regularly trimmed. Gaps present in hedge.	No works presently required	20+	C2	1.9	Retain		
G816	Group of 4no Leyland Cypress	11	180	1.5	1.5	1.5	1.5	2 all	1.5	SM	Good	Group of 4no closely planted Leyland Cypress adjacent to property boundary. Central tree has large included main union at 1m, presently appears stable. Otherwise fair forms.	No works presently required.	20+	C2	2.2	Retain		
T818	Wild Cherry	8	3x160	4.0	5.0	4.0	5.0	1 N	1	EM	Good	Tree located in private garden adjacent to river. Unable to access to fully inspect. Measurements and observations estimated from bridge. Fair form. No encroachment of crown over bridge.	No works presently required.	20+	B1	3.3	Retain		
G819	Mixed Species Group	6	120	2.0	2.0	2.0	2.0	N/A	0	SM	Good	Intermittently spaced field boundary group on bank to watercourse. Species include Common Ash, Cherry, Hawthorn. No access to inspect all measurements estimated.	No works presently required	40+	C2	1.4	Retain		
G820	Group of Hawthorn and Goat Willow	6.5	160	5.0	2.0	5.0	1.5	N/A	3.5	SM	Good	Group of closely self-seeded Hawthorn and Goat Willow adjacent to access road.	No works presently required.	20+	C2	1.9	Retain		
T821	Goat Willow	8.5	2x220	5.0	5.0	4.0	4.0	1 all	0.5	SM	Good	Tree located adjacent to river. Fair form, minimal encroachment over adjacent bridge.	No works presently required.	20+	C1	3.7	Retain		
T822	Silver Birch	9	2x90	2.0	2.0	2.0	2.0	Gl	1	SM	Good	Located behind stone wall on bank down to water course. Poor structural condition, but adequate.	No works presently required	20+	C1	1.5	Retain		
G823	Mixed Species Group	2.5	90	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Group of widely spaced regularly managed shrubs. A - Cornus, B - Portugal Laurel, C - Cornus, D- Lavateria.	No works presently required	20+	C2	1.1	Retain		
G824	Group of 2no Hawthorn	5	130	1.5	3.0	1.5	3.5	N/A	0	EM	Good	Group of 2no Hawthorn. Fair forms, no significant defects observed.	No works presently required.	20+	C2	1.6	Remove Entire Group		2
T825	Willow	7	380+260	1.0	3.0	7.0	2.0	Gl	0	EM	Good	Windblown tree laying on ground aligned to southeast. Vigorous side laterals have assumed apical dominance.	No works presently required	20+	C1	5.5	Remove Individual		1
H826	Mixed Species Hedgerow	2	90	0.5	0.5	0.5	0.5	0	0	EM	Fair	Linear hedgerow consisting of Hawthorn and Privet on top of 1m stone wall, extending along footpath edge. Hedgerow is regularly managed and kept back from footpath.	No works presently required.	20+	C2	1.1	Retain		
G827	Mixed Species Group	13	280	2.5	7.0	6.0	6.0	N/A	5.5	EM	Good	Linear group of approx. 8no closely planted Goat Willow, 1no Sycamore and 1 clump of Ash adjacent to car park. Understorey of Hazel and Hawthorn. Minor deadwood throughout Goat Willow. Ash to the north of group appears to be in decline, approx. 4no standing small diameter dead stems.	No works presently required.	20+	C2	3.4	Retain		
T828	Sycamore	17	550+620+480+480+460	7.5	7.5	6.0	7.5	3.5 S	7	M	Good	Tree located immediately adjacent to car park. Multistemmed from base, multiple included unions with no signs of cracking or movement at present. Minor deadwood in crown.	No works presently required.	20+	C1	14.0	Retain		
H829	Beech Hedgerow	2	85	0.5	0.5	0.5	0.5	0	0	SM	Good	Linear managed Beech hedgerow extending along footpath edge.	No works presently required.	20+	C2	1.0	Retain		
H830	Beech Hedgerow	2	85	0.5	0.5	0.5	0.5	0	0	SM	Good	Linear managed Beech hedgerow extending along footpath edge.	No works presently required.	20+	C2	1.0	Retain		
G831	Mixed Species Group	14	400	6.0	3.5	6.0	5.0	N/A	0	SM	Fair	Dense, unmanaged linear mixed species group located adjacent to car park edge and extends beyond plotted points to riverside edge. Species consist of Sycamore, Ash, Goat Willow and Silver Birch. Understorey trees include Hawthorn, Bramble, Box Elder and Hazel. Ivy encroaches throughout group. Dense understorey prevents full inspection of trees, measurements, and observations estimated from car park.	No works presently required.	20+	C2	4.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
T832	Common Ash	18	690	0.0	5.0	10.0	9.0	3.5s	3.5	M	Good	Located 1m from stone wall at boundary. Historically suppressed by neighbour to north, hence tree leans to south. Historically lifted over roar. Dense ivy prevents basal inspection. 5%minor deadwood in crown. Decay visible at WO and from branch failure to west at 8m, response growth evident.	No works presently required	20+	C2	8.3	Retain		
G833	Mixed Species Group	4	90	1.5	1.5	1.5	1.5	N/A	0	SM	Good	Group of understory shrubs and small trees. Species include Holly, Lilac, Hazel, Oak, Sorbus, Privet and Elder.	No works presently required	40+	C2	1.1	Retain		
T834	Common Beech	27	650	2.0	6.0	8.0	4.0	4s	2	M	Good	Located in border. Historically lifted over park area. Wounds are occluding. None sided crown predominating to south due to historic suppression.	No works presently required	40+	B2	7.8	Retain		
T835	Sycamore	18	460	3.0	4.0	5.0	6.0	4e	4.5	EM	Good	Historically lifted, wounds are occluding. 5% major and minor deadwood in crown.	Remove major deadwood in crown.	40+	B2	5.5	Retain		
T836	Sycamore	16	400	1.0	4.0	7.5	6.5	3.5 all	3.5	EM	Good	Historically lifted, wounds are occluding.	No works presently required	40+	B2	4.8	Retain		
H837	Beech Hedgerow	1.2	50	0.5	0.5	0.5	0.5	N/A	0	SM	Good	Predominantly Beech hedge with small Laurel patches at ends. Appears to be regularly managed.	No works presently required	20+	C2	0.6	Retain		
G838	Group of 3no Cherry	5	170	3.0	3.0	3.0	3.0	1.8 all	2	SM	Good	Group of 3no even aged Tibetan Cherry. Exposed roots extend 0.5m from stem.	No works presently required	40+	C2	2.0	Retain		
G839	Group of 2no Elm	9	260	4.5	4.5	4.5	4.5	1.8 all	1.5	SM-EM	Good	2no even aged Elm trees. Good form.	No works presently required	40+	B2	3.1	Retain		
T840	Elm	9.5	290	4.0	4.0	4.0	4.0	2 all	1.5	SM	Good	Good form.	No works presently required	40+	B2	3.5	Retain		
T841	Whitebeam	5.5	100	1.5	1.5	1.5	1.5	1.9 all	1.5	SM	Fair	Declining crown. Strimmer damage at base.	No works presently required	10+	C1	1.2	Retain		
T842	Hornbeam 'Fastigiata'	7.5	180	2.5	2.5	2.5	2.5	1.5 all	1.5	SM	Good	Strimmer damage at base. Constrained location. Limited space for future development. Pruning will be required beneath cables.	No works presently required	20+	C1	2.2	Retain		
T843	Beech	16	545	8.0	9.5	8.0	3.5	6 NW	4	M	Good	Tree located in green space area. Crown predominates east due to suppression from neighbouring trees. Fair to good form.	No works presently required.	40+	B2	6.5	Retain		
T844	Ash	16	620	7.0	5.0	8.0	6.0	8.5 S	7	M	Fair	Tree located in green space area adjacent to path. 2no cavities in main stem at 5m and 6m. Historic wounding/ open decay of topside of limb projecting west at approx. 9m. Crown appears to be in minor decline.	No works presently required.	20+	C1	7.4	Retain		
T845	Sycamore	16	540	8.5	6.0	4.0	8.0	4.5 W	5	M	Good	Tree located in green space area adjacent to path. Fair form minor deadwood in crown.	No works presently required.	40+	B2	6.5	Retain		
T846	Sycamore	15	500	5.0	6.0	6.5	6.5	4 S	4.5	M	Good	Tree located on edge of church yard. Ground to east slopes down steeply to public footpath. Crown suppressed to north by neighbouring tree. Otherwise fair form.	No works presently required.	40+	B2	6.0	Retain		
T847	Beech	15	380+380+400	5.0	6.0	6.5	7.0	4 S	5	M	Good	Tree located on edge of church yard. Ground to east slopes down steeply to public footpath. Crown suppressed to north and south by neighbouring trees. Otherwise fair form.	No works presently required.	40+	B2	8.0	Retain		
T848	Beech	15	640	9.0	6.0	5.0	5.0	4.5 S	4.5	M	Good	Tree located on edge of church yard. Ground to east and north slopes down steeply to public footpath. Crown suppressed to west by neighbouring tree. Minor deadwood in crown. Otherwise, fair form.	No works presently required.	40+	B2	7.7	Retain		
T849	Beech	15	775	9.5	8.0	9.5	9.5	4.5 all	2	M	Good	Tree abuts churchyard footpath. Staining on main stem up to 1m, indicative of Phytophthora. Crown appears to exhibit good vitality. Fair to good structural form.	No works presently required.	40+	B1	9.3	Retain		
G850	Mixed Species Group	20	250-450	6.0	8.0	3.5	7.0	N/A	5	SM-M	Good	Group forms edge of woodland adjacent to public carriageway, located on ground ranging from 2-3m higher than road level. Group is bound by 2-3m high stone wall. Some trees are growing directly on top of stone wall. Species include predominately mature Oak to the western extents and intermittent Birch to eastern extents, with understorey Holly, Beech. Fair to good forms throughout.	No works presently required.	40+	B2	5.4	Retain		
H851	Privet Hedgerow	2.2	70	0.5	0.5	0.5	0.5	N/A	0	SM	Good	Linear Privet hedge. Appears to be regularly managed.	No works presently required	20+	C2	0.8	Retain		
T852	Common Hawthorn	7	330	3.5	3.5	3.5	3.5	1.5 all	4	EM	Good	Located at edge of garden 1m above pavement.	No works presently required	20+	C1	4.0	Retain		
T853	Leyland Cypress	3	50	0.5	0.5	0.5	0.5	GI	0	Y	Good	Located 0.7m above pavement.	No works presently required	20+	C1	0.6	Retain		
G854	Mixed Species Group	23	800	10.0	7.0	10.0	8.0	N/A	4.5	M	Good	Group of 2no Sessile Oak, 1no Lime and 1no Beech, growing on top of 3.5m stone wall. Unable to access trees to fully inspect. Measurements and observations estimated from roadside. Oak to the west of group is densely encroached by ivy, preventing visual inspection of main structure. Beech is a large example of species, no significant defects observed from preliminary inspection. Lime and Sessile Oak to the east of group appear to be in fair to good structural condition from preliminary inspection. 4.5m clearance over carriageway.	No works presently required.	40+	B2	9.6	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G855	Group of 4no Beech	25	1000	8.0	8.0	8.0	5.0	4 all	4	M	Good	Group of 4no mature Beech. Located behind stone wall, no access to inspect all measurements estimated. Crown spread over PROW 4-4.5m. Tree C with historic codominant stem failure at 4m. Decay evident, but appears stable. Tree will require regular inspections.	No works presently required	20+	B2	12.0	Retain		
G856	Mixed Species Group	11	275	4.0	2.5	2.5	1.5	N/A	1.5	SM	Fair	Mixed species group extending along and down steep embankment. Species include Holly, Sycamore, Beech and Hawthorn. Fair forms throughout.	No works presently required.	20+	C2	3.3	Retain		
T857	Goat Willow	8	230	1.0	0.5	1.0	7.5	4 E	1.5	SM	Good	Tree directly abuts footpath edge. Significant lean east. 1.5m clearance over footpath.	No works presently required.	20+	C2	2.8	Retain		
T858	Beech	16	560	5.0	9.5	4.5	9.5	1 E	1.5	EM	Good	Tree located on embankment approx. 2m from edge of footpath. Fair form, low secondary laterals project over footpath, 1.5m clearance.	No works presently required.	40+	B2	6.7	Retain		
G859	Group of Hawthorn	3.5	130	1.5	1.5	1.5	1.5	N/A	1	SM	Fair	Group of Hawthorn located behind stone wall. Minor crown encroachment of PROW.	No works presently required	40+	C2	1.6	Retain		
G860	Goat Willow	9	470	3.0	3.0	3.0	3.0	1.2 all	0	EM	Fair	Dominant tree is Goat Willow. Beech saplings beneath with 1.5m over public footpath. Willow with stem decay cavity at 0.5m and further wounds on stems above.	No works presently required	10+	C1	5.6	Retain		
T861	Sycamore	17	570	10.0	8.0	7.0	7.0	3 S	4.5	M	Good	Tree located approx. 2.5m from footpath edge, on approx. 1m higher ground. Good form, 4.5m clearance over footpath.	No works presently required.	40+	B1	6.8	Retain		
T862	Beech	4.5	80	1.0	1.0	1.0	1.0	2 S	2	Y	Good	Self-seeded tree within footpath. Fair form, poor future prospects.	No works presently required.	10+	C3	1.0	Retain		
G863	Group of 2no Oak	17	270	4.0	4.0	4.0	4.0	N/A	3.5	SM	Good	2no Common Oak located at higher level, approx. 1m above public footpath. Both have constrained root systems. Fair form.	No works presently required	20+	B2	3.2	Retain		
G864	Mixed Species Group	15	375	4.5	4.5	4.5	4.5	N/A	4.5	EM	Good	Mixed species linear group straddling embankment consisting of semi mature Sessile Oak and early mature Sycamore. Trees are located 1-3m higher than footpath level. Fair forms. 4.5m clearance over footpath.	No works presently required.	20+	C2	4.5	Retain		
T865	Common Oak	17	290	3.0	3.0	3.0	3.0	2 all	0	SM	Good	Located within footprint of public footpath. Good form. Minor wounds in crown.	No works presently required	40+	B2	3.5	Retain		
T866	Common Beech	15	420	5.0	5.0	5.0	5.0	3 all	3	EM	Good	Tree located behind stone wall approx. 1.5m above public footpath. Fair form.	No works presently required	40+	B2	5.0	Retain		
T867	Beech	8	530	0.5	5.5	10.0	0.5	2 S	1	M	Good	Uprooted tree extending from footpath edge and self-supporting atop stone wall on opposite side of path. Presently appears stable. 1m clearance over path.	No works presently required.	20+	C2	6.4	Retain		
T868	Common Oak	15	410	3.5	3.5	3.5	3.5	2 all	2	EM	Good	Located 1.5m above footpath. Adjacent stone wall has collapsed. 2no Beech saplings beneath crown path side.	No works presently required	20+	B2	4.9	Retain		
G869	Mixed Species Group	6	130	2.0	3.0	3.0	2.0	N/A	1.5	SM	Good	Group of 1no self-seeded Beech and 1no self-seeded Sessile Oak within footpath. Both crowns unbalanced due to suppression from larger neighbouring trees. 1.5m clearance over path.	No works presently required.	20+	C3	1.6	Retain		
G870	Group of Oak and Birch	8	140	2.5	2.5	2.5	2.5	N/A	1	SM	Good	Group of 6no Oak and Birch located on top of bank approx. 1.5-2.5m above path. Trees are approx. 2-3m apart.	No works presently required	20+	C2	1.7	Retain		
T871	Goat Willow	10	280+160+160+160	7.0	3.5	3.5	3.0	2.5 S	1	EM	Fair	Multistemmed tree located trackside. 3no stems closest to trackside historically managed as 1.5m pollards. Regrowth from stem base is approx. 5m. Remaining unmanaged stem projects west over pathway. 2.5m clearance.	No works presently required.	20+	C2	4.7	Retain		
G872	Mixed Species Group	10	100-300	4.0	4.0	4.0	4.0	N/A	0	Y-SM	Good	Stem diameters ranged from 100-300mm approx. Woodland group along embankment, extending down to stone wall boundary with trackside. Trees are fairly evenly spaced. Species are predominately Sessile Oak, Beech and Birch. Some exposed root systems close to stone wall. Fair to good forms throughout. Group extends further west than plotted points. Larger trees on margin of group have been plotted separately.	No works presently required.	40+	B2	3.6	Retain		
G873	Group of Sycamore	11	400-800	6.0	6.0	6.0	6.0	N/A	0	M	Good	Group of mature Sycamore located southeast side of stone wall. Trees are intermittently spaced. No access to inspect all trees.	No works presently required	20+	B2	5.6	Retain		
G874	Mixed Species Group	17	2x150	2.5	2.5	2.5	2.5	N/A	1	SM-EM	Good	Generally sparse intermittently spaced group of Birch, Goat Willow and Sycamore. Trees are up to 20m apart. Mixed terrain - trees are on steep slope of embankment extending up from edge of path and down into a deep valley, where Sycamore dominates and trees are more densely spaced.	No works presently required	40+	C2	2.5	Retain		
G875	Mixed Species Group	13	375	4.5	0.5	4.5	4.5	N/A	7	EM	Good	Linear group extending along adjacent to trackside access road, consisting of predominately early mature Sycamore and Silver Birch with understorey Elder and Hawthorn. Stems closest to access road edge have been plotted individually.	No works presently required.	20+	C2	4.5	Remove Partial Group	83	
T876	Goat Willow	7.5	310+280	5.0	4.5	3.0	4.0	4.5	7	EM	Good	Tree located on edge of access road, approx. 3no stems historically removed at base. Exposed buttressing. Approx 6.5m crown clearance over access track.	No works presently required.	20+	C2	5.0	Remove Individual		1
G877	Group of Goat Willow and Birch	13	140	3.0	3.0	3.0	3.0	N/A	0	SM	Good	Scrubby group of Goat Willow, Birch. Generally densely spaced, but some clearings and sparse cover in places. Average stem diameter taken. Extending south the group is dense alongside ditch.	No works presently required	40+	C2	1.7	Remove Partial Group	322	

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G878	Group of Goat Willow and Birch	14	240+240+200+200	4.5	4.5	4.5	4.5	N/A	0	EM-M	Good	Linear group of Goat Willow located along suspected old ditch line with semi-mature Silver Birch to east on bank. Possibly old coppice stools. Occasional trees have collapsed or partially collapsed with stems laying on ground.	No works presently required	20+	C2	5.3	Remove Partial Group	1461	
T879	Goat Willow	14	450+380	5.0	5.0	5.0	5.0	0.3E	1.5	M	Good	Previous failure of codominant to west. Crown predominates toward slope to inspect east.	No works presently required	20+	C2	7.1	Retain		
G880	Group of 3no Goat Willow	8	360	5.5	5.5	5.5	5.5	N/A	2.5	EM	Good	Fair to good. Group of 3no Goat Willow on slope, close to tunnel structure. The dominant tree in group is located toward top of bank. Middle tree is in decline.	No works presently required	20+	C2	4.3	Retain		
T881	Goat Willow	9	4x220	5.5	3.0	4.0	4.5	0.5 all	0	EM	Good	Located at edge of track. Decay at old pruning wounds adjacent to track.	No works presently required	20+	C2	3.7	Retain		
G882	Mixed Species Group	5	80	1.0	1.0	1.0	1.0	N/A	1	SM	Good	Sparse group of Sorbus, Birch and Ash at edge of track extending up bank.	No works presently required	40+	C2	1.0	Remove Partial Group	206	
T883	Goat Willow	9	250+250+220	5.5	3.0	4.0	4.5	0.5 all	0	EM	Good	Located at edge of track. Stem leans to west.	No works presently required	20+	C2	5.0	Remove Individual		1
G884	Mixed Species Group	6	130	1.0	1.0	1.0	1.0	N/A	0.75	SM	Fair	Intermittent group of semi mature Sorbus, Sessile Oak, Goat Willow adjacent to soft ground access track. Approx 8no trees.	No works presently required.	20+	C2	1.6	Remove Entire Group	192	
G885	Mixed Species Group	16	2x320	5.0	5.0	5.0	5.0	N/A	0	EM	Good	Group of 1no Sycamore and 1no Goat Willow, growing 0.6m apart. mutually competing crowns. Sycamore with constrained rooting area on ledge.	No works presently required	20+	C2	5.4	Retain		
G886	Group of 2no Willow	6.5	3x210	4.5	5.5	5.5	4.0	N/A	0.5	EM	Fair	Group of 2no Goat Willow adjacent to trackside fence line to north and access road to south. Fair forms, appear to have been managed back from trackside.	No works presently required.	20+	C2	4.4	Retain		
T887	Sycamore	17	4x300	6.0	6.0	6.0	6.0	0.5 all	0	M	Good	Old mechanical wounds to stem adjacent track.	No works presently required	40+	B1	6.2	Retain		
G888	Group of 3no Goat Willow	6.5	100	1.5	1.5	1.5	1.5	N/A	0.5	SM	Good	Row of 3no Goat Willow leaning toward north. Suppressed crowns.	No works presently required	20+	C2	1.2	Retain		
T889	Group of 2no Goat Willow	12	210	7.0	3.0	0.5	4.0	6 W	4.5	EM	Good	2no closely self-seeded Goat Willow within public footpath adjacent to access road. Exposed root systems over footpath. Southernmost tree projects out towards railway over access road. 4.5m clearance.	No works presently required.	10+	C3	2.5	Retain		
T890	Sycamore	10	200	2.5	2.5	2.5	2.5	1.5 all	3.5	SM	Good	Self-seeded Sycamore growing out of dilapidated stone retaining wall adjacent to underpass footpath. Exposed structural roots, presently appears stable, however future prospects are poor.	No works presently required.	10+	C3	2.4	Retain		
G891	Mixed Species Group	12	320	5.5	5.5	5.5	5.5	N/A	2	EM	Fair	Group of 1no Silver Birch, 1no Whitebeam and 1no Sycamore adjacent to public footpath. Trees are approx. 4m from access road edge and bound by stone wall, crowns do not encroach over access road. 1no stem of central Whitebeam in group has failed at the base into the neighbouring field. Basal decay suspected but not able to access to further investigate.	No works presently required.	20+	C2	3.8	Retain		
G893	Group of 3no Corsican Pine	23	450	3.0	3.0	3.0	3.0	N/A	2	EM	Fair	Group of 3no Corsican Pine. 2no trees furthest east with dense ivy encroachment preventing basal inspection. Crowns are thinning, but adequate.	No works presently required	20+	B2	5.4	Remove Entire Group		3
T894	Elm	22	500	8.0	6.0	8.0	9.5	1 S	2.5	M	Good	Tree located on 1m higher ground bound by stone wall. Dense Ivy encroaches throughout structure, preventing full inspection, particularly of unions at crown break at 1m. Approx 2m crown clearance over green space area.	No works presently required.	20+	C1	6.0	Retain		
T895	Sycamore	19	530	9.0	9.0	9.0	9.0	3 w	3	M	Fair	Dense ivy encroaching stem to 14m prevents basal inspection. Sparse interior growth. 5% minor deadwood in crown.	No works presently required	20+	B1	6.4	Retain		
G896	Mixed Species Group	14	250	5.0	5.0	5.0	5.0	N/A	8	SM	Fair	Mixed species group straddling embankment adjacent to green space area. Unable to access to inspect. Measurements and observations estimated from public right of way. Ivy encroaches throughout group. Species include Birch, Elm, Ash and Sycamore. Ash within group appear to be in moderate decline.	No works presently required.	20+	C2	3.0	Retain		
T897	Horse Chestnut	16	340	4.5	4.5	4.5	4.5	N/A	0	EM	Good	Dense ivy encroaching stem prevents basal inspection. Fair form.	No works presently required	40+	B2	4.1	Remove Individual		1
T898	Wellingtonia	26	510	2.5	2.5	2.5	2.5	14	12	EM	Good	High live crown, approx. 50%.	No works presently required	40+	B1	6.1	Remove Individual		1
G899	Group of 4no Corsican Pine	22	460	2.0	2.0	2.0	2.0	N/A	2	SM	Fair	4no even aged Corsican Pine. High live crowns, approx. 50%.	No works presently required	20+	B2	5.5	Remove Entire Group		4
G900	Thuja	13	220	1.0	1.0	1.0	1.0	1.5	2	EM	Good	Group of 2no Thuja in raised rockery adjacent to public footpath. Fair to good forms. Ground level is approx. 0.75m higher than surroundings.	No works presently required.	40+	B2	2.6	Remove Entire Group		2
G901	Mixed Species Group	14	350	6.0	4.5	4.5	5.5	N/A	4	EM	Good	Linear group of 2no Cherry, 1no Whitebeam and 1no Birch extending adjacent to public footpath. Trees are equally spaced at 6m spacings. Fair forms throughout group.	No works presently required.	40+	B2	4.2	Retain		
G902	Group of Whitebeam and Ash	11	200	2.5	3.0	5.0	5.0	N/A	2	EM	Fair	Closely planted linear group of 2no Whitebeam and 2no Ash. Both Ash appear to be in severe decline. Small Holly at base of both Ash prevents basal inspection. Crowns predominate heavily south towards public footpath.	No works presently required.	10+	C2	2.4	Remove Entire Group	78	
G903	Group of Sycamore and Willow	21	550	9.0	9.0	9.0	9.0	N/A	0.5	EM-M	Good	Group of EM-M Sycamore and Willow located on steep bank. No access to inspect. Appear to be of good form from vantage to point.	No works presently required	20+	B2	6.6	Retain		

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T904	Sycamore	25	880	11.0	11.0	11.0	11.0	2.5 all	0	M	Good	Dominant tree in group. Minor wounds evident in crown. Good form. Low crown clearance.	No works presently required	40+	A2	10.6	Retain		
T905	Birch	14	280	5.0	2.0	4.5	7.5	4.5 W	1.5	EM	Good	Crown predominates west over green space area due to suppression from neighbouring trees. Minor deadwood in crown.	No works presently required.	20+	C1	3.4	Remove Individual		1
G906	Group of 2no Coppice Stools	19	350+270+270+270	9.5	9.5	9.5	9.5	GI	1.8	M	Good	Group of 2no old coppice stools. Dense ivy prevents basal inspection.	No works presently required	20+	B2	7.0	Retain		
G907	Mixed Species Group	19	480	6.0	6.0	6.0	6.0	N/A	4.5	M	Good	Large group on slope down from pavement. Species include Sycamore, and Larch. Crowns roadside historically lifted. 4.5m clearance over pavement, 6m over road.	No works presently required	40+	B2	5.8	Retain		
T908	Sycamore	14	560+300	7.5	7.5	7.5	7.5	1.5 N	5	M	Good	Sycamore located on steep embankment adjacent to private driveway. Unable to access, measurements and observations estimated from roadside.	No works presently required.	40+	B2	7.6	Retain		
H909	Hawthorn Hedgerow	1.5	80	0.8	0.8	0.8	0.8	0	0	SM	Good	Linear managed Hawthorn hedgerow dividing fields. Unable to access, measurements, and observations estimated from roadside.	No works presently required.	20+	C2	1.0	Retain		
H910	Hawthorn Hedgerow	1.5	80	0.8	0.8	0.8	0.8	0	0	SM	Good	Linear managed Hawthorn hedgerow extending along field boundary, straddling stone wall. Unable to access, measurements, and observations estimated from roadside.	No works presently required.	20+	C2	1.0	Retain		
T911	Sessile Oak	11	360	5.0	6.0	6.0	6.0	2 N	4.5	EM	Good	Tree located in private garden adjacent to carriageway. Unable to access, measurements and observations estimated from roadside. Crown recently cut back on roadside, encroachment is approx. 1m, clearance is approx. 4m.	No works presently required.	40+	B1	4.3	Retain		
G912	Mixed Species Group	17	600	7.0	7.0	7.0	7.0	N/A	9	M	Good	Linear group of 4no Beech, 1no Oak and 1no Sycamore located in private garden adjacent to roadside, trees are 1-2m from road edge and bound by 1m stone wall. Unable to access to fully inspect. Measurements and observations estimated. Trees have been historically cut back from roadside due to utility lines.	No works presently required.	40+	B2	7.2	Retain		
G913	Mixed Species Group	17	600	7.0	7.0	7.0	7.0	N/A	4	M	Good	Linear group of 2no Beech, 1no Ash and 1no Sycamore located in private garden adjacent to roadside, trees are 1-2m from road edge and bound by 1m stone wall. Unable to access to fully inspect. Measurements and observations estimated. Ground level appears to be 0.75m higher than roadside. Crown clearance is approx. 4m over road.	No works presently required.	40+	B2	7.2	Retain		
H914	Mixed Species Hedgerow	4	90	0.8	0.8	0.8	0.8	N/A	1	SM	Good	Hedging at boundary. Sections overhanging road by 0.5m are comprised of Laurel.	No works presently required	20+	C2	1.1	Retain		
G915	Mixed Species Group	17	480	5.0	5.0	5.0	5.0	N/A	4	EM-M	Fair to Good	Group of 1no Ash, 1no Holly and 1no Cherry straddling boundaries if front gardens. Trees are located 1.5-1.8m above road level. Crown encroachment over road 2m, 4m vertical clearance.	No works presently required	20+	B2	5.8	Retain		
G916	Mixed Species Group	2.5	60	1.2	1.2	1.2	1.2	N/A	1.5	SM	Good	Group of shrubs and small trees at boundaries of multiple gardens. Species include Skimmia, Privet, Laurel, Holly. Minor encroachment over road by 1m with 1.8m vertical clearance.	No works presently required	20+	C2	0.7	Retain		
H917	Leyland Cypress Hedgerow	11	150	1.0	1.0	1.0	1.0	N/A	0.2	SM	Fair	Leyland Cypress hedge of varying heights due to competition with neighbouring trees. Minor encroachment by crown over wall into footprint of road by up to 0.7m.	No works presently required	40+	C2	1.8	Retain		
G918	Mixed Species Group	24	450	7.0	7.0	7.0	7.0	N/A	3.7	EM-M	Good	Group of EM to M trees at edge of garden located 0.5-1m below road level. Species include Sycamore, Horse Chestnut, Beech, Oak. Descending crowns overhang road by 3.5m. No access to inspect all measurements estimated.	No works presently required	40+	B2	5.4	Retain		
G919	Group of Laurel and Holly	6.5	150	0.5	0.5	0.5	0.5	0	3.75	SM	Good	Linear understorey group of Holly and Laurel located in private garden. Unable to access to inspect, measurements and observations estimated from roadside. Group abuts stone boundary wall. Appears to have been historically maintained back from road, crown clearance is approx. 3.75m. Group extends further northwest than plotted points.	No works presently required.	20+	C3	1.8	Retain		
G920	Group of 1no Plum and 1no Beech]	13	275	4.5	4.5	4.5	4.5	N/A	4.5	EM	Good	Group of 1no Plum and 1no Beech located in private garden adjacent to roadside. Ground level is 1m higher than roadside and bound by stone wall. Unable to access to fully inspect, measurements and observations estimated from roadside. Crown clearance is approx. 4m.	No works presently required.	20+	C2	3.3	Retain		
G921	Group of 1no Ash and 1no Poplar	27	800	6.0	6.0	6.0	6.0	N/A	7	M	Good	Group of 1no Common Ash and 1no Grey Poplar. Trees are located behind stone wall approx. 1m above road level. No access to inspect all measurements estimated. Crowns have been historically lifted roadside to provide clearance. Storm damage in crowns.	No works presently required	20+	B2	9.6	Retain		
G922	Mixed Species Group	15	400	5.0	5.0	5.0	5.0	N/A	4.5	M	Good	Staggered mixed species group located in private garden adjacent to roadside and bound by 1m stone wall. Unable to access to inspect, measurements and observations estimated from roadside. Group consists of 1no Yew, 5no Sycamore and 1no Hawthorn. Crowns appear to have been historically managed back from roadside. Crown clearance is approx. 5m.	No works presently required.	40+	B2	4.8	Retain		

Reference	Type / Species	Height (m)	Stem Diameter (mm)	Branch Spread - N (m)	Branch Spread - E (m)	Branch Spread - S (m)	Branch Spread - W (m)	First significant branch height (m) to cardinal point	Canopy height (m)	Life Stage	Vitality	General observations including structural and/or physiological	Preliminary management recommendations	Estimated Remaining Contribution (Years)	Category Grading	RPA Radius (m)	Impact	Area of removal (m2)	No. of individual tree removal (no.)
G923	Mixed Species Group	7	160	1.5	1.5	1.5	1.5	N/A	3.5	Y	Fair	Scrubby group of young, likely self-seeded trees adjacent to roadside consisting of predominately Sycamore, Holly and Hawthorn. Unable to access group to fully inspect, measurements and observations estimated from roadside. 0.75m encroachment over roadside.	No works presently required.	20+	C3	1.9	Retain		
G924	Mixed Species Group	17	530	6.0	5.0	3.5	5.0	N/A	0	EM	Good	Mixed group of Beech, Field Maple, Ash, Sycamore and Norway Maple located at edge of garden approx. 1m above road level. Crowns historically pruned back from cables on edge of road.	No works presently required	40+	B2	6.4	Retain		
H925	Mixed Species Hedgerow	1.6	50	0.5	0.5	0.5	0.5	N/A	0	Y	Good	Linear hedge of Hawthorn, Holly and Beech. Appears to be regularly managed.	No works presently required	40+	C2	0.6	Retain		
T926	Common Lime	19	560	4.0	4.0	4.0	4.0	5 all	1.5	M	Good	No access to inspect, all measurements estimated.	No works presently required	40+	B2	6.7	Retain		
G928	Mixed Species Group	6	130	3.0	3.0	3.0	3.0	Na	0	SM	Good	Internal sporadic group, including alder.	No works presently required	20+	C2	1.6	Remove Entire Group		8
G929	Mixed Species Group	12	300	7.0	7.0	7.0	7.0	N/A	0	SM-M	Good	Internal group, bases not accessible, measurements estimated. Mutual crown suppression	No works presently required	20+	B2	3.6	Retain		
G930	Mixed Species Group	14	300	6.0	6.0	6.0	6.0	N/A	0	Y-M	Fair to Good	Informal group alongside riverbank and to periphery of hardstanding. Bases inaccessible, measurements estimated. Limit active management recorded. Mutual crown suppression. Habitat corridor.	No works presently required	20+	B2	3.6	Retain		
G931	Mixed Species Group	12	350	5.0	5.0	5.0	5.0	N/A	0	Y-M	Fair to Good	Informal group including willow and sycamore. Single- and multi- stems recorded. Suggesting past felling and regeration. Mutual crown suppression. Internal screen function.	No works presently required	20+	C2	4.2	Remove Partial Group	297	1

ANNEX C – GLOSSARY OF TERMS

Glossary of terms

Terms	Description
Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Adaptive Growth	The process whereby wood formation is influenced both in quantity and in quality by the action of gravitational force and mechanical stresses on the cambial zone
Amenity Value	The environmental and landscape benefits of trees as opposed to their commercial value for timber
Ancient Woodland	Sites which have been wooded since at least 1600, as defined by English Nature and recognised as being of high nature conservation value, whether managed or not. They may be semi-natural or replanted.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Arboriculture	The study and care of trees and other woody vegetation
Arboriculturist	A person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Cavity	An open wound, characterised by the presence of decay and resulting in a hollow
Co-dominant stems	Where a tree's main stem splits into two leaders, can also be called twin-stemmed.
Competent person	A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.
Construction	Site-based operations with the potential to affect existing trees.

Terms	Description
Construction Exclusion Zone	The area based on the root protection area to which access is prohibited for the duration of a project.
Coppice	A traditional method of woodland management in which young tree stems are repeatedly cut down to near ground level. In subsequent growth years, many new shoots will emerge, and, after a number of years the coppiced tree, or stool, is ready to be harvested, and the cycle begins again
Crown clearance	This is the removal of all dead, dying and diseased branches; in addition branches that are cleared away from a specific hazard e. g. live railway line.
Crown lifting	The removal of lower branches to provide a desired amount of clearance above ground level. This can be achieved either by the complete removal of a branch or only parts of which extend below the desired height
Crown reduction	The overall reduction of both the height and spread of the crown.
Decay	Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.
Deadwood	Deadwood is often present within the crown or on the stems of trees. In some instances it may be an indication of ill health; however, it may also indicate natural growth processes. If a target is present beneath the tree, and falling deadwood may cause injury or damage it should be removed; if no target is present the deadwood may be retained intact for conservation purposes (insects, fungi, birds etc.).
Epicormic growth	A secondary growth from dormant adventitious buds on the stem or main branches.
Failure	In connection with tree hazards, a partial or total fracture within woody tissue or loss of cohesion between roots and soil.
Hazard beam	A branch that has over-extended in which strong internal stresses may occur without the

Terms	Description
	compensatory formation of extra wood (longitudinal splitting may occur in some cases).
Hung-up limb	Dead or fallen branch from within the crown or from another tree's crown that has failed and been caught up by, and resting on, branches of a tree
Included Bark Junction	Pattern of development at branch junctions where bark is turned inward rather than pushed out. Potential weakness due to a lack of a woody union.
Ivy Growth	Ivy growth may ascend into the tree's crown, increasing wind resistance, concealing potential defects and reducing the tree's photosynthetic capacity. Ivy growth is often acceptable in woodland areas as a conservation benefit.
Monolith	A large bulk of standing dead wood. Usually the trunk of the tree or the trunk with the base of the branch frame work. These should be retained for wildlife habitat when the risk is appropriate for the location.
Pollarding	This involves the removal of whole branches to leave only the main trunk. In species such as willows and poplars such significant pruning is acceptable with new branches developing from the pollard heads. Secondary pruning of the new wood can help form a new canopy to the tree several years after the initial pollard
Reaction Wood	Specialised secondary xylem, which develops in response to a lean or similar mechanical stress, attempting to restore the stem to the vertical.
Root Protection Area (RPA)	The layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Service	Any above or below ground structure or apparatus required for utility provision.
Stem	The principal above-ground structural component(s) of a tree that supports its branches.

Terms	Description
Structure	A manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Structural Defect	Internal or external points of weakness, which reduce the stability of the tree
Sub-dominant stem	A branch within the crown that is not the dominant leader
Suppressed	Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.
TPO	A Tree Preservation Order is an order made by a Local Planning Authority which in general makes it an offence to cut down, lop, top, uproot, wilfully damage or wilfully destroy a tree without first getting permission. Tree Preservation Orders are usually made to protect trees that make a significant contribution to the amenity of an area. They may particularly be made when it is felt that a tree may be under threat.
Tree Constraints Plan	Abbreviated to TCP. Plans showing specific tree constraints including Root Protection Areas and Crown spread.
Tree Protection Plan	Abbreviated to TPP. Scaled drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Visual Tree Assessment	A non-invasive method of examining the health and structural condition of trees. Developed by Claus Mattheck and David Breloer 1994
Wound	Any injury, which induces a compartmentalisation response
Wound Wood	Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound as opposed to the ambiguous term “callus. ”

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT

APPENDIX 9A – NOISE AND VIBRATION TECHNICAL APPENDIX

Rule 10(6)(d)

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CONTENTS

1 INTRODUCTION 1
2 LEGISLATION, POLICY AND GUIDANCE 2
3 APPRAISAL OF IMPACTS AND THEIR EFFECTS 9
4 MITIGATION MEASURES 21
5 CUMULATIVE EFFECTS 24

1. INTRODUCTION

1.1.1 The Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements Order) (the Order Scheme) is that section of the Transpennine Route Upgrade programme for the works required between Stalybridge and the western portal of Standedge Tunnel in Diggle. This Noise and Vibration Technical Note presents an appraisal of the predicted noise and vibration related impacts from the Order Scheme.

1.1.2 The full extent of the Scheme (both works in the Order Scheme and works undertaken using permitted development rights PDR) is provided in section 1.2.4 of the Planning Statement [**NR12**] and include installation of Overhead Line Equipment (OLE), track renewal, the relocation of Mossley Station and upgrades to Greenfield Station, upgrades to Stalybridge and Scout tunnels; and associated construction works.

1.1.3 This appraisal considers the noise and vibration impact from construction activities associated with the Order Scheme as defined in Volume 1, Chapter 1 of this Environmental Report [**NR14**]. The structure of this Appendix is as follows:

- Summary of the relevant legislation and establishment of the assessment criteria;
- Description of the baseline noise conditions;
- Identification of noise and vibration sensitive receptors (NSRs); and
- Identification of suitable mitigation measures if needed.

1.1.4 Operational noise impacts from trains travelling at speed and idling are likely to be similar to, or lower than, the current situation due to the introduction of electric trains. Any potential future increase of rail movements may be classified as permitted intensification. The Order Scheme itself is not intended to permit increased capacity and therefore utilisation of the railway. As such the frequency of rail movements (passenger and freight) between various origins and destinations through the Order Scheme are expected to be similar as current situation. Therefore, the operational noise impact from rail movements is scoped out.

2. LEGISLATION, POLICY AND GUIDANCE

2.1 Legislation

Control of Pollution Act 1974

2.1.1 The Control of Pollution Act set out the framework to control noise impact from construction activities. Contractors will be required to follow good construction practices (referred to as Best Practicable Means (BPM)) as outlined in BS 5228:2009+A1:2014 'Code of practice for noise and vibration on construction and open sites. Part 1 – Noise' (BS 5228-1) and BS 5228:2009+A1:2014 'Code of practice for noise and vibration on construction and open sites. Part 2 – Vibration' (BS 5228-2) to control noise and vibration respectively. BS 5228-1 and BS 5228-2 have Approved Code of Practice status (in England) under the powers conferred by Sections 71(1)(b), (2) and (3) of the Control of Pollution Act 1974, as enacted under The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015. Compliance with the good practice noise and vibration requirements stated therein became a statutory obligation under the Act.

Environmental Protection Act 1990

2.1.2 Under Part III of the Environmental Protection Act 1990 as amended by the Noise and Statutory Nuisance Act 1993, local authorities have a duty to investigate noise complaints relating to a variety of sources such as construction noise but excluding traffic noise. If the local authority is satisfied that the noise amounts to a statutory nuisance it shall serve an Abatement Notice which may require that the noise be stopped altogether or limited to certain times.

Permitted Development Rights

Construction

2.1.3 In addition to the Order Scheme and works to be consented under the Deemed Planning Permission (DPP) for those works, electrification of the railway involves other activities with the potential to cause disturbance to residents. It is considered these standard activities with this potential include track relaying and ballast tamping and piling for gantry bases. NR's contractor will produce a Noise and Vibration Management Plan (NVMP), secured via planning condition included in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11].** The NVMP will outline how the impacts of construction noise and vibration will be reduced to the lowest practicable levels. This will reflect similar control measures for works being undertaken by PDRs which will be managed in accordance with the relevant clauses included within Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015).

Operation

2.1.4 The slab track through the tunnels has the potential to propagate vibration when trains pass over. In compliance with Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV015), the design has sought to assess this potential to provide the best solution to avoid impacts where possible. NR has information on current tunnel vibration levels and commits to acquiring further vibration levels when the Scheme is operational to validate the predictions.

2.1.5 Ground Borne Noise (GBN) and Vibration measurements were taken (Arup March 2023) to establish baseline conditions. These measurements were taken in 4No key locations above Stalybridge Tunnel and 1No key location above Scout Tunnel.

2.1.6 The Arup report does not define acceptable thresholds. Whilst no acceptable thresholds are defined, previous projects such as Crossrail and High Speed 2 have set indicative thresholds for GBN:

- LOAEL (Lowest Observed Adverse Effect Level): 35 dB $L_{Amax,S}$ (effects on quality of life)
- SOAEL (Significant Observed Adverse Effect Level): 45 dB $L_{Amax,S}$ (effects on health)

2.1.7 These are values above which adverse or significant adverse effects may occur at nearby NSR, but those threshold values are not expected to be exceeded for the Scheme. The aim of this appraisal is to establish what the baseline levels currently are, what is generated by operational activity and how the interventions change the baseline.

2.1.8 The proposed slab track system includes a highly elastic rail fastening for flexible single support point for noise and vibration reduction. This is a type of under-slab resilient layer as recommended within the Arup report. This constitutes best practice, and these mitigations are reasonably practicable measures that can be incorporated into the design and components of the slab track system.

2.1.9 As part of the Scheme, new track alignment and intervention, the track roughness will be improved along the route and if this is accounted for, combined with an improved modern fastening system, the new system when installed can be expected to provide a vibration mitigation or reduction in the range of 10dB to 20dB to counter the forecast increase due to traffic speed and volume increase.

2.2 National Policy

National Planning Policy Framework

2.2.1 The National Planning Policy Framework (NPPF) 2024. The document sets out the Government's planning policies for England and how these are expected to be applied.

2.2.2 The NPPF includes statements relating to noise and the requirement to take it into account in the planning process. Section 187 of the NPPF indicates that the planning system should contribute to and enhance the natural and local environment by:

"preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans..."

2.2.3 Section 198 is specifically related to noise and requires planning policy decisions to:

- "mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life"; and
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason".

2.2.4 The terms 'adverse impacts' and 'significant adverse impacts' are defined within the explanatory note of the Noise Policy Statement for England, 2010 (NPSE)[1].

2.2.5 The NPSE sets out the long-term vision of Government noise policy: to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.

2.2.6 The NPSE outlines three aims for the effective management and control of environmental, neighbour and neighbourhood noise:

- Avoid significant adverse impacts on health and quality of life;

[1] DEFRA. (2010). Noise Policy Statement for England. London.

- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.

2.2.7 In its aims, the NPSE uses the key phrases 'significant adverse' and 'adverse'. The Explanatory Note to the NPSE assists in the definition of significant adverse and adverse with the following concepts:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected; and
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

2.2.8 The NPSE notes that it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to vary for different noise sources, receptors and times. Relevant SOAELs have been identified for the Order Scheme taking account of the sources of exposure and receptors.

<u>Environment and Social Minimum Requirements for Projects – Design and Construction</u>

2.2.9 In Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV015), the designer / contractor shall comply with NR/L2/ENV/121 which includes that the designer / contract shall conduct a Noise and Vibration Risk Assessment and document this within the NVMP. BPM should be applied to control and reduce noise and vibration emissions to levels as low as reasonably practicable. A noise and vibration monitoring programme should be agreed with the Employer's Representative and where appropriate the local authority.

2.3 Local Policy

2.3.1 The Greater Manchester Combined Authority (GMCA) adopted the Places for Everyone Joint Development Plan in March 2024 to state the policies, vision and objectives for 9 of the 10 GMCA boroughs (excluding Stockport) for the period 2022-2039. Its policies and objectives are therefore relevant to Oldham Metropolitan Borough Council and Tameside Metropolitan Borough Council, which are the relevant authorities to this TWAO.

2.3.2 The following policies are relevant to noise impact:

- Policy LE1 of Joint Core Strategy and Development Management Policies (Oldham Metropolitan Borough Council) mandates that all new developments must ensure a high level of protection against light, noise pollution, and vibration for current and future users and occupants. This includes implementing effective measures to minimise disturbances and maintain a comfortable and quiet environment for everyone involved.

- Policy 1.3 of Unitary Development Plan (Tameside Metropolitan Borough Council) creating a cleaner and greener Environment aims to improve the borough's appearance for the benefit of current residents and to attract new investments. To this end, all developments must prioritise high-quality design that is in harmony with the local character.

2.4 Guidance

Construction Noise

2.4.1 The construction noise SOAEL is considered to be exceeded where the threshold values stated in Table 2-1 are exceeded based on the example criteria provided in Table E.2 of BS 5228-1, or where the ambient sound level is exceeded by 5 dB, whichever is higher.

Table 2-1 - Examples of time periods, averaging times and noise levels associated with the determination of eligibility for noise insulation

Day	Time (hours)	Averaging period, T	Noise insulation trigger level[Note(1)], dB $L_{Aeq,T}$
Mondays to Fridays	0700 – 0800	1 hour	70
	0800 – 1800	10 hours	75
	1800 – 1900	1 hour	70
	1900 – 2200	1 hour	65
	2200 – 0700	1 hour	55
Saturdays	0700 – 0800	1 hour	70
	0800 – 1300	5 hours	75
	1300 – 1400	1 hour	70
	1400 – 2200	1 hour	65
	2200 – 0700	1 hour	55

Sundays and Public Holidays	0700 – 2100	1 hour	65
	2100 – 0700	1 hour	55
Note (1) All noise levels are predicted or measured at a point 1m in front of the most exposed of any windows and doors in any façade of any eligible dwelling			

2.4.2 The following are considered major time periods for SOAEL thresholds to be exceeded based on the guidance provided in BS 5228-1:

- A period of 10 or more days of working in any 15 consecutive days during construction; or
- For a total of 40 days or more in any 6 consecutive months during construction.

2.4.3 Major adverse effects are deemed to occur at NSRs where both the SOAEL, as detailed in Table 2-1, and temporal criteria stated above are exceeded.

2.4.4 Certain receptors may be eligible for noise insulation or temporary rehousing in certain circumstances where construction noise impacts at NSRs have been assessed in detail in advance of construction stage as per the NVMP. The NVMP will be submitted to and approved by the relevant local planning authority in accordance with the criteria detailed above, and all reasonable measures to reduce noise have been incorporated.

2.4.5 NSRs potentially considered for noise insulation or temporary rehousing may be regarded as ‘eligible’ NSRs. Those NSRs which are deemed to be eligible for noise insulation or temporary rehousing, will be regarded as ‘qualifying’ NSRs. Construction noise calculations will be conducted prior to construction to predict construction noise levels at all NSRs in the study area arising from the Order Scheme. NSRs that may experience major adverse effects and may qualify would be highlighted in the NVMP.

Construction Vibration on People in Buildings

2.4.6 BS 5228-2 gives guidance on vibration levels that could be used to assess the likely impacts of construction activities on the environment and people. It also provides empirical formulae for predicting likely vibration levels from activities such as vibratory and hammer driven piling.

2.4.7 Annex B of BS 5228-2 gives guidance on vibration levels in Peak Particle Velocity (PPV) and associated effects in terms of human and structural response. Tables providing these guideline values are reproduced below.

Table 2-2 - Guidance on effects of vibration levels

Vibration level	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1.0 mm/s	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 mm/s	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

2.4.8 Based on the guidance provided in Table 2-2 the threshold level for the onset of potential major effects on humans at surrounding residential properties is typically taken to be 1.0 mm/s PPV.

Construction Vibration on People in Buildings

2.4.9 BS 5228-2 provides guidance for vibration level thresholds for potential damage to buildings and structures. Section B.3.2 of BS 5228-2 notes that the probability of damage tends towards zero at 12.5mm/s PPV.

2.4.10 For the purposes of assessment, buildings and structures where the construction vibration level is predicted to exceed or (for a margin of safety) approach 12.5 mm/s PPV will be highlighted such that further detailed assessment can be undertaken, and appropriate BPM will utilised to reduce potential effects.

3. APPRAISAL OF IMPACTS AND THEIR EFFECTS

3.1 Baseline Noise Condition

Existing Ambient Noise Levels

3.1.1 The baseline noise and vibration survey locations are shown in Figure 2-1.

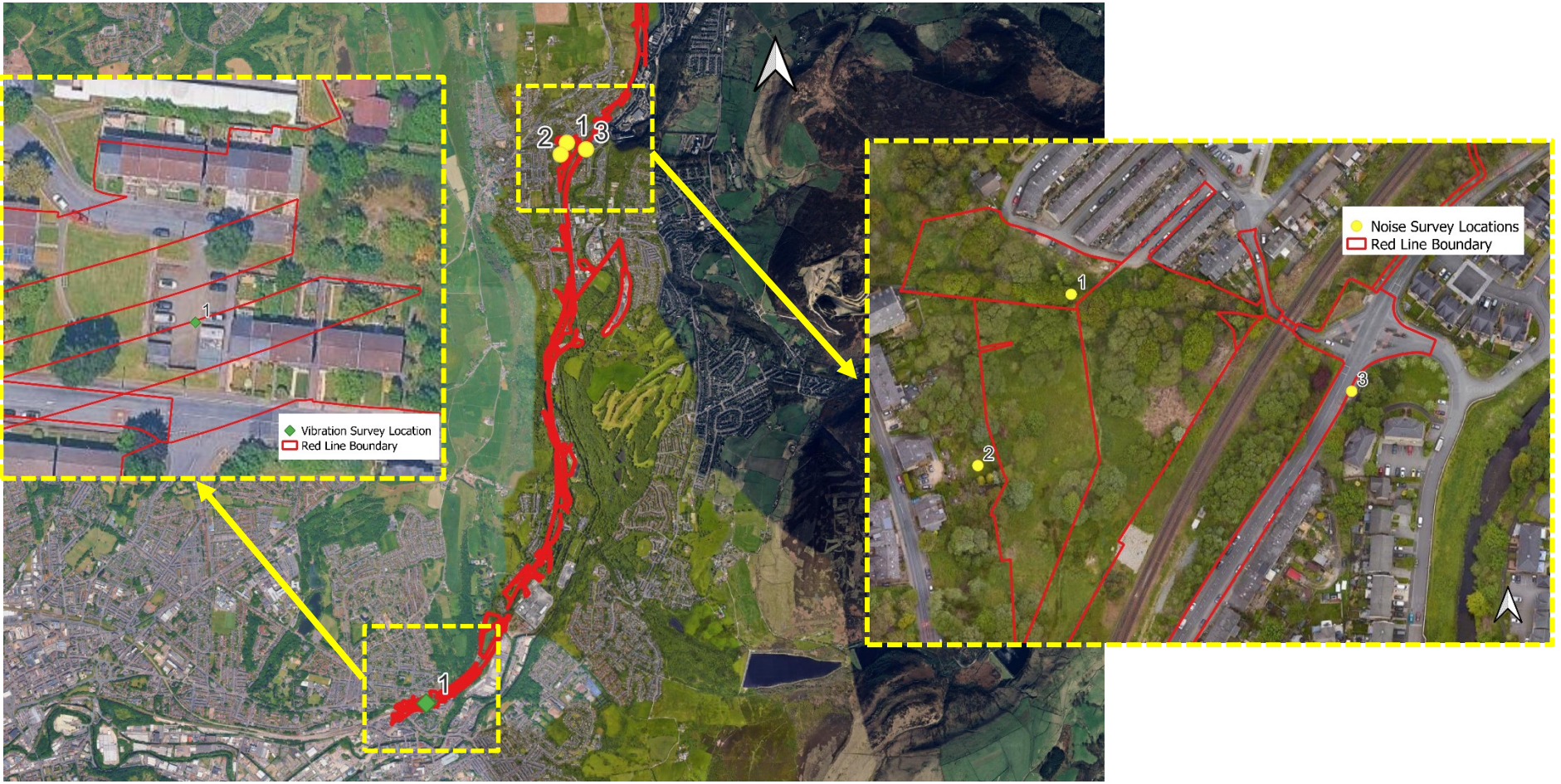

Figure 2-1 - Noise and vibration survey locations

3.1.2 Baseline noise monitoring was undertaken at the following locations representative of NSRs close to the proposed Mossley Station

- Position 1 is considered representative of receptors on Archer Street.
- Position 2 is representative of receptors on Stamford Road.
- Position 3 is representative of receptors on Manchester Road.

3.1.3 The principle purpose of the above surveys was to inform the assessment of operational noise from the proposed Mossley Station.

3.1.4 The groundborne noise levels are predicted from the vibration levels measured at the car park immediately to the west of 49 Wakefield Road and above the Stalybridge Tunnel by Arup in 2023[2] as shown in Table 2-6. The predicted baseline groundborne noise levels have been reproduced in this report with full details shown in Arup's report (Arup, 2023).

3.1.5 The measured baseline noise levels have been processed and analysed according to the Manchester City Council Planning and Noise Technical Guidance 2022 (Manchester City Council, 2022)[3]. The typical background sound levels have been established as shown in Table 2-4. The measured average A-weighted equivalent noise levels for each hour are shown in Table 2-5. The details are shown in the baseline survey report.

Table 2-4 - Measured background sound levels (free-field noise levels)

Description of survey location	Start date	Duration	Assessment period	Typical background sound level
Noise survey Position 1 Grid reference: 397368,402569	8th July 2024	7 days continuously	Daytime 07:00 to 23:00	34 dB L_{A90}
			Night-time 23:00 to 07:00	27 dB L_{A90}
Noise survey Position 2 Grid reference: 397325,402490	8th July 2024	7 days continuously	Daytime 07:00 to 23:00	35 dB L_{A90}
			Night-time 23:00 to 07:00	26 dB L_{A90}

[2] Arup. (2023). *Groundborne noise and trackform assessment for Stalybridge & Scout tunnels.* Manchester.

[3]Manchester City Council. (2022). *Manchester City Council Planning and Noise Technical Guidance 2022.* Greater Manchester.

Description of survey location	Start date	Duration	Assessment period	Typical background sound level
Noise survey Position 3 Grid reference: 397495,402524	8th July 2024	15 minutes	Daytime 12:35 to 12:50	44 dB L_{A90}
	15th July 2024	15 minutes	Daytime 11:57 to 12:13	42 dB L_{A90}

Table 2-5 - Measured $L_{Aeq,T}$ sound levels (free-field noise levels)

Hour	Average $L_{Aeq,1hr}$, dB		$L_{Aeq,15min}$, dB
	Position 1 Grid reference: 397368,402569	Position 2 Grid reference: 397325,402490	Position 3 Grid reference: 397495,402524
00:00 – 01:00	44	43	-
01:00 – 02:00	48	47	-
02:00 – 03:00	51	43	-
03:00 – 04:00	48	46	-
04:00 – 05:00	43	51	-
05:00 – 06:00	45	50	-
06:00 – 07:00	47	49	-
07:00 – 08:00	47	50	-
08:00 – 09:00	47	50	-
09:00 – 10:00	47	50	-
10:00 – 11:00	46	50	-
11:00 – 12:00	50	50	-
12:00 – 13:00	49	49	67 This is the average of two 15min measurements
13:00 – 14:00	49	50	-
14:00 – 15:00	48	49	-

Hour	Average $L_{Aeq,1hr}$, dB		$L_{Aeq,15min}$, dB
	Position 1 Grid reference: 397368,402569	Position 2 Grid reference: 397325,402490	Position 3 Grid reference: 397495,402524
15:00 – 16:00	51	50	-
16:00 – 17:00	50	49	-
17:00 – 18:00	54	50	-
18:00 – 19:00	51	49	-
19:00 – 20:00	50	49	-
20:00 – 21:00	49	48	-
21:00 – 22:00	46	46	-
22:00 – 23:00	44	46	-
23:00 – 00:00	46	47	-

Existing Groundborne Noise Levels

3.1.6 The groundborne noise levels in terms of L_{ASmax} were not directly measured but predicted based on the relationship between the measured vibration and the corresponding re-radiated noise levels. The brief summary is shown in Table 2-6. The full details are provided in Arup's report (Arup, 2023).

Table 2-6 – Measured groundborne noise levels

Description of survey location	Groundborne noise levels	Reference LOAEL and SOAEL
Vibration survey (for groundborne noise) Position 1	32 dB to 43 dB L_{ASmax}	LOAEL: 35 dB L_{ASmax} SOAEL: 45 dB L_{ASmax}

3.2 Noise and Vibration Sensitive Receptors

3.2.1 The Order Scheme is mainly in the existing railway corridor which passes through residential areas. As would be expected for railway works passing through such areas, a relatively large number of NSRs have been identified which may be potentially affected by the Order Scheme. Some receptors are within 5 m of the Order Scheme boundary (Network-Rail-Infrastructure-

Ltd, August 2024)[4]. Table 2-7 identifies the most affected receptors due to proximity to the Order Scheme.

Table 2-7 – Most affected noise and vibration sensitive receptors

Relevant works	Description of the receptor	Approximate distance to the Order Scheme boundary
Stalybridge Tunnel Temporary Ground Stabilisation Works Printworks Road Site Compounds, Access and Drainage Works	Residential properties on Waterloo Road	20m
	Residential properties on King Street	10m
	Residential properties on Church Street	Directly adjacent
	Residential properties on Wakefield Road	Directly adjacent
	Residential properties on Montague Way	Directly adjacent
	Residential properties on Cambridge Street	Directly adjacent
	Residential properties on George Street	Directly adjacent
Heyrod Hall Overbridge, Site Compound and Access Works (MVL3/07)	Residential properties on Wakefield Road	Directly adjacent
	Residential properties on Souracre Fold	15m
Works to Footbridge off Springbank Lane (MVL3/08)	Residential properties on Wakefield Road	Directly adjacent
	Residential property on Printworks Road	Directly adjacent

[4] Network-Rail-Infrastructure-Ltd. (August 2024). *Transpennine Route Upgrade.* Revision P01.1.

Relevant works	Description of the receptor	Approximate distance to the Order Scheme boundary
Wakefield Road Compound Works (MVL3/09)	Residential properties on Beechwood Avenue	15m
	Residential properties on Beechwood Lane	45m
Manchester Road Underbridge and Drainage Works (MVL3/10)	Residential properties on Wakefield Road	Directly adjacent
	Residential properties on John Street	15m
	Residential properties on Blackrock	2m
	Residential properties on Manchester Road	15m
Manchester Road Footbridge Reconstruction (MVL3/10A)	Residential properties on Manchester Road	15m
	Residential properties on Lower Beestow	Directly adjacent
	Residential properties on boundary Close	5m
Stamford Road Pipebridge Diversion Works (MVL3/13) Plevins Site Compound Works	Residential properties on Manchester Road / A635	Directly adjacent
	Residential properties to the east of Manchester Road / A635 (directly above rail tunnel)	Directly adjacent
	Residential properties on Andrew Street	10m
	Residential properties on Highfield Drive	Directly adjacent
	Residential properties on Stanhope Street	10m

Relevant works	Description of the receptor	Approximate distance to the Order Scheme boundary
	Residential properties on Bury Street	10m
	Residential properties on Egmont Street	Directly adjacent
	Residential properties on Cheshire Street	Directly adjacent
	Residential properties on Stanley Road	50m
Mossley Cottages Works Mossley Station Relocation - Construction of New Station Works and Site Compounds	Residential properties on The Manse	5m
	Residential properties on Abney Road	2m
	Residential properties on Old Brow Court	Directly adjacent
	Residential properties on Manchester Road	Directly adjacent
	Residential properties on Stamford Road	15m
Roughtown Road Overbridge Works (MVL3/17) Roughtown Road Footbridge Works (MVL3/18)	Residential properties on Manchester Road	2m
	Residential properties on Spring Street	5m
	Residential properties on Archer Steet	Directly adjacent
	Residential properties on Milton View	Directly adjacent
	Residential properties on New Earth Street	Directly adjacent
	Residential properties on Roughtown Road	5m

Relevant works	Description of the receptor	Approximate distance to the Order Scheme boundary
Heron Lane Site Compound Works and Stockport Road Level Crossing Diversion	Residential properties on Roughtown Road	3m
	Residential properties southeast of Foxwood Drive	Directly adjacent
	Residential properties on Heron Lane	Directly adjacent
Wright Mill Overbridge Reconstruction (MVL3/20) Wrights Overbridge Works (MVL3/23)	Residential properties on Midge Hill	Directly adjacent
	Residential properties on Mossley Road	25m
Royal George Underbridge and Site Compound Works (MVL3/25) Oaklands Road Compound Works	Residential properties on Hollin Cres	Directly adjacent
	Residential properties on Armit Road	Directly adjacent
	Residential properties on Low Grove Lane	5m
	Residential properties on High Grove Lane	Directly adjacent
	Residential properties on Highbank Crescent	5m
Oldham Road Overbridge Reconstruction (MVL3/28) New Oldham Road Footbridge and Greenfield station Platform 2 Secondary Means of Escape Works (MVL3/28A)	Residential properties on Church Road	20m
	Christchurch Friezland C of E Church	Directly Adjacent
	Friezland Church hall	Directly adjacent
	Residential properties on Oaklands Road	5m
	Residential properties on Shaw Hall Bank Road	Directly adjacent

Relevant works	Description of the receptor	Approximate distance to the Order Scheme boundary
Moorgate Halt Alternative Footpath and Site Compound Works	Residential properties on Shaw Hall Bank Road	Directly adjacent
	Residential properties on Chew Valley Road	10m
	Residential properties on Herons Reach	50m
Oldham Road Access and Drainage Works	Residential properties on Oldham Road	Directly adjacent
	Residential properties on Ladcastle Road	35m
Ward Lane Overbridge Reconstruction and Utilities Bridge Works (MVL3/36)	Saddleworth School	40m
Diggle Road Overbridge and Utilities Bridge Works (MVL3/39)	Saddleworth School	40m
	Residential properties on Ravenstone Drive	Directly adjacent
	Residential properties on Ward Lane	Directly adjacent
	Residential properties on Kiln Green	5m
	Residential properties on Harrop Green Lane	5m
Standedge Canal Tunnel (MVL3/39A) Standedge Tunnel Bywash Underbridge Replacement (MVL3/39B)	Residential properties on Lee Side	Directly adjacent
	Residential properties on Station Road	Directly adjacent
	Residential properties on Harrop Court Road	Directly adjacent
Diggle Access and Diversion Works	Residential properties on Harrop Court Road	Directly adjacent

3.3 Identification of Impacts and Effects

Construction Noise and Vibration

3.3.1 The NPPF and NPSE set out the policy and guidance for the appraisal of the effect related to the Order Scheme. Greater Manchester City Council sets out the local policy and guidance. The local policy is consistent with the national policy in principle. These policies mandate that major adverse noise and vibration impacts should be avoided / minimised

3.3.2 The Control of Pollution Act 1974 (CoPA) sets out the framework for the legislative control of construction noise and vibration on any given site. It also sets out the principle of 'best practicable means' (as defined in Section 72 of the Act) and how that should be applied to construction activity noise. The Act refers to approved Codes of Practice, which include British BS 5228-1 and BS 5228-2, as being relevant for the purposes of determining the 'best practicable means'.

3.3.3 A Noise and Vibration Management Plan to control noise and vibration emission from the construction works will be prepared and submitted to the Local Authority.

3.3.4 There will be a number of sources of construction noise along the Order Scheme. The nature and duration of the works varies, with a combination of long-term and short-term stationary works, and short-term linear works (which would be short-term in any one location). Long-term construction activities are those that may affect any one receptor for at least ten days in any 15 consecutive days, or 40 days in any consecutive six months, based on the guidance of BS 5228-1.

3.3.5 Anticipated works that are likely to generate noise are listed below, together with an indication of their likely nature:

- Setup of site compounds (short-term stationary);
- Operation of site compounds (long-term stationary);
- Drainage and culverts (long-term and short-term stationary);
- Earthworks (long-term and short-term stationary);
- Retaining Walls (long-term and short-term stationary);
- Footpath and bridge reconstruction (long-term and short-term stationary);
- Stations (long-term stationary);
- Structures (long-term and short-term stationary);

- Utilities and electricals (long-term and short-term stationary);
- Diversion route construction (short-term linear).

3.3.6 Anticipated works that are likely to generate the highest level of vibration is piling.

3.3.7 At this stage, detailed construction activities, programme and equipment to be used are not available until nearer the time of the actual works. Assessments of the noise and vibration impact will be carried out during the detailed design process following the guidance in BS 5228 Part 1 and Part 2.

Operational Noise and Vibration

3.3.8 The operation of the new Mossley Station has the potential to have adverse impact on the nearby receptors. The potential impact may be caused by fixed mechanical plant and idling trains. Noise from idling trains will be reduced compared to diesel trains as the line will be electrified by the wider works. The impact of fixed mechanical plant will be assessed in accordance with BS 4142:2014 and other relevant guidance when more detailed design information is available at later stage to ensure compliance with relevant standards.

4. MITIGATION MEASURES

4.1 Construction Mitigation Measures

4.1.1 This section provides outline guidance for reducing the impacts of construction noise and vibration from the Order Scheme.

Noise and Vibration Management Plan

4.1.2 Construction noise and vibration mitigation for relevant work elements will be managed by a Noise and Vibration Management Plan (NVMP). Noise and vibration impacts will be assessed and mitigated as part of the NVMP to minimise its impacts. The noise and vibration mitigation details will be described in the NVMP as part of the CoCP (Part B) to be submitted to and agreed with the relevant local planning authorities. Construction works will be manged in compliance with the NVMP.

General Construction Noise and Vibration Guidance

4.1.3 Contractors would be required to follow good construction practices as outlined in BS 5228-1 and BS 5228-2 to control noise and vibration, respectively.

4.1.4 BS 5228-1 and BS 5228-2 have Approved Code of Practice status (in England) under the powers conferred by sections 71(1)(b), (2) and (3) of the Control of Pollution Act (CoPA) 1974, as enacted under The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015. Compliance with the best practice noise and vibration requirements stated therein became a statutory obligation under the Act.

Community Liaison

4.1.5 Good relations with people living and working in the vicinity of site operations are of paramount importance. The CoCP Part B will include an “external communication programme” including a protocol for dealing with any complaints. Early establishment and maintenance of these relations throughout the carrying out of site operations will go some way towards allaying people’s concerns. Good relations can be developed by keeping people informed of progress and by treating complaints fairly and expeditiously.

4.1.6 It is well established that people’s attitudes to noise can be influenced by their attitudes to the source or activity itself. Noise from a site will tend to be accepted more readily by residents if they consider that the contractor is taking all possible measures to avoid unnecessary noise. The attitude to the contractor can also be improved through good community liaison (such as being pre-warned of works) and information distribution and the

provision of a helpline to respond to queries or complaints. The acceptability of the project itself can also be a factor in determining community reaction.

4.1.7 Local residents will be informed of the commencement and likely duration of the construction work activities through a letter drop at least 14 days in advance of the works. The letter will include a contact telephone number for the NR helpline which is manned 24 hours a day. In line with good practice the helpline team will be briefed on the project in advance of works.

Construction Vibration Mitigation

4.1.8 Where reasonably practicable, plant and/or methods of work causing severe levels of vibration at NSRs will be replaced by other less intrusive plant and/or methods of working. For example, rotary bored piling produces considerably less vibration than percussive or vibratory piling.

4.1.9 Stationary plant with the potential to generate vibration will be located away from NSRs or/and isolated using resilient mountings.

4.1.10 With regards to percussive or vibratory piling, the level of vibration generated at a receptor is proportional to the energy of the input of the equipment into the pile per blow/cycle. Reducing the energy input would therefore reduce the level of vibration at nearby NSR. However, the trade-off is that the duration for driving the piles to the required depth would be extended, which may cause a greater overall impact in terms of both vibration and noise. This will require consideration on a site-by-site basis.

4.1.11 Reducing the resistance to pile penetration can decrease the levels of vibration generated by piling. This can be achieved by pre-boring, which removes some of the soil that would otherwise be displaced during the early stages of pile driving.

4.1.12 In accordance with the NVMP, where practicable to do so, vibration levels will be monitored on a case-by-case basis at nearby locations during potential vibration generating activities where there is the potential for cosmetic building damage (i.e. vibration levels >12.5 mm/s PPV). Trigger levels will be set such that works will stop should severe levels occur. Works would only commence once BPM to reduce the level of vibration have been applied. As noted above, reducing the level of vibration may lead to an increased works duration, which may in some situations be more severe than a higher vibration level for a shorter duration. This would be assessed on a site-by-site basis. A proportionate vibration monitoring programme will be detailed in the NVMP and monitoring locations and reporting will be agreed with the local authority.

4.1.13 The vibration level at which cosmetic damage to buildings may occur is much higher than the level at which vibration may be perceptible. However, people's apprehension and perception of the possibility of damage occurs

at much lower levels. As such, at locations where there is a potential risk of damage (following the application of BPM to reduce vibration levels as far as practicable) building condition surveys could be conducted, subject to NVMP and CoCP requirements, at buildings close to vibration generating activities prior to and following construction works, detailing any existing damage and subsequently any damage that may have been caused by construction works. Continuous noise and vibration monitoring will be carried at the most affected buildings above Stalybridge tunnel and Standedge tunnel during the tunnel construction works.

4.1.14 In the event that any damage is considered to have been caused by the Order Scheme construction works, rectification works would be considered by NR.

Mitigation of Noise due to Construction Traffic and Temporary Diversions

4.1.15 Temporary traffic diversions and traffic routes will be managed in accordance with good practice following the CoCP and a CTMP (Construction Transport Management Plan) and in discussions with the local authority.

4.1.16 The Order Scheme aims to reduce the amount of material that needs to be removed, and thus, associated vehicle movements, through its policy of reusing or recycling as much of the excavated material as reasonably practicable.

4.1.17 Where it is necessary to move excavated material and it is reasonably practicable to do so, excavated material will be transported by public highway along designated lorry routes. Priority will be given to A roads and motorways to minimise the use of local roads.

Operational Mitigation Measures

Fixed Plant Noise Mitigation Measures

4.1.18 Details of proposed fixed plant items at the proposed Mossley Station are not known at this stage. However, considering the observed ambient noise levels and indicative proposals for the station it is considered that plant noise will be adequately controlled to suitable levels with standard mitigation measures, such as plant selection, placement, orientation and screening in accordance with BS 4142. However, further assessment in accordance with BS 4142 will be required at a future stage.

Public Address (PA) System Noise Mitigation

4.1.19 The details of the PA design are not currently available and will be developed at a later stage. Consideration will be given to reducing the impacts of noise from the PA systems at nearby NSRs as far as practical

whilst providing adequate coverage, in line with the requirements of NR in terms of safety and speech intelligibility.

4.1.20 The mitigation measures will include the specification of the system in terms of loudspeaker location, directivity and orientation. Electronic visual information displays may also be incorporated to complement the PA system, but not as a replacement. Further assessment in accordance with BS 4142 would be required at a future stage.

Groundborne noise (Tunnels)

4.1.21 The proposed slab track system includes a highly elastic rail fastening for flexible single support point for noise and vibration reduction. This is a type of under-slab resilient layer as recommended within the Arup report. This constitutes best practice, and these mitigations are reasonably practicable measures that can be incorporated into the design and components of the slab track system.

4.1.22 As part of the new track alignment and intervention the track roughness will be improved along the route and if this is accounted for, combined with an improved modern fastening system, the new system when installed can be expected to provide a vibration mitigation or reduction in the range of 10dB

5. CUMULATIVE EFFECTS

5.1 Cumulative Construction Effects

5.1.1 In addition to the relevant elements of the Order Scheme, it is acknowledged that additional works which are consented via Permitted Development Rights (PDRs) are being undertaken as part of the wider TRU W2B Project, as is routine. Construction of these works will likely be undertaken concurrently with the relevant works of the Order Scheme and therefore may give rise to cumulative effects both during the construction and operation phases of the Order Scheme.

5.1.2 Relevant works being undertaken under PDRs for Noise and Vibration include construction and operation of site compounds subject to PDR, and installation of overhead line gantries on Network Rail land.

5.1.3 The potential effects of the design, construction and operation of the works being undertaken by PDRs will be managed in accordance with the relevant clauses included within Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015). As per section 6.6 of those requirements, the Designer/Contractor shall design and implement measures to control noise and vibration emissions using BPM to levels as low as reasonably practicable. The Contractor shall agree an appropriate noise and vibration monitoring programme with the Employer's Representative and, where appropriate, the relevant local authority. Further mitigation in relation to

works being undertaken by PDR's will be secured via adherence to the control measures outlined with the CoCP (Part A) and compliance with relevant Environmental Management Plans.

Intra-project Cumulative Construction Effects

5.1.4 There are potential intra-project cumulative construction noise and/or vibration effects due to the multiple construction activities associated with the Order Scheme. A detailed timetable and concurrent activities of works are not available until nearer the time of the actual works.

5.1.5 Typically, construction noise impacts at individual receptors will be dominated by the closest, or noisiest activity. However, potential cumulative noise impacts will be assessed once the works programme is confirmed. BPM will be employed to reduce intra-project cumulative noise and vibration impacts.

Cumulative Operational Effects

5.1.6 There are potential cumulative effects at NSR due to the various sources of operational noise, including plant noise, and PA system noise. Further assessment would be required for receptors near the new Mossley Station at a future stage.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT VOLUME 3 APPENDIX 9B - BASELINE NOISE AND VIBRATION SURVEY REPORT

Rule 10(6)(d)

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CONTENTS

1 INTRODUCTION 1
2 MEASUREMENT DETAILS 2
2.1 Measurement Locations 2
2.2 Measurement equipment 4
2.3 Weather conditions 4
2.4 Measurement results – baseline noise levels 4
2.5 Measurement results – groundborne noise levels 7
3 SUMMARY 9
ANNEX A – SURVEY RESULTS 10

1 INTRODUCTION

1.1.1 This report details the findings of the baseline noise surveys conducted for the Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Order. Noise surveys have been conducted at locations representative of Noise Sensitive Receptors (NSRs) near the proposed Mossley Station. The noise surveys have been undertaken to inform the noise impact assessment in terms of both construction of the Order Scheme and operational noise impacts from the relocated Mossley Station. Given the large extents of the Scheme, and as construction noise assessments are predominantly based on absolute noise level thresholds, as a proportional approach to baseline data collection, the noise survey locations are focused on the area surrounding the new Mossley Station.

1.1.2 The noise monitoring was undertaken following the principles of BS 7445-1:2003[1] (BS7445-1:2003, 2003). Long term noise monitoring surveys were undertaken at two locations for a period of approximately one week, including weekday and weekend periods. These were supplemented by two short duration daytime measurements at a location where it was not suitable to conduct unattended monitoring due to security concerns.

1.1.3 The measurements were logged continuously repeating over 15-minute periods, together with 1-second L_{eq} measurements and one-third octave band noise levels recorded for future reference, if required. The calibration of the sound levels meters were checked at the start and end of the measurement. No significant drift (less than 0.1 dB difference) was noted during any surveys. The sound level meters had been laboratory calibrated within 24 months and the acoustic calibrators had been laboratory calibrated with 12 months of the survey, in line with manufacturers recommendations and good practice. Calibration certificates are available upon request.

1.1.4 A full suite of acoustical parameters was measured during the monitoring, but the following parameters are of particular interest and reported:

- $L_{Aeq,T}$ the equivalent continuous A-weighted sound pressure level. This is considered as the ambient noise level over the time period T; and
- $L_{A90,T}$ the noise level that was exceeded for 90% of the measurement period; i.e. a typical lower value. This is considered as the background sound level over the time period T.

[1] BS7445-1:2003. (2003). *Description and measurement of environmental noise - Guide to quantities and procedures*

1.1.5 The sound level meters were housed within weatherproof peli-cases with the microphone mounted via a pole at height of 1.3m. Weather conditions were monitored during the surveys and periods of rain and/or high wind (>5m/s) were excluded from the assessment.

1.1.6 No ground-borne noise assessments are proposed as part of the noise impact assessment, however, it has been requested that baseline vibration measurements (and associated ground-borne noise predictions) undertaken by Arup in 2023[2] are replicated within this report for information.

2 MEASUREMENT DETAILS

2.1 Measurement Locations

2.1.1 The baseline noise and vibration survey locations are shown in Figure 2-1 below. Monitoring locations were selected to be representative of NSRs which may be affected by noise from the construction and/or the operation of the new Mossley Station:

- Position 1 is considered representative of receptors on Archer Street.
- Position 2 is representative of receptors on Stamford Road.
- Position 3 is representative of receptors on Manchester Road.

2.1.2 The groundborne noise levels were predicted from the vibration levels measured at the car park immediately to the west of 49 Wakefield Road and above the Stalybridge Tunnel by Arup in 2023[3]. The predicted baseline groundborne noise levels have been reproduced in this report with full details shown in Arup's report (Arup, 2023).

[2] Arup. (2023). *Groundborne noise and trackform assessment for Stalybridge & Scout tunnels.* Manchester.
[3] 151667-TSA-W2B-MVL3-REP-W-MF-270579

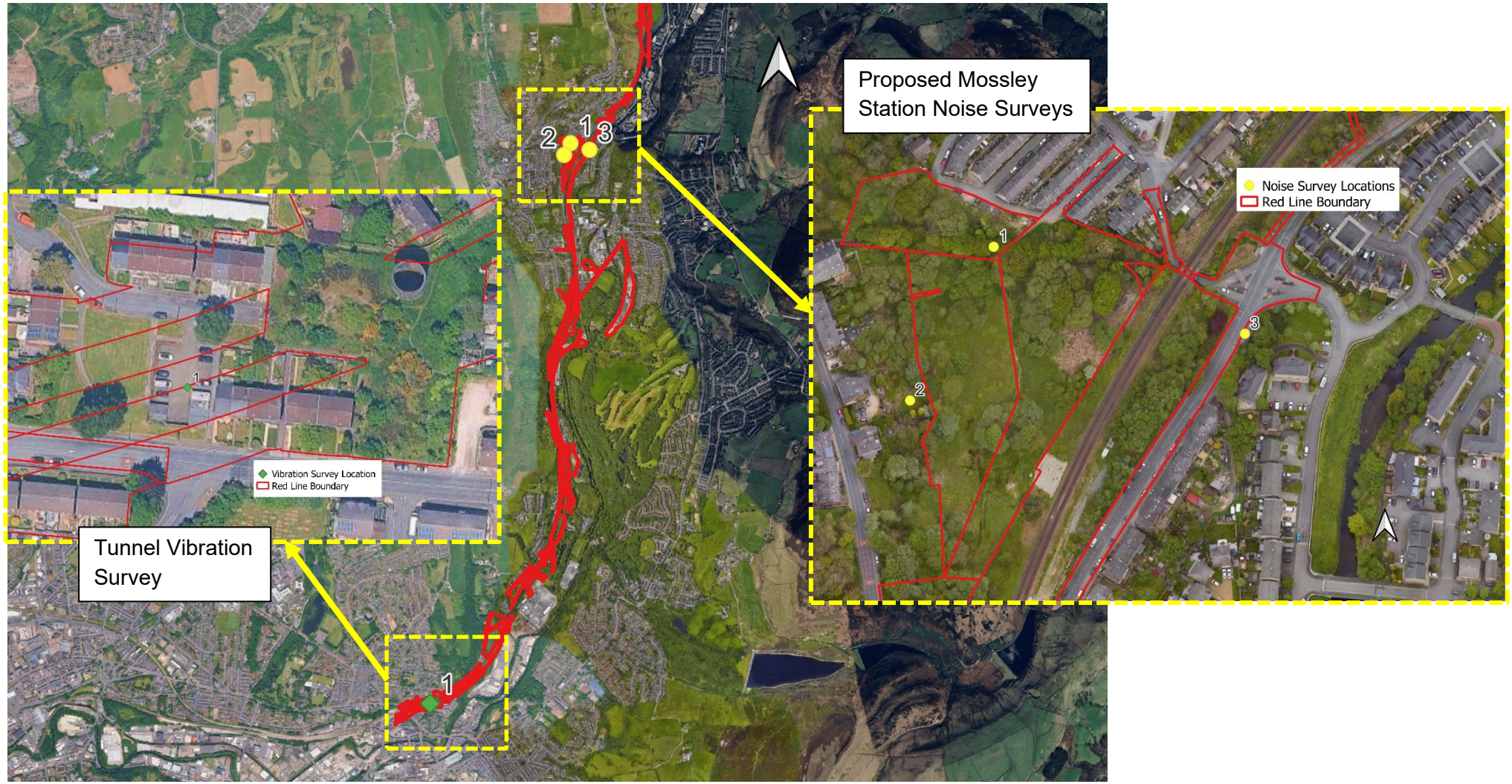

Figure 2-1 - Noise and vibration survey locations

2.2 Measurement equipment

2.2.1 The equipment used in the surveys are shown in Table 2-1.

Table 2-1 - Equipment used in the surveys

Description of survey location	Equipment	Serial number	Note	Field calibration values
Noise survey Position 1	Sound level meter	01dB FUSION 11199	Calibrated on 13/03/2023	Pre-measurement: 93.9 Post-measurement 93.9
	Associated Calibrator	CAL21 34565046	Calibrated on 11/03/2024	
Noise survey Position 2	Sound level meter	01dB FUSION 12811	Calibrated on 26/02/2023	Pre-measurement: 93.9 Post-measurement 93.9
	Associated Calibrator	CAL31 93744	Calibrated on 11/10/2023	
Noise survey Position 3	Sound level meter	Rion NL-52, 00620857	Calibrated on 20/10/2023	Pre-measurement: 94.0 Post-measurement 94.0
	Associated Calibrator	Rion NC-74 35125804	Calibrated on 16/10/2023	

2.3 Weather conditions

2.3.1 Weather conditions during the survey were generally suitable with wind speed ≤ 5m/s and no precipitation. A weather station was set up at Position 1 to monitor the weather conditions. When the wind speed was greater than 5 m/s or there was precipitation, the data have been excluded from the analysis.

2.4 Measurement results – baseline noise levels

2.4.1 The measured baseline noise levels have been processed and analysed according to BS 4142:2014 (4142:2014+A1:2019, 2019)[4]. The typical background sound levels have been established as shown in Table 2-2. The measured average A-weighted equivalent noise levels for each hour are shown in Table 2-3. The details are shown in Annex A.

[4] 4142:2014+A1:2019, B. (2019). *Methods for rating and assessing industrial and commercial sound*

2.4.2 The main sources affecting the survey positions are road traffic on Manchester Road and Stamford Road. The traffic on Manchester Road was moderate. Whenever a train passed it would dominate the sound environment for a short period. When there was no road and/or rail traffic, birds and distant traffic dominate the sound environment.

Table 2-2 - Measured background sound levels (free-field noise levels)

Description of survey location	Grid reference easting, northing	Start date	Duration	Assessment period	Typical background sound level*	Range of background sound levels
Noise survey Position 1	397368,402569	8th July 2024	7 days continuously	Daytime 07:00 to 23:00	37 dB L_{A90}	34 to 42 dB L_{A90}
				Night time 23:00 to 07:00	27 dB L_{A90}	24 to 39 dB L_{A90}
Noise survey Position 2	397325,402490	8th July 2024	7 days continuously	Daytime 07:00 to 23:00	44 dB L_{A90}	30 to 49 dB L_{A90}
				Night time 23:00 to 07:00	26 dB L_{A90}	23 to 45 dB L_{A90}
Noise survey Position 3	397495,402524	8th July 2024	15 minutes	Daytime 12:35 to 12:50	44 dB L_{A90}	--
		15th July 2024	15 minutes	Daytime 11:57 to 12:13	42 dB L_{A90}	--

Note(*): The modal values have been considered as the typical background sound levels.

Table 2-3 - Measured $L_{Aeq,T}$ sound levels (free-field noise levels)

Start time	Average $L_{Aeq,1hr}$, dB		$L_{Aeq,T}$, dB
	Position 1	**Position 2**	**Position 3**
00:00	44	43	-
01:00	48	47	-
02:00	51	43	-
03:00	48	46	-
04:00	43	51	-
05:00	45	50	-
06:00	47	49	-
07:00	47	50	-
08:00	47	50	-
09:00	47	50	-
10:00	46	50	-
11:00	50	50	-
12:00	49	49	67 This is the average of two 15min measurements
13:00	49	50	-
14:00	48	49	-
15:00	51	50	-
16:00	50	49	-
17:00	54	50	-
18:00	51	49	-
19:00	50	49	-
20:00	49	48	-
21:00	46	46	-
22:00	44	46	-
23:00	46	47	-

2.5 Measurement results – groundborne noise levels

2.5.1 The groundborne noise levels in terms of L_{ASmax} were not directly measured but predicted based on the relationship between the measured vibration and the corresponding re-radiated noise levels. A summary is shown in Table 2-4 and Figure 2-2. The full details are available in Arup's report (Arup, 2023).

Table 2-4 - Predicted groundborne noise levels

Description of survey location	Groundborne noise levels	Reference LOAEL and SOAEL*
Vibration survey (for groundborne noise) Position 1	32 dB to 43 dB L_{ASmax}	LOAEL: 35 dB L_{ASmax} SOAEL: 45 dB L_{ASmax}

Note(*) LOAEL and SOAEL are defined in Noise Policy Statement for England (DEFRA, 2010)[5]. LOAEL: Lowest Observable Adverse Effect Level. This is a lower threshold representing the onset of likely effects on quality of life such as impact on amenity from annoyance at noise events. SOAEL: Significant Observable Adverse Effect Level. This is a higher threshold representing the onset of likely adverse health effects due to noise events such as disruption to sleep or impacts on other health vectors.

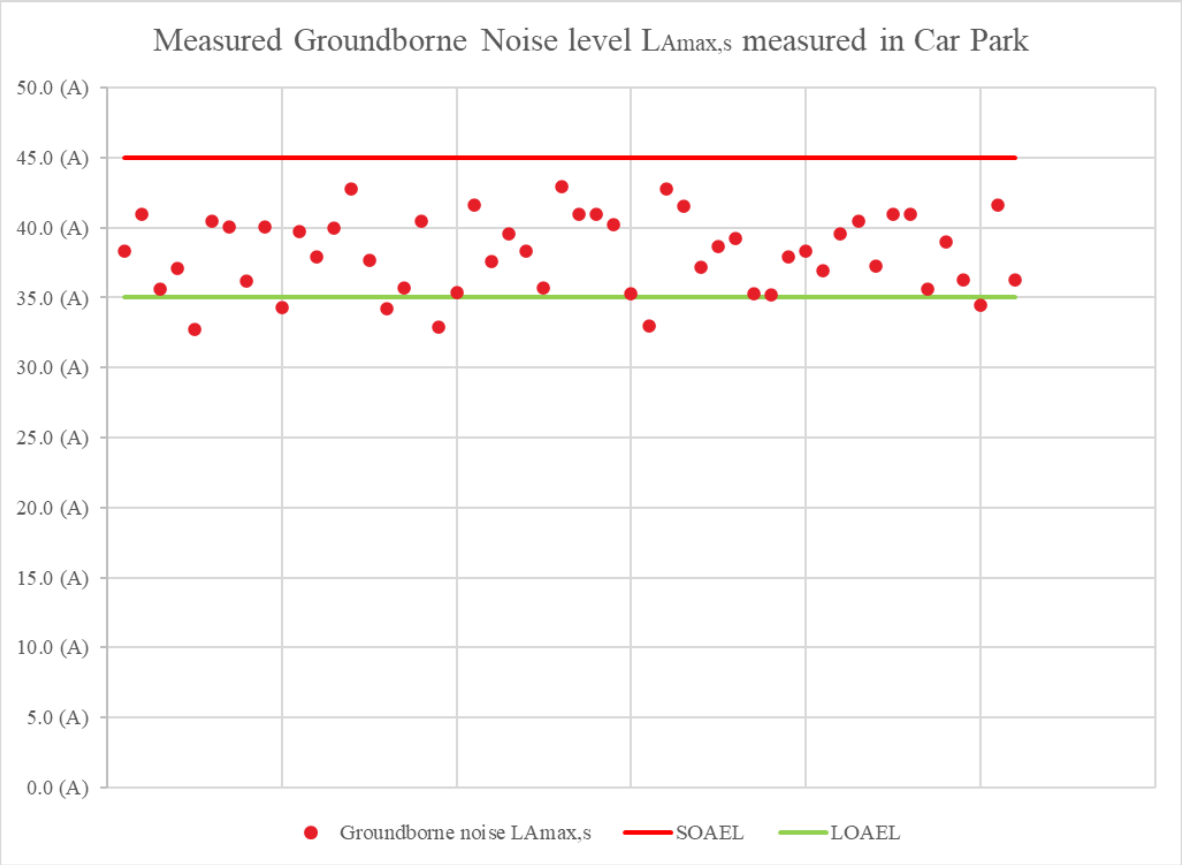

Figure 2-2 - Ground-borne noise levels of train pass by events at Stalybridge tunnel

[5] DEFRA. (2010). *Noise Policy Statement for England.* London.

3 SUMMARY

3.1.1 Baseline noise surveys were conducted at positions representative of the noise sensitive receptors in proximity to the proposed new Mossley Station. Baseline vibration was measured by Arup on top of the Stalybridge Tunnel and the associated groundborne noise levels were calculated based on the measured vibration.

ANNEX A – SURVEY RESULTS

The measured hourly $L_{Aeq,1hr}$ are shown in Table A-1 and Table A-2Table A-2 for Position 1 and Position 2 respectively. When the weather was not suitable, the noise levels were presented by *.

Table A-1 – Measured $L_{Aeq,1hr}$ sound levels (free-field noise levels) at Position 1

Position	Start time	$L_{Aeq,1hr}$, dB by dates in July 2024							
		8th	9th	10th	11th	12th	13th	14th	15th
Position 1, Grid reference: 397368,402569	00:00	--	41	43	51	39	41	35	37
	01:00	--	49	48	55	36	42	37	34
	02:00	--	52	41	59	30	34	31	31
	03:00	--	53	43	52	41	38	32	35
	04:00	--	*	41	49	41	43	36	39
	05:00	--	*	44	48	42	47	39	42
	06:00	--	*	48	50	45	48	41	47
	07:00	--	*	48	48	47	45	46	49
	08:00	--	*	49	*	46	48	44	47
	09:00	--	*	49	*	47	48	45	46
	10:00	--	*	46	*	46	48	44	47
	11:00	--	*	*	*	46	50	52	50
	12:00	52	*	43	*	48	50	48	--
	13:00	49	52	43	*	48	51	45	--
	14:00	48	52	41	*	47	50	44	--
	15:00	50	55	38	*	49	49	45	--
	16:00	52	54	48	*	50	46	44	--
	17:00	53	60	49	*	51	51	44	--
	18:00	49	54	54	*	50	46	46	--
	19:00	53	51	47	53	48	46	43	--
	20:00	50	49	45	46	53	49	43	--
	21:00	45	48	46	46	44	46	43	--
	22:00	43	47	44	44	45	41	45	--
	23:00	41.4	48	50	46	39	43	41	--

Table A-2 – Measured $L_{Aeq,1hr}$ sound levels (free-field noise levels) at Position 2

Position	Start time	$L_{Aeq,1hr}$, dB by dates in July 2024							
		8th	**9th**	**10th**	**11th**	**12th**	**13th**	**14th**	**15th**
Position 2, Grid reference: 397325,402490	00:00	--	46	41	47	42	44	39	39
	01:00	--	48	47	51	40	50	37	36
	02:00	--	49	38	46	33	36	35	34
	03:00	--	52	42	45	46	42	35	36
	04:00	--	*	46	49	51	51	53	52
	05:00	--	*	49	48	47	52	49	53
	06:00	--	*	50	50	49	51	43	49
	07:00	--	*	50	50	50	49	46	51
	08:00	--	*	50	50	50	51	45	49
	09:00	--	*	51	50	49	52	51	48
	10:00	--	*	50	50	49	49	53	49
	11:00	--	*	51	50	49	49	48	53
	12:00		*	49	49	49	50	49	--
	13:00	50	51	50	51	49	49	51	--
	14:00	50	49	50	50	49	49	49	--
	15:00	49	52	49	50	50	48	48	--
	16:00	49	50	50	49	51	50	47	--
	17:00	50	51	50	50	52	48	47	--
	18:00	49	50	51	49	50	48	48	--
	19:00	49	48	48	48	48	51	46	--
	20:00	48	46	46	47	49	49	46	--
	21:00	48	46	46	47	46	45	46	--
	22:00	47	46	46	46	47	45	47	--
	23:00	46	47	49	51	43	46	44	--

Table A-3 – Measured $L_{A90,15min}$ (free-field noise levels) at Position 1 - daytime

Position	Start time	daytime, $L_{A90,15min}$, dB by dates in July 2024								
		8th	9th	10th	11th	12th	13th	14th	15th	Arithmetic average
Position 1, Grid reference: 397368,402569	7:00:00		*	42	43	37	35	42	40	40
	7:15:00		*	42	42	39	37	*	39	40
	7:30:00		*	43	42	39	36	41	40	40
	7:45:00		*	43	40	40	37	*	41	40
	8:00:00		*	42	38	40	37	39	39	39
	8:15:00		*	43	39	40	36	38	41	40
	8:30:00		*	43	38	41	37	37	41	39
	8:45:00		*	43	39	43	38	37	40	40
	9:00:00		*	43	38	41	37	39	39	39
	9:15:00		*	42	38	40	38	41	39	40
	9:30:00		*	41	42	40	38	39	39	40
	9:45:00		53	41	41	42	40	40	40	42
	10:00:00		52	41	38	41	41	39	39	41
	10:15:00		52	42	37	40	39	39	40	41
	10:30:00		52	42	36	41	39	39	40	41
	10:45:00		51	44	39	41	41	37	39	42
	11:00:00		49	41	37	40	40	39	39	41
	11:15:00		49	44	36	40	40	38	41	41
	11:30:00		49	50	37	40	40	39	--	42
	11:45:00		48	45	35	40	41	40	--	41
	12:00:00	39	48	38	36	42	42	39	--	40
	12:15:00	40	*	37	37	42	40	39	--	39
	12:30:00	41	*	37	37	42	40	39	--	39
	2:45:00	41	49	37	37	43	39	39	--	41
	13:00:00	41	48	37	39	42	39	40	--	41

Position	Start time	daytime, $L_{A90,15min}$, dB by dates in July 2024								
		8th	9th	10th	11th	12th	13th	14th	15th	Arithmetic average
	13:15:00	38	47	37	34	40	40	40	--	39
	13:30:00	38	*	36	33	40	40	39	--	38
	13:45:00	40	46	35	36	41	40	38	--	39
	14:00:00	40	45	36	32	42	39	38	--	39
	14:15:00	40	47	35	31	43	39	37	--	39
	14:30:00	40	47	35	30	42	39	38	--	39
	14:45:00	41	48	34	29	42	38	39	--	39
	15:00:00	41	49	34	30	43	38	38	--	39
	15:15:00	43	49	34	32	44	40	38	--	40
	15:30:00	41	48	33	29	*	38	38	--	38
	15:45:00	40	48	32	28	*	38	39	--	38
	16:00:00	42	48	32	28	*	37	37	--	37
	16:15:00	42	48	43	28	*	38	37	--	39
	16:30:00	42	47	42	25	*	38	38	--	39
	16:45:00	42	48	42	26	44	38	37	--	39
	17:00:00	42	51	43	26	43	37	38	--	40
	17:15:00	42	50	42	25	41	38	39	--	39
	17:30:00	43	49	41	26	42	38	37	--	39
	17:45:00	42	48	42	27	41	39	37	--	39
	18:00:00	42	49	44	26	*	38	38	--	39

Position	Start time	daytime, $L_{A90,15min}$, dB by dates in July 2024								
		8th	9th	10th	11th	12th	13th	14th	15th	Arithmetic average
	18:15:00	41	47	44	26	*	38	37	--	39
	18:30:00	42	46	*	43	*	37	39	--	41
	18:45:00	42	47	*	44	*	37	37	--	41
	19:00:00	43	46	*	44	*	37	37	--	41
	19:15:00	43	45	43	43	*	37	37	--	41
	19:30:00	42	44	*	43	*	36	36	--	40
	19:45:00	41	44	40	41	39	36	36	--	39
	20:00:00	40	43	40	41	40	36	34	--	39
	20:15:00	38	43	39	41	39	36	32	--	38
	20:30:00	37	43	38	40	38	34	32	--	37
	20:45:00	38	42	37	38	37	37	32	--	37
	21:00:00	37	42	37	39	37	37	32	--	37
	21:15:00	36	40	*	39	36	33	32	--	36
	21:30:00	34	42	*	40	35	33	31	--	36
	21:45:00	37	42	*	39	*	33	30	--	36
	22:00:00	39	42	39	40	*	33	35	--	38
	22:15:00	35	40	38	37	36	32	35	--	36
	22:30:00	36	37	37	35	35	30	34	--	35
	22:45:00	36	37	*	34	35	32	34	--	34

Table A-4 – Measured LA90,15min (free-field noise levels) at Position 1 – night time

Position	Start time	night time , $L_{A90,15min}$, dB by dates in July 2024							
		8th	**9th**	**10th**	**11th**	**12th**	**13th**	**14th**	**Arithmetic average**
Position 1, Grid reference: 397368,402569	23:00:00	33	36	*	33	33	29	32	32
	23:15:00	32	35	*	35	31	30	29	32
	23:30:00	34	34	*	37	32	31	31	33
	23:45:00	37	33	*	34	31	31	30	33
	00:00:00	37	33	*	34	31	29	29	32
	00:15:00	35	32	*	30	29	27	30	31
	00:30:00	34	35	*	29	30	27	29	31
	00:45:00	37	33	*	28	30	27	27	30
	01:00:00	*	33	*	27	28	27	27	28
	01:15:00	*	32	*	26	27	26	26	28
	01:30:00	*	32	*	27	27	24	27	28
	01:45:00	*	31	*	27	29	25	28	28
	02:00:00	*	32	*	27	29	25	29	28
	02:15:00	*	31	*	27	28	24	26	27
	02:30:00	*	31	*	26	28	25	27	27
	02:45:00	*	31	*	27	28	26	27	28
	03:00:00	*	31	*	27	28	26	26	27
	03:15:00	*	31	*	27	28	27	27	28
	03:30:00	*	31	*	27	29	25	28	28
	03:45:00	*	30	*	26	28	25	27	27
	04:00:00	*	31	39	28	29	25	29	30
	04:15:00	*	30	*	30	30	27	30	29
	04:30:00	*	31	*	32	32	29	33	32
	04:45:00	*	33	41	32	33	31	34	34
	05:00:00	*	32	41	33	33	32	33	34
	05:15:00	*	36	41	32	34	31	35	35
	05:30:00	*	35	41	32	32	29	35	34
	05:45:00	*	35	43	33	33	29	34	35
	06:00:00	*	39	45	35	34	29	36	36
	06:15:00	*	39	45	37	35	30	39	38
	06:30:00	*	42	44	37	35	33	38	38
	06:45:00	*	42	44	37	35	34	39	38

Table A-5 – Measured $L_{A90,15min}$ (free-field noise levels) at Position 2 - daytime

Position	Start time	daytime, $L_{A90,15min}$, dB by dates in July 2024								
		8th	9th	10th	11th	12th	13th	14th	15th	Arithmetic average
Position 2, Grid reference: 397325,402490	7:00:00	--	*	42	44	42	37	38	42	41
	7:15:00	--	*	44	45	42	38	41	40	41
	7:30:00	--	*	43	44	43	37	38	43	41
	7:45:00	--	*	44	45	45	41	39	43	43
	8:00:00	--	*	45	46	44	42	38	43	43
	8:15:00	--	*	44	45	44	40	36	42	42
	8:30:00	--	*	45	47	45	42	39	43	44
	8:45:00	--	*	46	47	45	42	39	43	44
	9:00:00	--	*	45	45	44	41	43	42	43
	9:15:00	--	*	45	45	42	43	43	40	43
	9:30:00	--	*	44	46	43	42	42	42	43
	9:45:00	--	48	46	46	44	43	43	42	44
	10:00:00	--	49	44	44	44	44	43	40	44
	10:15:00	--	49	44	44	43	42	45	41	44
	10:30:00	--	49	45	45	42	43	42	43	44
	10:45:00	--	47	44	46	43	44	42	41	44
	11:00:00	--	46	44	45	43	43	43	41	44
	11:15:00	--	46	44	45	43	44	41	41	44
	11:30:00	--	46	47	45	42	43	42	--	44
	11:45:00	--	45	45	45	43	45	42	--	44
	12:00:00	--	45	44	46	44	44	43	--	44
	12:15:00	--	*	44	45	43	44	43	--	44
	12:30:00	44	45	43	45	44	43	43	--	44
	2:45:00	42	46	44	45	45	43	42	--	44
	13:00:00	42	46	44	46	44	43	43	--	44

Position	Start time	daytime, $L_{A90,15min}$, dB by dates in July 2024								
		8th	9th	10th	11th	12th	13th	14th	15th	Arithmetic average
	13:15:00	42	45	45	47	42	43	43	--	44
	13:30:00	42	44	45	44	44	42	43	--	43
	13:45:00	42	45	43	44	43	42	43	--	43
	14:00:00	42	43	44	43	44	42	41	--	43
	14:15:00	42	44	44	44	45	42	40	--	43
	14:30:00	41	45	44	45	44	42	41	--	43
	14:45:00	43	46	45	43	44	40	43	--	43
	15:00:00	43	45	43	44	44	40	42	--	43
	15:15:00	44	46	45	45	45	43	41	--	44
	15:30:00	44	46	43	43	45	41	42	--	43
	15:45:00	43	46	43	44	45	40	41	--	43
	16:00:00	44	45	44	44	47	41	40	--	43
	16:15:00	44	45	45	44	47	42	40	--	44
	16:30:00	44	44	45	44	46	42	40	--	43
	16:45:00	44	44	44	43	45	42	39	--	43
	17:00:00	44	46	44	44	45	40	41	--	43
	17:15:00	45	44	44	44	44	40	42	--	43
	17:30:00	44	44	45	44	44	41	40	--	43
	17:45:00	45	45	44	45	42	41	39	--	43
	18:00:00	42	45	43	44	44	42	40	--	43

Position	Start time	daytime, $L_{A90,15min}$, dB by dates in July 2024								
		8th	9th	10th	11th	12th	13th	14th	15th	Arithmetic average
	18:15:00	43	44	43	44	*	41	41	--	43
	18:30:00	44	43	*	45	42	38	41	--	42
	18:45:00	43	44	*	44	44	41	39	--	42
	19:00:00	43	42	*	44	*	41	39	--	42
	19:15:00	44	43	43	43	43	41	39	--	42
	19:30:00	42	41	42	42	40	39	37	--	41
	19:45:00	41	41	40	42	41	40	37	--	40
	20:00:00	42	40	40	42	41	38	36	--	40
	20:15:00	40	40	38	42	42	40	34	--	39
	20:30:00	39	39	37	41	39	36	31	--	37
	20:45:00	40	38	36	39	39	37	32	--	37
	21:00:00	39	38	37	40	41	36	31	--	37
	21:15:00	38	36	39	39	38	36	32	--	37
	21:30:00	36	38	*	41	35	35	31	--	36
	21:45:00	39	39	35	41	37	36	30	--	37
	22:00:00	41	38	38	41	38	35	36	--	38
	22:15:00	37	35	37	37	37	34	38	--	36
	22:30:00	39	34	36	35	35	32	36	--	35
	22:45:00	38	33	36	35	37	35	36	--	36

Table A-6 – Measured $L_{A90,15min}$ (free-field noise levels) at Position 2 – night time

Position	Start time	night time , $L_{A90,15min}$, dB by dates in July 2024							
		8th	**9th**	**10th**	**11th**	**12th**	**13th**	**14th**	**Arithmetic average**
Position 2, Grid reference: 397325,402490	23:00:00	36	31	38	33	33	30	34	33
	23:15:00	34	31	*	36	31	31	30	32
	23:30:00	39	30	*	37	32	33	32	34
	23:45:00	39	29	*	35	32	31	31	33
	00:00:00	40	29	*	34	30	29	30	32
	00:15:00	41	29	*	30	28	28	28	31
	00:30:00	38	32	*	28	30	25	28	30
	00:45:00	40	30	*	28	28	27	26	30
	01:00:00	41	30	*	27	28	28	26	30
	01:15:00	*	29	*	26	25	25	26	26
	01:30:00	*	29	*	26	26	23	27	26
	01:45:00	*	28	*	27	28	25	28	27
	02:00:00	*	28	*	27	27	25	29	27
	02:15:00	*	28	*	26	26	24	26	26
	02:30:00	*	28	*	26	26	25	26	26
	02:45:00	*	28	*	26	26	25	26	26
	03:00:00	*	27	*	27	27	26	26	27
	03:15:00	*	27	35	26	26	26	27	28
	03:30:00	*	28	35	28	27	24	27	28
	03:45:00	*	27	*	26	26	25	27	26
	04:00:00	*	29	37	29	29	26	29	30
	04:15:00	*	31	38	35	33	29	41	34
	04:30:00	*	41	*	44	45	43	41	43
	04:45:00	*	45	42	37	42	42	41	41
	05:00:00	*	43	40	40	37	39	41	40
	05:15:00	*	42	39	38	39	37	38	39
	05:30:00	*	38	41	35	34	30	37	36
	05:45:00	*	37	40	36	34	31	36	36
	06:00:00	*	41	43	39	38	29	39	38
	06:15:00	*	41	44	42	38	33	41	40
	06:30:00	*	43	44	40	36	33	39	39
	06:45:00	*	42	44	42	38	34	40	40

The measurement time histories are shown in Figure A-1 and Figure A-2 for Position 1 and Position 2 respectively.

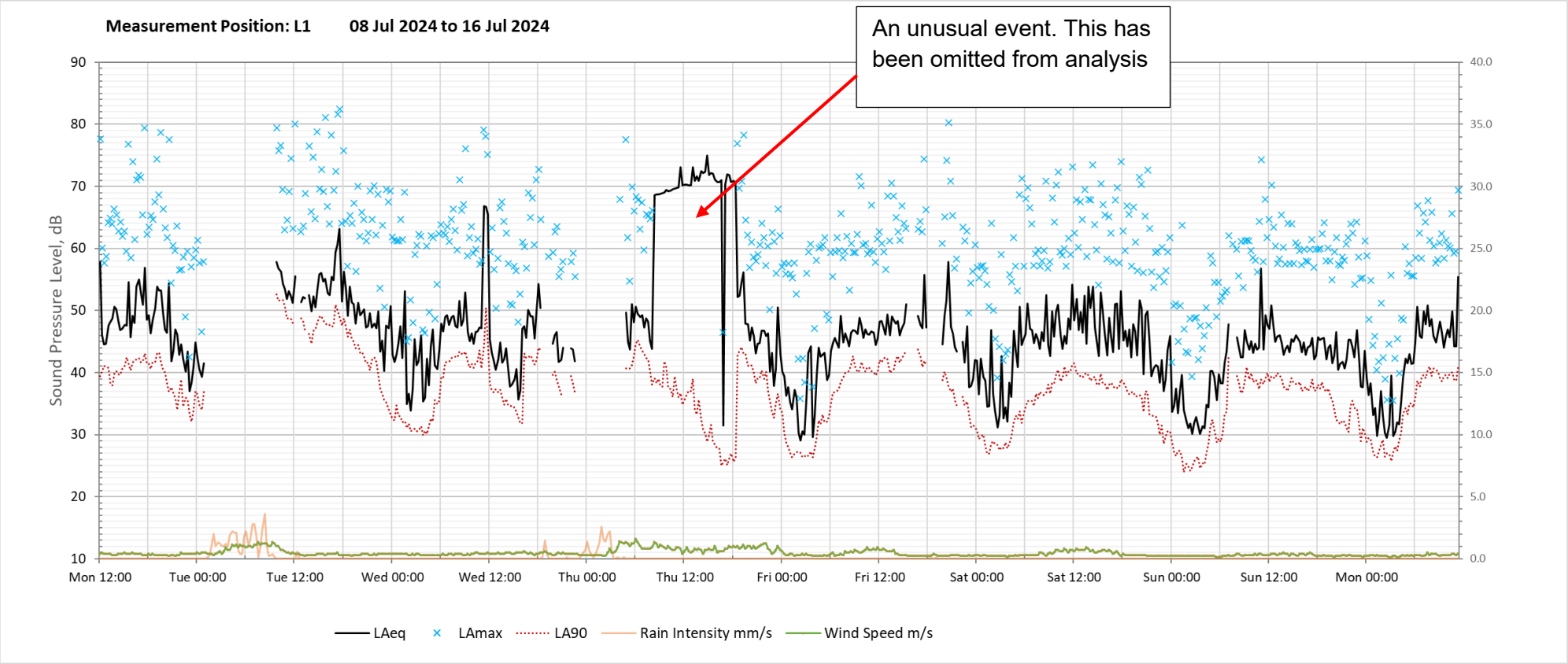

Figure A-1 - Measurement time history at Position 1

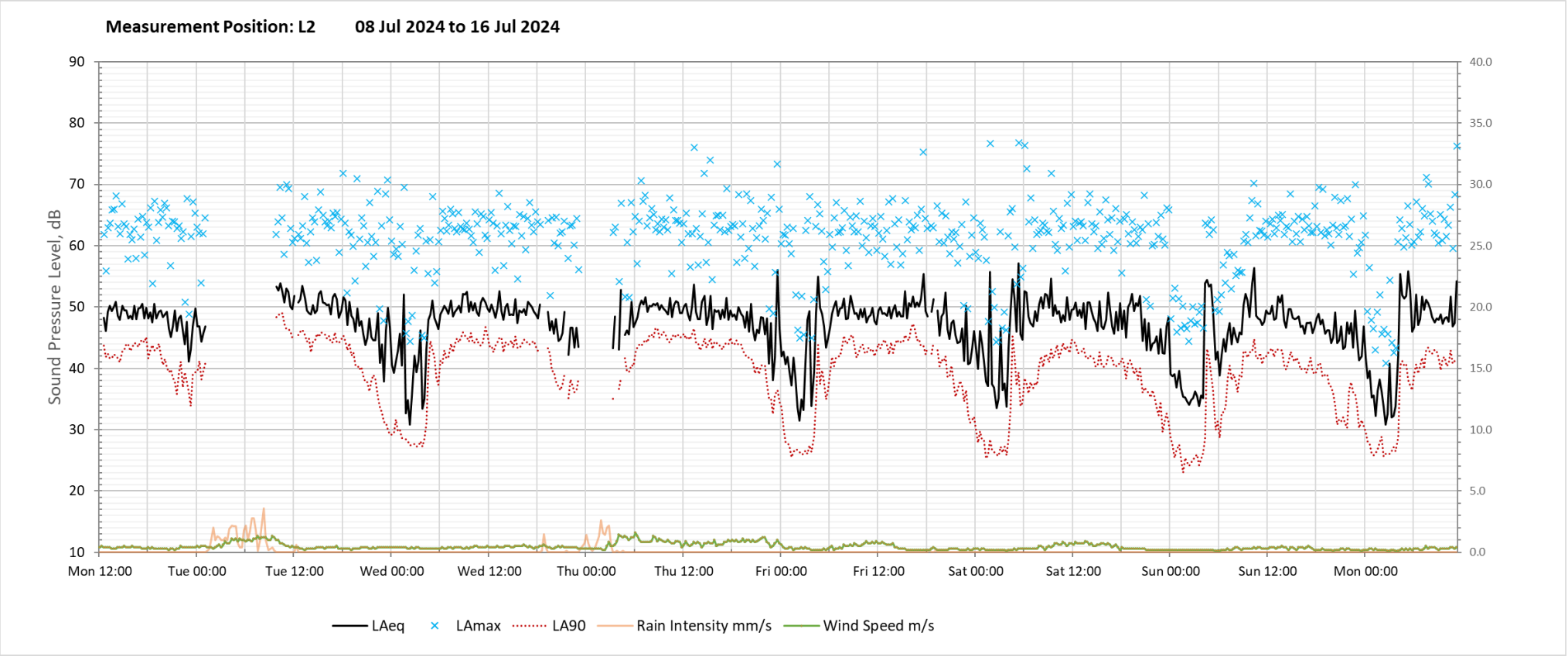

Figure A-2 - Measurement time history at Position 2

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT VOLUME 3 APPENDIX 10A – TRAFFIC AND TRANSPORT TECHNICAL APPENDIX

Rule 10(6)(d)

Document Reference	167037-NWR-2BC-MVL3-REP-W-EN-000033
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CONTENTS

1. INTRODUCTION 2
2. RELEVANT LEGISLATION, POLICY AND GUIDANCE 3
3. APPRAISAL OF IMPACTS AND EFFECTS 8
4. MITIGATION AND CONSIDERATION OF CONTROL MEASURES 67

1. INTRODUCTION

1.1.1 This Technical Note is produced in support of the Network Rail (Stalybridge to Diggle (Saddleworth) Enhancements) Transport and Works Act Order. It presents the evaluation of traffic and movement related impacts due to the Order Scheme, as well as the potential consequential effects of these impacts on both the travelling public and people living or working alongside impacted corridors (receptors) during both its construction and operation.

1.1.2 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound programme of improvements to bring more frequent, faster, and greener trains across the Pennines between Manchester, Huddersfield, Leeds and York on a better, cleaner, more reliable railway.

1.1.3 The assessment of the likely traffic and movement related effects has been undertaken in accordance with best practice guidance and established methodologies. It is informed by the Transport Statement Appendix 10B of the Report [**NR14**].

1.1.4 The proposed permanent and temporary works for the Order Scheme are included in Volume 1, Table 1-1 in Chapter 1 of the Report [**NR14**].

1.1.5 The Order Scheme is forecast to deliver modernisation and efficiencies to this section of the railway and therefore the level of rail movements (passenger and freight) between various origins and destinations through the Order Scheme are expected to increase. Although passenger usage may increase in the future, increased usage of the railway is considered permitted intensification. Should passenger usage increase and result in an increase of highway movements to/from stations on the route, it would also result in forecast decreases in highway movements on the wider network as users transferred from car to the improved rail service. This potential change in traffic flows due to the operation of the Order Scheme is unlikely to be of significance in terms of the operation of the highway network and is not within the scope of this transport assessment.

1.1.6 The air quality and noise effects of the changes in traffic flows due to the Order Scheme are excluded from the Traffic and Transport Chapter, as these topics are covered separately in within Volume 1, Chapters 13 and 9 of the Report [**NR14**] respectively.

1.1.7 The main focus of this Technical Note is therefore associated with construction of the Order Scheme, although consideration will be given to the operational phase issues. The effects on traffic and transport have been assessed both qualitatively and quantitatively, based on existing baseline and forecast future traffic conditions. To inform this Technical Note, a separate Transport Statement (Volume 3, Appendix 10B) [**NR14**] has also been prepared which includes further details the existing / future traffic and transport conditions, likely impacts and sets out the supporting surveys carried that informed the analysis.

1.1.8 The structure of this Technical Note is as follows:

- A review of relevant legislation, policy and guidance.
- Provision of assessment methodology and limitations.
- Consideration of baseline and future environment.
- Appraisal of construction activities and impacts.
- Consideration of suitable mitigation and control measures.

2. RELEVANT LEGISLATION, POLICY AND GUIDANCE

2.1.1 A summary of the relevant Traffic and Transport national, regional and local legislation, policy and guidance are set out in Table 2-1.

Table 2-1 Summary of Relevant Transport Legislation, Policy and Guidance

Scale	Policy Document	**Key Traffic/ Transport Considerations for** the Order Scheme
National	National Policy Framework (NPPF) [Dec 2024 Update][1]	Section 9 of the NPPF states that transport considerations should be integral to planning to address development impacts on transport networks, leverage existing transport infrastructure, promote walking/cycling/public transport and mitigate environmental impacts of transport. This is highlighted further in paragraph 108. paragraph 105 asserts that significant development should focus on sustainable locations to reduce travel needs and improve air quality. Paragraph 109 highlights the role the planning system should play and that it should promote sustainable growth by focusing development in areas that can limit travel needs and offer various transport options. This approach aims to reduce congestion, emissions, and improve air quality and public health. However, the potential for sustainable transport solutions will differ between urban and rural areas, which should be considered in planning and decision-making. It is important to note that paragraph 115 states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.
	National Design Guide[2]	The National Design Guide, adopted in January 2021, is part of the framework established by the NPPF. The national design guide serves as a key resource for

[1] https://www.gov.uk/government/publications/national-planning-policy-framework--2

[2] https://www.gov.uk/government/publications/national-design-guide

Scale	Policy Document	**Key Traffic/ Transport Considerations for** the Order Scheme
		promoting high-quality design in new developments, guiding local authorities, developers, and communities in creating well-designed places that are functional, attractive, and sustainable. The guide outlines ten overarching principles that address various aspects of design, including context, identity, and public spaces. It aims to ensure that new developments are not only functional but also enhance the character of their surroundings, fostering community cohesion and well-being
	Climate Change Policies[3] [4] [5]	The UK Climate Change Act (2008) established a target to reduce emissions by 80% from 1990 levels by 2050, with interim carbon budgets set up to 2032. In June 2019, in line with the Paris agreement, the Act was amended to aim for net zero carbon emissions by 2050. Both Oldham and Tameside Councils have declared a climate emergency and are committed to taking significant actions to reduce carbon emissions and enhance climate resilience. Following the declaration, a climate change strategy was produced by Tameside to outline the actions needed to reach this target. One of eight 'Themes for action' within the strategy is 'Transport – carbon busting options for all'. Similarly, one of Oldham Green New Deal objectives is 'Help deliver the GM2040 Transport Strategy Right Mix target for 50% of all journeys in Greater Manchester to be made by walking, cycling and public transport by 2040". This declaration includes setting targets for reducing greenhouse gas emissions, improving sustainability in local practices, and integrating climate considerations into all areas of council decision-making.
	Railway High-Level Output Specification (HLOS-CP7)[6]	This document, prepared in accordance with schedule 4A of the Railways Act 1993 (as amended by schedule 4 of the Railways Act 2005), outlines the objectives set by the Secretary of State for the upcoming review period CP7. Covering the period from 1 April 2024 to 31 March 2029, the statement provides guidance for the office of rail and road on the

[3] https://commonslibrary.parliament.uk/research-briefings/cdp-2023-0124/

[4] https://www.tameside.gov.uk/cutthecarbon/strategy#:~:text=After%20declaring%20a%20climate%20emergency,to%20our%20environment%20and%20society.

[5] https://bigoldhamconvo.oldham.gov.uk/addressing-climate-change

[6] https://www.gov.uk/government/publications/railways-high-level-output-specification-2022/railways-act-2005-statement-high-level-output-specification-2022

Scale	Policy Document	**Key Traffic/ Transport Considerations for** the Order Scheme
		expected outcomes for the operations, maintenance, and renewal of railway infrastructure. Network Rail's long-term strategy focuses on economic growth, connectivity, environmental sustainability, user needs, and financial sustainability. They aim to improve safety at level crossings and engage with local transport authorities for feedback on planned works. The strategy also includes enhancing rail infrastructure resilience to climate change and extreme weather, following recommendations to ensure a safe railway. These are set out within paragraph 7, 15, 24 and 28 of the documents.
	Network North: Transforming British Transport[7]	The Network North Strategy (2023) offers an approach to enhancing connectivity and transport infrastructure across the North of England, within the context of the evolving plans for HS2. It confirms the full delivery of NPR as a key strategic rail objective
Regional	Places for Everyone[8]	The Greater Manchester Combined Authority (GMCA) adopted the Places for Everyone Joint Development Plan for 2022-2039, covering 9 out of its boroughs (includes Oldham and Tameside Borough Councils). It focuses on sustainable movement and enhancing the transport network. Key policies aim to ensure that half of all daily trips are made by public transport, cycling, or walking, supported by significant national and regional projects. The plan emphasizes improving connectivity, economic growth, and creating well-connected, liveable places through public transport. It also promotes a low-carbon, accessible region with investments in transport infrastructure, including electrification and station enhancements, to improve reliability, capacity, and customer experience. GMCA will take a long-term strategic approach to infrastructure development.
	Integrated Rail Plan for the North and Midlands[9]	The Integrated Rail Plan (IRP) for the North and Midlands outlines a 30-year investment strategy, including electrifying and modernizing key rail lines like the TransPennine Route. The TransPennine Route Upgrade (TRU) will be the first phase of Northern Powerhouse Rail (NPR), featuring electrification, digital signalling, and additional tracks

[7] https://assets.publishing.service.gov.uk/media/65290f8669me0000dccf78b/network-north-transforming-british-transport-print-version.pdf

[8] https://www.greatermanchester-ca.gov.uk/media/9578/places-for-everyone-joint-development-plan-document.pdf

[9] https://www.gov.uk/government/publications/integrated-rail-plan-for-the-north-and-the-midlands

Scale	Policy Document	**Key Traffic/ Transport Considerations for** the Order Scheme
		to improve capacity and efficiency, initially increasing passenger services by 20%.
	Transport for the North (TfN)[10]	Transport for the North (TfN) is a statutory regional transport body that includes northern city regions, Local Enterprise Partnerships, Highways England, Network Rail, and HS2 Ltd. By 2050, the vision is for the North of England to become a vibrant, socially inclusive region. Major programs like the TransPennine Route Upgrade aim to provide faster, greener, and more reliable journeys, improve passenger experience and capacity, and enhance freight efficiency across the Pennines.
Local:	Oldham Metropolitan Borough Council: Various Documents[11]	The Development Plan for Oldham includes several key documents and policies: • Joint Core Strategy and Development Management Policies DPD (2011) • Places for Everyone Joint Development Plan (Greater Manchester Local Authorities) • Saved policies of the Unitary Development Plan (2006). Relevant policies for the Order Scheme include: • Policy PO7: Focuses on sustainable development, climate change mitigation, and high standards of sustainable design and construction. • Policy PO10: Promotes accessible and sustainable transport choices, supports Oldham's transport strategy, and ensures new developments have convenient access to local services. Policy T1: Aims to deliver transport priorities by seeking developer contributions for highway and public transport improvements and supports walking and cycling by protecting the public realm and minimizing street clutter.
Local:	Tameside Council: Various Documents[12]	Tameside Council is preparing a new plan called Homes, Spaces, Places – Shaping Tameside for tomorrow (HSP), which will align with national policy and the strategic planning context of the 'Places for Everyone plan Joint Development Plan' (PfE) until 2037. The council currently uses its Unitary Development Plan as a framework for development and conservation in Tameside, guiding land use decisions and planning applications.

[10] https://www.transportforthenorth.com/

[11] https://www.oldham.gov.uk/info/200585/planning_policy

[12] https://www.tameside.gov.uk/strategicplanning

Scale	Policy Document	**Key Traffic/ Transport Considerations for** the Order Scheme
		Key policies include: Policy 1.2: Maintaining an Integrated Transportation strategy, considering the needs of all road users, including public transport, when prioritizing transport investments. Policy 1.12: Ensuring an Accessible, Safe, and Healthy Environment, designing development schemes to be accessible to individuals with sensory impairments or restricted mobility, and incorporating traffic calming measures where necessary.

3. APPRAISAL OF IMPACTS AND EFFECTS

3.1 Methodology

3.1.1 A qualitative and quantitative approach has been undertaken to appraise the potential impacts of the Order Scheme's generated traffic based on guidance set out within the Institute of Environmental Management and Assessment 2023 (IEMA) guidelines: Environmental Assessment of Traffic and Movement[13].

3.1.2 The Order Scheme will result in new, permanent changes to a number of bridge structures, Public Rights of Ways (PRoWs) and stations as identified in Volume 1, Chapter 1, Table 1-1 of this Report [**NR14**]. Although these permanent changes are expected to result in negligible impacts to the traffic and transport network, consideration is given to these when reviewing the operational phase of the Order Scheme. As noted in section 1 of this Technical Appendix, most of the Order Scheme impacts on the transport network will occur during the construction phase and will be temporary and phased.

3.1.3 Therefore, key considerations during the construction and operational phases of the Order Scheme include:

Construction

- Temporary increases in construction traffic on the road network from deliveries by road of construction materials and equipment to the worksites, especially heavy-duty vehicles (HDVs), and from construction workforce commuting by car.
- Temporary traffic management arrangements and short-term road closures (temporary changes in road configuration).
- Temporary impacts specifically the temporary impact on public transport and on-street / off-street parking.
- Temporary closures and diversions of PRoW.

Operational

- Permanent changes to the highway network including new and upgraded bridge structures and PRoW.
- Permanent changes to Mossley and Greenfield Stations including minor revisions to parking arrangements, and new pedestrian access arrangements for Mossley station.

3.1.4 Mossley Station is to be relocated approximately 380m to the north of its current location, and the access to and from the main station car park will

[13] https://www.iema.net/resources/blogs/2023/07/12/iema-guidance-ea-of-traffic-and-movement/

be modified. The number of parking spaces proposed for the new Mossley station is 86 (including 5 accessible bays and 1 electric vehicle charging point), in comparison to 56 spaces which serve the existing station. That modest increase to parking provision is not expected to significantly change he level of traffic to/ from the station in comparison to baseline conditions.

3.1.5 The Order Scheme will also result in permanent changes to bridges linked to the operational phase, resulting in minor road safety improvements. In addition, the Order Scheme will result in permanent changes to PRoW although the impacts are likely to be minor such as slight increases in journey times.

3.1.6 Nevertheless, the environmental effects of the Order Scheme during the operational phase in terms of permanent changes are considered as part of this Technical Note at a high level.

3.1.7 To determine the appropriate scale and extent of the environmental assessment [of Traffic and Transport], the IEMA guidelines[14] advocate the use of a structured screening process. This process serves as an initial filter to identify traffic routes (or links) that may be subject to significant environmental effects due to changes in traffic volumes associated with a proposed development.

3.1.8 As part of this screening, the guidelines set out two threshold criteria that help establish whether further, more detailed assessment is warranted or not:

- **Rule 1:** A traffic link should be assessed if the total volume of traffic or the number of heavy goods vehicles (HGVs) is expected to increase by more than 30% as a result of the development.
- **Rule 2:** A traffic link should also be assessed if it is considered environmentally sensitive (e.g. near schools, hospitals, or residential areas), and the increase in traffic is expected to be 10% or more.

3.1.9 These thresholds are not definitive indicators of significant impact but are intended to highlight where further investigation is necessary. Once a link meets either threshold, it should be included in the environmental assessment scope, where the potential impacts can be evaluated in more detail using established significance criteria.

3.1.10 Therefore, where the construction or operational phases of a project result in increases to baseline traffic volumes (daily two-way traffic flows) which are greater than Rule 1 or 2, their associated effects have been considered.

[14] https://www.iema.net/media/5mrmquib/iema-report-environmental-assessment-of-traffic-and-movement-rev07-july-2023.pdf

3.1.11 Traffic routes where the Order Scheme is likely to result in changes in traffic volumes are identified in the Transport Statement, Appendix 10B, Volume 3 [**NR14**]. Effects are considered to either be significant or not significant:

- If changes in baseline traffic volumes as a result of the Order Scheme are less than Rule 1 and 2, their effects are not considered significant.
- Where changes exceed Rule 1 or 2, traffic and transport effects need to consider serval additional factors, including changes in traffic volumes, increases in journey times, road safety and type of traffic route. Where there is a combination of substantial impacts (i.e. substantial increase in traffic volumes and journey times or substantial increase in traffic volumes along routes with accident clusters) the Order Scheme's effects are considered significant.

3.1.12 To facilitate construction of the Order Scheme, there will be times when traffic management (including road closures and diversions) and Traffic Regulation Orders (TROs) will be in place and where possible, occur at times where impacts can be minimised.

3.1.13 Where road closures or diversions are required, it is expected that these will be managed to minimise impacts on the local highway network, are temporary in nature and appropriate routes are identified and utilised to allow traffic to dissipate through the wider highway network.

3.1.14 Given that traffic management, road closures, diversions and TROs are subject to further discussion and agreement with the Local Highway Authorities (LHA), the extent of traffic management and timings are yet to be confirmed.

3.1.15 A Construction Traffic Management Plan (CTMP) will be produced to provide details of traffic management on the nearby public roads, such as appropriate signage, access and egress points, and details of any diversion or necessary temporary road closures including dates and times. Under a condition in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**] a CTMP will need to be prepared, submitted to and approved in writing by the relevant local planning authority**.**

3.1.16 Through the implementation of the CTMP and along with the temporary nature of any traffic management, the associated impacts with road closures and diversions on the transport networks will be short term and not significant.

3.1.17 Given the temporary nature of the traffic management, road closures, diversions, parking suspensions, and that their associated impacts will be mitigated and managed through a CTMP to be delivered by way of a planning condition, it is considered that all residual impacts on the highway network will be short term and not significant. Nevertheless, this Appendix will include high level commentary on road closures, diversions and other impacts - specifically the temporary suspension of car parking and bus stops

3.2 Data Sources and Study Area

3.2.1 Table 3-1 provides a summary of the relevant works elements / components of the Order Scheme.

Table 3-1: Summary of Relevant Works

Relevant Works Elements	Consents Status of Works
Stalybridge Tunnel Temporary Ground Stabilisation Works	Deemed Planning Permission
Heyrod Hall Overbridge, Site Compound and Access Works	Deemed Planning Permission
Works to Footbridge off Springbank Lane	Deemed Planning Permission
Springbank Lane Overbridge Works	Deemed Planning Permission
Wakefield Road Plant Access and Compound	Deemed Planning Permission
Manchester Road Underbridge and Drainage Works	Deemed Planning Permission
Manchester Road Footbridge Reconstruction	Deemed Planning Permission
Scout Tunnel Temporary Ground Stabilisation Works	Deemed Planning Permission
Scout Tunnel Site Compounds Works	Deemed Planning Permission
Scout East Ramp Works	Deemed Planning Permission
Egmont Street Site Compound Works	Deemed Planning Permission
Plevins Site Compound Works	Deemed Planning Permission
Mossley Cottages Works	Deemed Planning Permission
Stamford Road Pipebridge Diversion Works	Deemed Planning Permission
Mossley Station Relocation Works and Site Compound Works	Deemed Planning Permission
New Earth Street Site Compound works	Deemed Planning Permission
Roughtown Road Overbridge Works	Deemed Planning Permission
Roughtown Road Footbridge Works	Deemed Planning Permission
Stockport Road Level Crossing Diversion	Deemed Planning Permission
Wright Mill Overbridge Reconstruction	Deemed Planning Permission
Armit Road Site Compound	Deemed Planning Permission
Wrights Overbridge Works	Deemed Planning Permission
Royal George Underbridge and Site Compound Works	Deemed Planning Permission
Oaklands Road Site Compound Works	Deemed Planning Permission
Oldham Road Overbridge Reconstruction	Deemed Planning Permission
Greenfield Site Compound Works	Deemed Planning Permission
Oldham Road Access and Drainage Works	Deemed Planning Permission
New Oldham Road Footbridge and Greenfield station Platform 2 Secondary Means of Escape Works	Deemed Planning Permission
Moorgate Halt Alternative Footpath and Site Compound Works	Deemed Planning Permission
Uppermill Viaduct Works	Deemed Planning Permission
Former Saddleworth Station Site Compound	Deemed Planning Permission
Former Butterhouse Tunnel Site Compound Works	Deemed Planning Permission
Ravenstone Drive Footbridge Works	Deemed Planning Permission

Relevant Works Elements	Consents Status of Works
Ward Lane Overbridge Reconstruction and Utilities Bridge Works	Deemed Planning Permission
Ward Lane Site Compound Works	Deemed Planning Permission
Diggle Road Overbridge and Utilities Bridge Works	Deemed Planning Permission
Standedge Canal Tunnel	Deemed Planning Permission
Standedge Tunnel Bywash Underbridge Replacement	Deemed Planning Permission
Diggle Access and Diversion Works	Deemed Planning Permission
Diggle Site Compound Works	Deemed Planning Permission
Abney Road Footbridge Works	Permitted Development
Existing Mossley Station Works	Permitted Development
Mossley Station Footbridge Works	Permitted Development
Mill Lane Underbridge Works	Permitted Development
New Earth Street Footbridge Works	Permitted Development
Midge Hall Underbridge Works	Permitted Development
Charlotte Street Bridge Works	Permitted Development
Greenfield Station Works	Permitted Development

3.2.2 The Study Area to be considered as part of this assessment is shown within Volume 2, Figure 10.3.1 of the Report [**NR14**]. The Study Area is based on currently known information on the Construction Phase and how compounds will interact with relevant works element locations. It is also based on key diversionary routes that could be required during key road closures and traffic management phases, as well as PRoW affected by the Order Scheme.

3.2.3 For the purposes of this assessment, the core construction route comprises of:

- A635 from Stamford Street to its junction with B6175.
- B6175 from its junction with the A635 to its junction with Chew Valley Road.
- Shall Hall Bank Road from its junction with Chew Valley Road to its junction with A670.
- Oaklands Road from its junction with B6175 to its junction with A670.
- A670 from its junction with Oaklands Road to its Junction with Huddersfield Road.
- Huddersfield Road from its junction with A670 to its junction with Sam Road.
- It is assumed that construction traffic will mainly use the core construction route.

3.2.4 From the core construction route, it has been assumed that traffic will then utilise local routes to the various worksites and compounds.

3.2.5 During the Order Scheme works there will be a requirement for road diversions when certain road closures or traffic management arrangements are in place. For the purposes of this assessment, four main diversionary routes (Mossley Road, B6175, Dobcross New Road, Chew Valley Road) have been considered as part of this assessment, these are also illustrated in Volume 2, Figure 10.3.1 of the Report [**NR14**]. However, it should be noted that traffic management, road closures and diversionary requirements are still to be confirmed and agreed with either OMBC or TMBC via a Construction Traffic Management Plan that will be delivered by way of a planning condition.

3.2.6 A package of surveys (Automated Traffic Count, Manual Classified Counts, Non-Motorised Users, car parking) were undertaken to establish existing baseline conditions. Based on a qualitative approach, Non-Motorised User surveys on routes considered to be lightly utilised/ rural were excluded. Survey locations are illustrated in Volume 2, Figures 10.3.2 to 10.3.6 of the Report [**NR14**].

3.2.7 This package of surveys were undertaken by an independent third-party survey company (Intelligent Data Count) during three rounds of surveys:

- Round 1: September 2024
- Round 2: November 2024
- Round 3: June 2025.

3.2.8 The surveys consisted of 3 types:

- Automated Traffic Counts (ATCs)
- Non-Motorised User Surveys (NMUs)
- Manual Classified Counts (MCCs)
- Off-street car parking Surveys (CP)
- On-street car parking Surveys (ONS CP)

3.2.9 Further details on the types of surveys undertaken is provided at Section 3.6. Additional Survey data (Census Points) were obtained from the Department for Transport website.

3.3 Consultation with Stakeholders

3.3.1 Relevant consultation responses regarding traffic and transport issues from Oldham District Council (ODC) and Tameside Metropolitan Borough Council (TMBC) are included within the Consultation Report for the Order Scheme [**NR07**]**.** This includes correspondence with both authorities prior to the surveys being undertaken.

3.4 Construction Activities

3.4.1 To facilitate the construction works for the Order Scheme, a number of work packages have been developed, including compounds and storage

locations (see Table 1-1, Volume 1, Chapter 1 of the Report [**NR14**]). The breakdown of proposed site compounds is shown in Table 3-2.

Table 3-2 Construction Compounds Overview

Work Package	Compounds	Relevant work Elements
ALL	Whitelands	All
	Plevins	All
Alpha	Printworks Road Office	All
	Wakefield Road	MVL3/7, MVL3/8, MVL3/9, MVL3/10
	Bridge 10A/ Tunnel Laydown Area	MVL3/10a
Scout	Scout Spoil Point	MVL3/11
	Scout East Laydown	MVL3/11
Mossley	Manchester Road / Mossley New Compound	MVL3/12, MVL3/12a, MVL3/13, MVL3/14, MVL3/15
Bravo	Heron Lane	MVL3/16, MVL3/17, MVL3/18, MVL3/19, MVL3/20
	Armit Road	MVL3/22
	Oaklands Road/ Satellite	MVL3/23, MVL3/24, MVL3/25, MVL3/26, MVL3/27a, MVL3/27b,
	Shaw Hall Bank Road	MVL3/28
Charlie	Oaklands Road/ Satellite	MVL3/29, MVL3/31, MVL3/31a, MVL3/32
	Brownhill Lane	MVL3/29
Diggle	Grandpa Green/ Grandpa Green 2	MVL3/35
	Diggle Rail Hub/ Welfare Office	MVL3/36
	Sam Road	MVL3/39, MVL3/39a, MVL3/39b

3.4.2 As previously noted, the core construction route is based on the latest understanding of the construction works and how the compounds will interact with that.

3.4.3 Although construction traffic could utilise other routes, its anticipated this will be for localised access (i.e. from main route to compound/ intervention). Therefore, the core construction route (c11km) is illustrated in Volume 2, Figure 10.3.1 of the Report [**NR14**] and this is broken into sections to help identify the potential level of construction traffic moving between the various compounds/ relevant works as part of the various work packages.

3.4.4 Due to the early stage of the development of the Order Scheme precise construction vehicle figures are not yet known. However, in order to provide a robust assessment of the traffic impacts, a model has been developed, in liaison with the Principal Contractor, for construction traffic estimation process using the latest information available.

3.4.5 A number of internal construction planning reports and other details were prepared to develop and understand construction requirements. That construction data was reviewed and interrogated to understand construction staff requirements, HGV movements and traffic management proposals.

3.4.6 This information has been used along with a number of traffic assumptions to develop daily construction vehicle and staff movement forecasts to each of the compounds and work interventions through the construction duration of the project. This analysis developed daily and peak construction traffic figures from the enabling and construction. A high-level summary of key assumptions is set out below:

- Construction Timeframe: Consists of Enabling Works and 'Core' Construction Works (operational compounds and relevant work elements. It is anticipated that the construction timeframe will run from mid-2027 to 2032 and will be phased, where possible, to limit overlaps in enabling works and when compounds/ relevant works elements are operational.
- During Enabling works, the Typical and daily HGV movements at Key compounds (Printworks Road, Plevins, Oaklands Road Compounds, Diggle Rail Hub) was estimated to be:
    - 30 two-way HGV movements during peak periods. This would last for approximately 33% of the total build days.
    - 5 two-way HGV movements during peak typical periods. This would last approximately 66% of the total build days
    - These numbers were then assessed against the number of build days to provide total and average HGV movements.
- During Enabling works, the Typical and daily HGV movements at all other compounds was estimated to be:
    - 10 two-way HGV movements during peak periods. This would last approximately 25% of the total build days
    - 2 two-way HGV movements during peak typical periods. This would last approximately 75% of the total build days
    - These numbers were then assessed against the number of build days to provide total and average HGV movements.
- The level of personnel and deliveries required during the enabling works at each compound was assumed to be a third of that required when each compound is operational.
- For the 'Core' Construction Period, the Construction Planning reports were reviewed to understand the potential requirements of the Principal Contractor(s). Based on this information and discussions with the Principal Contractor, the daily number of two-way HGV deliveries were

identified for each compound and relevant work elements / location. In addition, the number of required daily personnel at these locations was derived.

- Daily light good vehicles are based on number of personnel (assumed occupancy of 2 staff per vehicle) and likely number of light good deliveries daily.
- During the construction phase there would be periods of heightened activity associated with possessions and blockades (the planned and temporary closure of a section of railway). For possessions/ blockades it was assumed that increased working activity would occur every 3 months during the construction phase. Blockades are estimated to take place in March, June, September and December from 2028 to 2032.
- The derived daily vehicle numbers for each compound/ relevant work location were then applied to the to the programme periods for when works would be undertaken/ compounds would be in operation. This identified daily typical and peak activity across the Study Area. These daily movements were then assigned to the core construction routes.
- A number of key compounds (Whitelands Road, Wakefield Road, Plevins, Oaklands Road, Diggle Welfare & Office) will operate shuttle buses which will bus personnel from these compounds to relevant work location. This will help limit the level of vehicle movements within the Study Area. However, for robustness, no allowance/ discount has been applied to reflect this.

3.4.7 Based on this approach, discussions with the Principal Contractor and best information currently available, a summary of the typical construction activity at each compound is set out in Table 3-3 along with the expected construction personnel and vehicle trip requirements.

Table 3-3: Construction Compounds Typical Operation

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Whitelands Road	The compound will be constructed on an existing brownfield site. The compound will be used as site offices with welfare facilities and parking.	**Access:** Existing access via Whitelands Road **Key Activity Routes:** Whitelands Road, Stamford Road	**Typical Activity:**50 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 30 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 2

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
		Activity Routes: Printworks Road, Wakefield Road/ Manchester Road		Daily HGVs: 7
Printworks Compound	There will be an office/ welfare complex, staff parking and storage areas. There will be safe walking routes, all vehicles will be able to turn on-site, and access will be via a new access onto Printworks Road.	**Access:** New priority Controlled Junction via Printworks Road. **Key Activity Routes:** Printworks Road, Wakefield Road/ Manchester Road	**Typical Activity:23** personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 46 Daily HGVs: 7 **Peak Activity** Daily Cars/ LGVs: 46 Daily HGVs: 7
Wakefield Road Plant Access and Compound	To be utilised for storage of plant and materials. On-site welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Wakefield Road.	**Access:** New/improved access via Wakefield Road **Key Activity Routes:** Wakefield Road/ Manchester Road, Springbank Lane.	**Typical Activity:** 46 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs:28 Daily HGVs: 3 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 3

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Scout Tunnel (includes Scout Spoil Point, Scout Laydown and Manchester Road Compound)	Currently used as car parking and will be repurposed to allow for spoil to be removed from the tunnel and for stockpiling. Improvements to site access to be considered to limit impact on local highway network. Staff to be brought to site by minibus due to limited on-site parking. No welfare at this site.	**Access:** Improved access via Manchester Road **Key Activity Routes:** Manchester Road.	**Typical Activity:** 47 personnel **Peak Activity:** 47 personnel	**Typical Activity** Daily Cars/ LGVs: 24 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 24 Daily HGVs: 2
Scout Tunnel Eastern Portal (includes Scout East Laydown, Ramp and Access)	Existing car parking area to be replaced by compound which will facilitate workable area for tunnel works. Welfare to be provided and staff to be brought to site by minibus due to limited on-site parking.	**Access:** Improved access via Manchester Road **Key Activity Routes:** Manchester Road. Stamford Road.	**Typical Activity:** 36 personnel **Peak Activity:** 36 personnel	**Typical Activity** Daily Cars/ LGVs: 18 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 18 Daily HGVs: 0
Plevins Logistic Hub	This will be the main logistics hub supporting	**Access:** Cheshire Street/ Egmont	**Typical Activity:** 235 personnel	**Typical Activity** Daily Cars/ LGVs: 126

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
	scheme wide interventions. Access via Manchester Road	Street. Improvements to Manchester Road/ Egmont Street Junction **Key Activity Routes:** Manchester Road. Egmont Street. Cheshire Street. Stamford Road.	**Peak Activity:** 300 personnel	Daily HGVs: 8 **Peak Activity** Daily Cars/ LGVs: 158 Daily HGVs: 8
Mossley Station Compound	Required to support works at Mossley Station. To be utilised for storage of plant and materials. On-site welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Manchester Road.	**Access:** Existing access to be modified/ improved. **Key Activity Routes:** Manchester Road, Stamford Road.	**Typical Activity:** 36 personnel **Peak Activity:** 107 personnel	**Typical Activity** Daily Cars/ LGVs: 21 Daily HGVs: 4 **Peak Activity** Daily Cars/ LGVs: 57 Daily HGVs: 4
Heron Lane Compound	Greenfield site which will be constructed to contain site welfare, stores, material	**Access:** Existing access to be modified/ improved. Traffic management	**Typical Activity:** 20 personnel **Peak Activity:**	**Typical Activity** Daily Cars/ LGVs: 10 Daily HGVs: 2

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
	storage, security hub and parking. Provides direct access to track.	maybe required. **Key Activity Routes:** Manchester Road, Herons Lane	20 personnel	**Peak Activity** Daily Cars/ LGVs: 10 Daily HGVs: 2
Armit Road Compound	Greenfield site that will be used for the surrounding interventions with access via Armit Road.	**Access:** Existing access to be modified/ improved. **Key Activity Routes:** Manchester Road, Church Road, Armit Road	**Typical Activity:** 15 personnel **Peak Activity:** 15 personnel	**Typical Activity** Daily Cars/ LGVs: 8 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 8 Daily HGVs: 2
Oaklands Road Compound	To be utilised for storage of plant and materials. On-site offices, welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Oaklands Road.	**Access:** Modified access via Oaklands Road. **Key Activity Routes:** Manchester Road, Oaklands Road, Well-I-Hole Road/ Shaw Hall Bank Road, Church Road, Armit Road, High Grove Lane, Oldham Road.	**Typical Activity:** 30 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 20 Daily HGVs: 10 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 10
Shaw Hall Bank Road	This compound is to support construction at the Greenfield Station. Provide car	**Access:** existing access via Shaw Hall Bank Road. **Key Activity Routes:**	**Typical Activity:** 10 personnel **Peak Activity:**	**Typical Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
	parking for staff.	Manchester Road, Oaklands Road, Well-I-Hole Road/ Shaw Hall Bank Road	10 personnel	**Peak Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0
Grandpa Greens / Grandpa Greens 2 (as part of Ward Land Compound Works)	The site is currently informal car parking and a greenfield site. Small welfare area and parking provision to be provided.	**Access:** improved access via Ward Lane. **Key Activity Routes:** Ward Lane, Huddersfield Road, Dobcross New Road	**Typical Activity:** 20 personnel **Peak Activity:** 20 personnel	**Typical Activity** Daily Cars/ LGVs: 10 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 10 Daily HGVs: 0
Diggle Rail Hub / Welfare Office Compound	Access via Lee Side. New access already installed which is appropriate for HGVs. To be utilised for storage of plant and materials. Welfare and full office set up to be provided.	**Access:** Lee Side (new access already installed by W3). **Key Activity Routes:** Lee Side, Diggle Road, Sam Road, Ward Lane, Huddersfield Road.	**Typical Activity:** 50 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 30 Daily HGVs: 7 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 7
Sam Road Car Park (as part of Diggle Compound Works	The site is currently use as an off-street carpark. The site will be used for car parking and access to the track	**Access:** Use existing access **Key Activity Routes:** Sam Road, Ward Lane, Huddersfield Road.	**Typical Activity:** 10 personnel **Peak Activity:** 10 personnel	**Typical Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 5

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
				Daily HGVs: 0
Combined Typical two way daily movements	**Daily Cars /LGV: 762** **Daily HGVs: 94**			

3.4.8 Therefore, it is assumed that typical two-way daily movements across all compounds during the construction period would be approximately 762 Light Vehicles and 94 HGVs. Construction works will be phased and therefore not all compounds/ relevant works will be in operation for the entirety of the construction period.

3.4.9 Whilst it is acknowledged that there will be periods of increase levels of vehicle activity, this well be temporary and only occur over short periods of time and be managed to limit impacts on the local road network. HGVs will travel to / from the compounds via the core construction route and have been assigned to the network based on discussions with the Principal Contractor.

3.4.10 It has been assumed that light vehicles associated with the construction phase (workers and small van deliveries) will approach from the north and south along the core construction. In reality, it is probable that light vehicles will utilise several routes and dissipate over the wider transport network which will reduce the impact on the network in the Study Area associated with light vehicles.

3.4.11 Table 3-4 provides a brief overview of the key relevant work elements considered as part of this assessment and associated localised construction routes and vehicle requirements.

Table 3-4: Construction Activity Summary - Relevant Works Elements

Relevant Works Elements Ref	Brief Description	Types of Vehicles	Key Routes
Heyrod Hall Overbridge (MVL3/7)	Reconstructed overbridge	Kirow rail crane, HGV, Vans	Wakefield Road, Printworks Road
Spring Bank Lane (MVL3/9)	Refurbishment of overbridge	HGV, Vans	Wakefield Road, Printworks Road
Manchester Road Overbridge (MVL3/10)	Refurbishment of overbridge	HGV, Vans	Manchester Road, Printworks Road, Luzley Road, Mossley Road

Relevant Works Elements Ref	Brief Description	Types of Vehicles	Key Routes
Manchester Road Footbridge (MVL3/10a)	Replacement Footbridge	230T mobile crane, HGV, Vans	Manchester Road, Printworks Road, Stamford Street, Mossley Road, Lower Beestow (Private Road)
Abney bridge (MVL3/12a)	Handrails upgrade	HGV, Vans	Manchester Road, Stamford Road, Abney Road
Relocated Mossley Station	Redevelopment of the existing station and car park	230T mobile crane, HGV's and Vans	Manchester Road, Printworks Road, Stamford Street, Mossley Road,
Stamford Road (MVL3/13)	OLE upgrade	HGV, Vans	Manchester Road, Stamford Road, Abney Road
Mill Lane (MVL3/15)	Refurbishment of overbridge	HGV, Vans	Manchester Road, Roughtown Road, Mill Lane
New Earth (MVL3/16)	Refurbishment of overbridge	HGV, Vans	Manchester Road, Earth Street, Mill Lane, Milton View
Roughtown Rd (MVL3/17)	OLE improvement	Excavator / telehandler, HGV, Vans	Manchester Road, Carhill Rd, Roughtown Rd
Stockport Road level crossing and Heron Land Compound	Closing of existing level crossing and new footpath	Pick-up trucks, a long-wheel base welfare van, 7.5t flat-bed lorries	Manchester Road, Heron Lane
Midge hall (MVL3/19)	Refurbishment of overbridge	Excavator / telehandler, HGV, Vans	Manchester Road, Heron Lane
Wrights Mill (MVL3/20)	Reconstruction of overbridge	Kirow rail crane, HGV, Vans	Manchester Road, Heron Lane
Hobble Hole (MVL3/22)	Strengthening of overbridge	Road rail vehicles (RRV), trailers, tracked excavators	Oaklands Road, Well-I-Hole Road
Wrights Overbridge (MVL3/23)	Removal of overbridge	RRVs, trailers, tracked excavators	Oaklands Road, Well-I-Hole Road, Armit Road, Church Road
Charlotte St (MVL3/24)	Strengthening of overbridge	RRVs, vans	Mossley Road, Oldham Rd, Oaklands Road
Footway UB (MVL3/26)	Strengthening of overbridge	RRVs, trailers, tracked excavators	Shaw Hall Bank Rd, Oaklands Rd
Oldham Rd (MVL3/28)	Reconstruction of overbridge	Kirow rail crane Excavator /	Oldham Rd, Oaklands Rd, Shaw Hall Bank Rd

Relevant Works Elements Ref	Brief Description	Types of Vehicles	Key Routes
		telehandler, HGV, Vans	
Wickens Underbridge (MVL3/29)	Strengthening of overbridge	RRVs, trailers, tracked excavators, HGVs, vans	Ladcastle Road, A670, Oaklands Road
Butterhouse Lane Footbridge (MVL3/31a)	Fencing	RRVs	N/A
Subway (MVL3/32)	Handrails	RRVs	N/A
Ravenstone Drive Footbridge (MVL3/35)	Upgrade of fencing	RRVs	Leeside Rd, Standedge Road
Ward Lane Overbridge (MVL3/36)	Reconstruction of overbridge	Large 1000 T Cranes, HGVs, Vans	Harrop Court Road via Huddersfield Road, Sam Road and Diggle Road
Standedge Canal Tunnel (MVL3/39a)	Upgrade of tunnel	RRVs, trailers, tracked excavators, HGVs, vans	Huddersfield Road, Sam Road
Diggle Road Overbridge (MVL3/39)	Reconstruction of overbridge	Large 1000 T Cranes, HGVs, Vans	Harrop Court Road via Huddersfield Road, Sam Road and Diggle Road

3.5 Traffic Management and TRO Activities

3.5.1 There will be a requirement to introduce temporary Traffic Management and Traffic Regulation Orders (TROs) to facilitate the construction phase of the Order Scheme and to safely manage and control the movement of people and traffic through the Study Area. Given that detailed planning of the construction phase is still at a relatively early stage, the level and type of temporary traffic management required is subject to further development and will be detailed within a CTMP to be developed in liaison with TMBC / OMBC. It is anticipated that:

- Traffic management will include detailed information relating to issues such as:
    - Lane/ road closures

- Road diversions
- Diversions of footways and PRoW
- Traffic control measures (stop/ go, contra flow, temporary traffic signal etc).

- TROs will include details of:
  - Suspension to waiting, parking and loading facilities
  - Suspension of bus stops.

3.6 Baseline Environment

Existing Transport Network Overview

3.6.1 Based on the current understanding of the Order Scheme construction phase, construction activities as well as requirements for proposed traffic management / TRO activities, a high level overview of the transport conditions within study are is provided in Table 3-5.

Table 3-5: Summary of Existing Highway Network with Study Area

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes
Stalybridge Tunnel and Printworks Compound Area Printworks Road will have two compounds which will facilitate the project works at Stalybridge Tunnel and for the wider project area. As such, the main routes to be utilised will be Printworks Road and Wakefield Road. The main highway route in the area is the A635 Wakefield Road which provides a link between Stamford Street to the south, to Mossley to the north. It accommodates c8943 vehicles daily, of which 281 are HGVs. In vicinity of the works, Wakefield Road is 40mph and has footway/ streetlight on both sides of the carriageway. Printworks Road is a 30mph road with footway provided on both sides of the carriageway until the railway underbridge where the footway provision on the north side of the road stops. The north side footway restarts and continues after the underbridge. Printworks Road forms a priority junction with the Wakefield Road. The junction has standard visibilities and continues a right turn lane into Printworks Road from Wakefield Road.

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes
Heyrod Hall footbridge is located between the A635 Wakefield Road and Printworks Road. Both bridges link A635 Wakefield Road to the Printworks Road. On the Printworks Road, the access points to the footbridge are reduced to 10 mph due to 'uneven road' and does not have any footway provision. On the A635 Wakefield Road, at the access points to the footbridges there is footway on the east side of the carriageway providing a connection to the footbridges. There is one bus stop within 200 m of the Printworks Road/ A635 Wakefield Road Junction, and two stops close to the Heyrod Footbridge. Service 356 runs hourly along this route and services these stops. There are no dedicated cycle routes along the A635 Wakefield Road or Printworks Road.
Spring Bank Lane and Wakefield Road Compounds Area To facilitate works in this area and the proposed compounds, the main access routes to be utilised are likely to be Wakefield Road/ Manchester Road and Spring Bank Lane. Spring Bank Lane Footbridge crosses between A635 Wakefield Road on the western side and Spring Bank Lane on the eastern side, in the northern section of Heyrod. Spring Bank Lane Footbridge connects to Spring Bank Lane through a set of steps. The current steps are in a poor state of repair. Spring Bank Lane is a 30mph road with footway provided on the north side of the carriageway. The footway is narrow and overgrown in places. Spring Bank Lane Overbridge forms a priority junction with the A635 Wakefield Road. The bridge is signposted as a 'Weak Bridge' with a max tonnage of 10. The junction has sub-standard visibilities onto A635 Wakefield Road. The A653 Wakefield Road is a 40 mph Road with footway provision on both sides of the carriageway. Wakefield Road in vicinity of the compound is 30mph with footway on on-side of the carriageway.
Plevins Compound Area Plevins Logistic Hub will be set up to support all interventions across the project. Plevins is located off Cheshire Street approximately 500m from Mossley Station. The site is an existing warehouse facility with access of a priority junction from Cheshire Street. The surrounding area is mainly residential. The main routes to the compound would be via Cheshire Street and Egmont Street. Cheshire Street is a residential street, with a 30-mph speed limit. The street is approximately 9 metres wide however, there is on-street car parking on both sides of the road which narrows the road. There are footways on both sides of the road and Cheshire Street links to Manchester Road / Wakefield Road via Egmont Street. Cheshire Street does not have any bus stops or cycling infrastructure. Egmont Street is a residential street, with a 30-mph speed limit. The street is approximately 9 metres wide however, there is on-street car parking on both sides of the

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes
road which narrows the road. There are footways on both sides of the road and 3 bus stops. The bus stops provide services 350, S350B, 820 and 870 with a frequency of approximately every 30 minutes. Egmont Street provides connections to A635 Manchester Road which is the main route through the town centre and connects Mossley to Stalybridge and the M60 to the south-west, and Greenfield to the north-east. Egmont Street provides connections to a traffic free cycle route located to the east of the River Tame.
Mossley Station Area To facilitate the works in this area, the key access routes are likely to be Manchester Road and Stamford Road. The existing station is located in Mossley town centre which is situated approximately 15km east of Manchester and 5km south-east of Oldham. Given that the station is within the town centre, it is close to local shops and Mossley Park. Vehicular access to the station and car park is from the junction of A635 Manchester Road and B6177 Stamford Road. The A635 is the main route through the town centre and connects Mossley to Stalybridge and the M60 to the south-west, and Greenfield to the north-east. The B6177 connects Mossley to the A670, which provides onward connection to Ashton-under-Lyne and the M60 to the south-west, and Uppermill and the A62 towards Huddersfield to the north-east. Both the A635 and B6177 are subject to a 30mph speed limit with parking restrictions (double yellow) in the vicinity of the station. The only pedestrian access to the station is provided via the station entrance located at the junction of A635 Manchester Road and B6177 Stamford Road. A footbridge with stepped access connects the Huddersfield-bound platform to the station entrance. A ramp connects the station car park to the Manchester-bound platform, but the Huddersfield-bound platform is not accessible except for stepped access from the footbridge. Footways in and around Mossley Station are of a very high quality, with dropped kerbs, tactile paving and signalised pedestrian crossings available within the immediate vicinity of the station along A635 Manchester Road. The existing Mossley Station has circa 56 free car parking spaces (including 2 disabled bays and 4 coach bays) which are accessed via a two-way link via the signalised Stamford Road/ Manchester Road junction. Sheltered cycle parking is available, with 18 spaces located by platform 2. The station also has a taxi rank. Access to the relocated Mossley station will be via Mill Lane and to the wider highway network via Mill Lane / A635 Manchester Road signalised junction. To/ from the relocated station via this route is through the underbridge which has a maximum height restriction of 6 feet, 6 inches. Manchester Road is a single lane carriageway and has a footpath on the north side of the road.

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes
These areas benefit from excellent connectivity to the local bus network, with multiple bus stops within a short distance along both Manchester Road and Stamford Road serving a variety of local bus services including 343 (Hyde to Oldham), 350 (Oldham to Ashton) and 356 (Ashton to Oldham) which have frequency of approximately 60-75minutes. Although there are no cycle routes along Manchester Road/ Wakefield Road, there is a traffic free cycle route located to the east of the river Tame.
Stockport Road Level Crossing to Oaklands Road Compound Area. To facilitate the works in this area, the key access routes to be utilised are likely to be Mossley Road, Manchester Road, Shaw Hall Bank Road. Wrights Mill overbridge carries a bridleway which connects Heron Lane, Mossley Road and Midge Hill Farm on the west, with Calf Lane on the east. Heron Lane is a single-track laneway with no footpaths provided. It provides a link from Manchester Road to Mossley Road via an underbridge. The Wrights Mill overbridge, and Heron Lane underbridge are accessed from footpaths across open single-track paths to connect into Manchester Road via Cait Lane from Mossley Road. High Grove Lane is a residential area which consists of two-way traffic with footpaths on both sides of the road. At the underbridge the road narrows to single carriageway with no footway provision and a maximum height of 10feet, 6inches. High Grove Lane connects Mossley Road to the Manchester Road. Oaklands Road passes underneath the railway line at the Royal George Underbridge. Friezland Church Hall is south-east of the bridge, whilst a cemetery is on the south-west. On the north side of the bridge Oaklands Road continues up the slope of the hillside. Along the top of the cliff face runs the A670 Oldham Road, which then crosses over the railway line at the northeastern end of the station. The station bridge which is to be demolished and replaced is situated at the northern end of the station, just south of the Oldham Road Overbridge. The Oldham Road Overbridge which passes over the railway is currently relatively narrow with inadequate footpaths on either side for pedestrians. The bridge also sits on a turn in the road, with poor highway sight lines across the bridge. Shaw Hall Bank Road joins with Oldham Road Overbridge on the southeastern side, at a tight junction with poor sight lines. Wickens Underbridge carries a PRoW between Oldham Road on the east and Ladcastle Road on the west underneath the railway and is largely covered on both sides by tree cover. On the west of the bridge, the PROW continues through a field, whilst on the east of the bridge access comes through from between several properties. The Shaw Hall

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes
Bank Road is a 30-mph road with footway provided on both sides of the carriageway providing connection to the Greenfield railway station. A site compound is required at Oaklands Road to the north of the George Street Underbridge Works. The compound will be accessed via an existing access on Oaklands Road at its junction with Oaklands Park. There are of bus stops located along Manchester Road and Mossley Road, which are served by hourly services 343, 356, 357 and 828. On Shaw Hall Bank Road, there are a number of buses stops also, and these are served by Service 385 which has an hourly frequency between Ashton and Mossley. Although there are no cycle routes in this area, there is a traffic free cycle route located to the east of the river Tame.
Greenfield Station Area. To facilitate works, compounds and diversionary routes in this area, it is likely the that key access routes to be utilised will be A670, Shaw Hall Bank Road, Chew Valley Road and Chapel Road. Greenfield Station is approximately 6.9 kilometres north of Stalybridge Station, and approximately 3.75 kilometres south of Standedge Tunnel Western Portal. The station has two platforms, a footbridge in a poor state of repair, a wating shelter and a parking area. It is accessed via Shaw Hall Bank Road on the southeastern side. The visibility of the station is limited by a cliff face directly adjacent to it on the northern side. The Shaw Hall Bank Road forms a priority junction with the A670. The A670 is a 40 mph Road with footway provision on both sides of the carriageway. Directly south of the station at the hairpin bend, Shaw Hall Bank Road forms a priority junction with Cherry Valley Road. Directly to the east, Cherry Valley Road forms a priority junction with Chapel Road that runs north/ south, parrel with the A670 for c500m before Chapel Road merges with the A670 via a priority junction. On-street car parking occurs on the eastern side of Shaw Hall Bank Road on approach to its junction with Chew Valley Road. Existing commuters using the Greenfield Station are known to park here and in the nearby surrounding area. There are a number of bus stops located in this area, including close to Shaw Bank Rd / A670 Road junction. The bus stops have full bus shelter. There is also a bus stop located on the Shaw Bank Road adjacent to Greenfield Station. These bus stops are served by the following buses; 84 – Uppermill – Every 30 minutes, 350 /356 – Oldham - every 30 minutes, 184 – Huddersfield Town Centre – Hourly, 356 – Ashton-under-Lyne – Hourly, 828 – Diggle – once a day. There is no dedicated cycle provision along A670 or Shaw Bank Road.
Diggle Area

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes
To facilitate works, compounds and diversionary routes in this area, it is likely the that key access routes to be utilised will be Sam Road, Station Road and Lee Side. Ravenstone Drive Footbridge is an overbridge which connects Ravenstone Drive on the east of the railway with the canal footpath on the west of the railway. It is accessed via stairs on both sides of the railway, and the west side of footpath is covered by trees and woodland. Access to the eastern side comes from between two residential properties, with the closest property approximately 30 metres from the bridge. The footbridge is approximately 900 metres south of the Standedge Tunnel western portal. The Ward Lane Overbridge is located approximately 125 metres north of Ravenstone Drive Footbridge. It carries Ward Lane over the railway, and on the west continues over the Huddersfield Narrow Canal. The bridge is approximately 20 metres from the nearest property on its south-east corner, whilst a car park forms a junction with Ward Lane adjacent to the north-west corner of the bridge and runs along the west of the railway line. Ward Lane is a narrow single lane carriageway with a speed limit of 30 mph road and no footway provide on either side of the bridge. The bridge is signed as a 'Weak Bridge' with a maximum wait of 17 Tonnes allowed. Footbridge MVL3/35 spans over the railway and is owned and maintained by Network Rail, providing pedestrian access. Diggle Road overbridge is a 30-mph road with footway provide on the south sides of the carriageway. The bridge is signed as a 'Weak Bridge' with a maximum wait of 17 Tonnes allowed. The west side Diggle Road links into Sams Road and provides linkages to the Huddersfield Road. There is a local car park which provides access to a footpath which runs adjacent to the tracks. On the east side of the bridge Lee Side links to Ward Lane which provides an alternative crossing location. To the north, Harrop Ct Road and Boat Lane provides mainly local access to residential properties. There are limited public transport and dedicated cycling provision in this area, although there is a traffic free cycle route located to the south of the River tame.
During the construction works, there are number of routes that could be utilised as diversionary routes during road closures as show within Volume 2, Figure 10.3.1 of the Environmental Report [**NR14**]. **<u>Mossley Road Area</u>** Mossley Road runs adjacent to the Manchester Road to the west. Mossley Road provides direct connection between Ashton under Lyme and Oldham Road close to Greenfield Station. Mossley Road provides direct access to a variety of residential and commercial properties. In some specific urban areas, there is on-street parking for the residential properties.

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes

There are bus services (350, 357, 820, 870) that run along Mossley Road providing connections between Oldham and Micklehurst. Mossley Road changes from an urban to a rural setting along its length with pedestrian footways and crossing points provided on both sides of the carriageway in urban areas and reducing to one side of the carriageway in some of the rural areas.

Mossley Road is mainly a 40mph road with some urban sections with a restricted speed limit of 30mph.

B6175 Area

The B6175 runs adjacent to Manchester Road to the east. The B6175 connects Stamford Street in the south to A670 in the north. The B6175 runs through a number of towns including, Micklehurst, Buckton Vale, Copley. The B6175 provides direct access to a variety of residential and commercial properties as well as Mossley Hollins High School, Millbrook Primary & Nursery School, St Raphael's Catholic Primary School and Lockside Medical centre. In some specific urban areas, there is on-street parking for the residential properties which reduces the width of the road.

There are bus services (343, 348 and 870) that run along the B6175 providing connections along the route. The B6175 Road generally runs through urban areas with pedestrian footways and signalised crossing points provided on both sides of the carriageway. Towards the north of the road the areas become more rural with the footways reducing to one side of the carriageway in urban areas and reducing to one side of the carriageway in some of the rural areas.

B6175 Road is mainly a 40mph road with some urban sections with a restricted speed limit of 30mph.

Dobcross New Road Area

To the north of Greenfield Station and Uppermill, the A670 forms a mini roundabout junction with High Street / Dobcross New Road. It is likely that Dobcross New Road will facilitate diverted traffic during the construction phase of the works. In proximity to Dobcross New Road, the A670 is 30 mph road, with footpaths on both sides of the carriageway. Approximately 3.2km to the north of Dobcross Road, the A670 connects to Huddersfield Road. To the west, Dobcross New Road provides a link to Oldham Road via Delph New Road and Wall Hill Road.

In proximity to the Dobcross New Road mini roundabout, there are several flagpole bus stops. The bus stops located on Dobcross New Road are served by buses 350, 825 and 826 (350 Ashton-under-Lyne service is the most frequent and operates every c30min). The bus stops located on A670 close to its junction with Dobcross New Road are served by buses 184, 356, 784, 822, 828, S84 and S350) (184 Oldham service is the most frequent with 2 services per hour).

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes

Chew Valley Road

Chew Valley Road connects the A635 Manchester Road to the B6175 Well-I-Hole Road. The Manchester Road / Chew Valley Road junction takes the form of a mini roundabout, while the B6175 / Chew Valley Road is a priority junction. Chew Valley Road provides access to residential and commercial properties as well as St Marys Primary School. The Chew Valley Road contains a number of crossing types including zebra crossing and refuge islands, with footways provided on both sides of the carriageway. The road also contains speed humps for reducing car speeds.

There is on-street parking outside residential properties along the length of the route reducing road space. There are bus stops located on both sides of the road which are serviced by 180, 350, 352, 357, 828 with a frequency of approximately every 30 minutes.

Chew Valley Road is a 20-mph road.

During the construction works, existing car parking at various locations that could be temporarily removed or suspended:

Car Parking Locations Affected

The location of these car parks is illustrated within Volume 2, Figures 10.3.5 to 10.3.6 of this Report [**NR14**].

Car parks (CP)

CP 1 - Saddleworth Rangers Car Park: This car park is located off Shall Hall Bank Road close to it junction with Chew Valley Road. It facilitates in the region of 91 information car parking spaces.

CP 2 - Sam Road Car Park: This car park is located off Sam Road, close to its junction with Harrop Green Lane/ Station Road. It is also close to the railway line and Standedge Tunnel Diggle Portal. It is a public car park with approximately 27 informal spaces.

CP 3 – New Scout Mill: This carpark is located along Manchester Road approximately 500m south of the Manchester Rd / Egmont Street junction. It is a private car parking facilitating a number of business/ commercial properties. These businesses/ commercial properties also utilise the car parking for servicing/ deliveries. The parking is informal and can accommodate approximately 30 vehicles.

CP 4– Manchester Road (Private Car Park): This carpark is located along the Manchester Road approximately 20m south of the Manchester Rd / Egmont Street junction. The car park is located opposite Mitre House and the signage states that this is a private car park for residents of Mitre house only. The parking is informal and can accommodate approximately 29 vehicles.

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes

CP 5– Mossley Station CP: This carpark is located at the existing Mossley Road station. The car park provides car parking for the passengers using the station and can accommodate 56 car parking spaces including 2 disabled bays and 4 coach bays. Car parking at this location is free. Access to the car park is via signals at the Manchester Road junction.

CP 6 – Friezland Church Hall Car Park: This carpark is located at Friezland Church Hall approximately 50 metres from the B6175 / Oaklands Road junction. The car park provides car parking for those attending the Church Hall. The car parking is informal and can accommodate 30 car parking spaces. Access to the car park is via a priority junction with the Oaklands Road.

On-street Parking areas (ONS)

To facilitate the construction phase, there is a requirement to temporarily suspend on-street parking in a phased approach. The suspension of on-street car parking will be delivered through TROs. Exact details on where, when and duration of the parking suspensions with be agreed as part of the CTMP and as part of the TRO process. The location of potential on-street parking to be suspended is set out within Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans **[NR9].**

ONS CP 1 – 307 A635 Manchester Road – This on-street parking is located from the opposite Mossley station to 50 metres south from the A635 Manchester Road / Mill Lane signalised junction. The on-street parking provides access to the residential properties fronting on to the A635 Manchester Road. The on-street parking covers an area of approximately 550 metres and can accommodate 131 number of spaces.

ONS CP 2 Armit Road – This on-street parking at the Armit Road / Church Road / High Grove Lane junction. The parking area extends for approximately 250 metres to the southwest to the end of Armit Road. The on-street parking provides access to the residential properties fronting on to Armit Road. The on-street car parking covers an area of approximately 250 metres and can accommodate 24 number of spaces.

ONS CP 3 B6175 – This on-street parking is located at the Shaw Hall Bank Road / Chew Valley Road junction to the B6175 / Oaklands Road junction. The parking area extends for approximately 600 metres and provides on-street parking provides access to the residential properties fronting on to Shaw Hall Bank Road. The on-parking can accommodate 148 number of spaces.

ONS CP 4 Egmont Street - can accommodate approximately 155 car parking spaces. Cheshire Street has on-street parking on both sides of the road and this runs for the entire length of the street (approx. 200 metres). The on-street parking provides access to residential properties fronting onto Cheshire Street and can accommodate approximately 67 car parking spaces.

Highway Network Summary – Compounds/ Relevant Works and Core Construction Routes
ONS CP 5 Cheshire Street - This parking area located on Egmont Street runs from the Egmont St / Staley Road junction to the A635 Manchester Road for approximately 500 metres and provides residential parking for residents on the north and south side of the Egmont Street whilst providing access to businesses and the football pitches in the middle of the street. ONS CP 6 Staley Road – This on-street parking is located on Staley Road, Cheshire Street and Egmont Street. On Staley Road the parking is located from the Staley Road / Egmont St junction to the Staley Road / B6175 junction. This parking area extends approximately 750 metres and provides on-street parking provides access to the residential properties fronting on to Staley Road and can accommodate approximately 224 car parking spaces.

3.6.2 To further understand the transport conditions within the Study Area, a collection of surveys was undertaken to help establish current use of the road network (including parking utilisation in certain locations), pedestrian/ cycle routes and PRoW. Further details on the type of surveys, when surveys were conducted and the type of information collected is presented in Table 3-6.

Table 3-6: Survey Overview

Type of Survey	Date and Duration of Surveys	Type of information collected
ATC (Automatic Traffic Count)	ATC 1 to 9: 1 week duration between 00:00hrs on Tuesday 10th September to 23:59 on Monday 16th September 2024. ATC 10 & 11: 2-week duration between 00:00hrs on Tuesday 10th September to 23:59 on Tuesday 24th September 2024. ATC 12 to 14: 1 week duration between 00:00hrs on Thursday 14th November to 23:59 on Wednesday 20th November 2024. ATC 15 TO 23: minimum of 1 week duration between 00:00hrs on 26th May 2025 to 23:59 Sunday 15th June 2025.	Bi-directional Traffic Flow data, per hour, per day for survey duration. Vehicles categorised by class, e.g. cars, light good vehicles, HGVs etc.
MCC (Manual	MCC 1 to 5: from 07:00 to 10:00, 15:30 to 16:30 on Tuesday 10th September 2024,	Vehicle movements at junction/ location for each 15-minute

Type of Survey	Date and Duration of Surveys	Type of information collected
Classified Turning Count)	and from 10:00 to 16:00 on Saturday 14th September 2024. MCC 6: from 07:00 to 10:00, 15:30 to 16:30 on Thursday 14th November 2024. MCC 7 to 15: from 07:00 to 18:00 on Thursday 5th June 2025, and from 10:00 to 14:00 on Saturday 7th June 2025.	segment of survey period. Vehicles categorised by class e.g. cars, light good vehicles, HGVs etc.
NMU (Non-Motorised User)	NMU 1 to 5: 3 consecutive days, 12th to the 14th September 2024 between 07:00 and 19:00hrs each day. NMU 6: 3 consecutive days, 14th to the 16th November 2024 between 07:00 and 19:00hrs each day.	Pedestrian and cyclist movements for each 15-minute segment during survey period.
CP (off-street Car Parking Survey)	CP 1 to 4: from 06:00 to 20:00 on Thursday 5th June 2025, and from 06:00 to 20:00 on Saturday 7th June 2025	Vehicle arrivals departures every 15 mins to derive parking accumulation against on-site provision.
ONS CP (On-Street Car Parking Survey)	ONS CP 1 to 5: from 06:00 to 21:00 on Thursday 5th June 2025, and from 06:00 to 21:00 on Saturday 7th June 2025	Hourly car parking beat surveys to capture number of parked cars vs available spaces.

3.6.3 It should be noted that surveys were collected in accordance with Design Manual for Roads and Bridges (DMRB), Transport Analysis Group (TAG) Unit M1.2 (Department for Transport (DfT), 2020. Neutral periods are defined as Monday to Thursday from March through to and including November (excluding August) and avoiding bank holidays. For the non-motorised user surveys, consideration was taken of weather conditions with data collected on a number of days and representative values taken from those days with better weather conditions. The location and type of surveys were shared and agreed with ODC and TMBCs before the surveys were undertaken.

3.6.4 The surveys were also supplemented by DfT traffic data and Network Rail Level Crossing Data.

3.6.5 The ATC Survey results along key construction routes are summarised Table 3.7 and the location of all ATCs are illustrated in Volume 2, Figures 10.3.2 of this Report [**NR14**].

Table 3-7: ATC Survey Results

ATC Ref	Survey Period	Description	Surveyed (2024/2025)			
			Lights	Heavies	Total	Heavies %
CP991011	DfT 2024	Wakefield Road	8797	279	9076	3%
1	Sep 2024	Printworks Road	239	16	255	6%
CP991011	DfT 2024	Wakefield Road	8797	279	9076	3%
2	Sep 2024	Spring Bank Lane	1059	16	1075	2%
CP991011	DfT 2024	A65	8797	279	9076	3%
18	May/June 2025	Egmont St	2985	216	3202	7%
19	May/June 2025	Cheshire St	739	29	767	4%
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%
13	Nov 2024	Stamford Road	8718	352	9071	4%
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%
3	Sep 2024	Mill Lane	1736	15	1750	1%
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%
22	May/June 2025	Well-I-Hole Road	5573	221	5794	4%
21	May/June 2025	Church Road/ Armit Road	914	26	940	3%
4	Sep 2024	High Grove Lane	906	31	937	3%
5	Sep 2024	Oaklands Road	4408	133	4542	3%
8	Sep 2024	Shaw Hall Bank Road	3436	104	3540	3%
10	Sep 2024	Oldham Road	15989	537	16526	3%
11	Sep 2024	A670 (Between Greenfield and Uppermill)	10596	327	10924	3%
12	Sep 2024	Dobcross New Road	6830	240	7070	3%
9	Sep 2024	Ward Lane	402	11	413	3%
23	May/June 2025	Sam Road	1284	39	1323	3%
14	Nov 2024	Diggle Road	646	32	678	5%

3.6.6 Details of the MCC Survey results along with commentary are provided within Volume 3, section 4.9 of Appendix 10B: Transport Statement of the Report [**NR14**].

3.6.7 The NMU Survey results are summarised Table 3-8 and the location of all NMU Surveys are illustrated in Volume 2, Figure 10.3.4 of this Report [**NR14**].

Table 3-8: Non-Motorised User Survey Results

Survey Ref	Survey Period	Location	Total Movements			
			Day 1	Day 2	Day 3	Average
1	05.06.2025-07.06.2025	A670 Mossley Road	104	124	161	130
2	12.09.2024-14.09.2024	A635 Wakefield Road	12	21	20	18
3	12.09.2024-14.09.2024	Mossley Road Access	0	1	0	0
4	12.09.2024-14.09.2024	Grove Bank	209	194	141	181
5	12.09.2024-14.09.2024	Oaklands Road	151	122	126	133
6	12.09.2024-14.09.2024	Ward Lane	108	147	124	126

3.6.8 As noted earlier, to facilitate the construction phase, a number of TROs will be required and some of these require the suspension of existing bus stops or the removal of existing car parking spaces. As such, a number off-street car parking surveys were undertaken to understand the existing car parking utilisation and provision in these affected areas.

3.6.9 The off-street car parking survey results are summarised Table 3-9 and their locations are illustrated in Volume 2, Figures 10.3.6 of the Report [**NR14**].

Table 3-9: Off-street Car parking Survey Results

Ref	Location	Spaces	Weekday			Saturday		
			Max Acc.	Av. Acc.	Av. Occ.	Max Acc.	Average Acc.	Average Occ.
CP 1	Saddleworth Rangers Car Park	91	44	28	31%	28	11	12%
CP 2	Sam Road Car Park	27	18	10	36%	15	11	40%
CP 3	New Scout Mill	30	8	4	15%	7	5	16%
CP 4	Manchester Road Private Car Park	29	8	5	16%	7	7	23%
CP 5	Mossley Station	56	58	43	78%	24	16	28%
CP 6	Friezland Church Hall	30	8	4	15%	7	5	1%
Total Across All CPs		**263**	**144**	**94**	**36%**	**88**	**55**	**21%**

3.6.10 Table 3-9 shows that most of the off-street car parks surveyed, with the exception of Mossley Station, have low levels of utilisation, between 1-40%. During a weekday, Mossley Station has an average occupancy of 78% (43 out of 56 spaces occupied) and a max occupancy of 104% (58 parked with only 56 spaces officially provided). However, during Saturday, the average maximum occupancies were notably lower.

3.6.11 Across these six off-street car parks, there is a total provision of 263 car parking spaces. Of these spaces, on average, there are approximately 94 parked vehicles at any one time during a weekday and 55 during a Saturday.

3.6.12 The on-street car parking survey results are summarised Table 3-10 and the location of all on-street car parking surveys are illustrated in Volume 2, Figure 10.3.5 of this Report [**NR14**].

Table 3-10: On-street Car Parking Survey Results

Ref	Name	Available Spaces	Average				Peak			
			Legally Parked %	Illegally Parked %	Total Parked %	Total Parked	Legally Parked	Illegally Parked	Total Parked %	Total Parked
Weekday										
ONS CP1	Manchester Road	131	26%	2%	28%	36	28%	3%	31%	41
ONS CP2	Armit Road	24	61%	8%	69%	17	88%	12%	100%	24
ONS CP3	Shaw Hall Bank Road	148	36%	4%	40%	59	39%	5%	44%	64
ONS CP4	Egmont Street	155	17%	1%	18%	28	29%	4%	33%	51
ONS CP5	Cheshire Street	67	40%	3%	43%	29	49%	3%	52%	35
ONS CP6	Staley	224	17%	1%	18%	40	26%	2%	28%	64
Total		**749**	**26%**	**2%**	**28%**	**208**	**34%**	**4%**	**38%**	**279**
Saturday										
ONS CP1	Manchester Road	131	26%	0%	26%	35	30%	2%	32%	41
ONS CP2	Armit Road	24	72%	11%	83%	20	88%	12%	100%	24
ONS CP3	Shaw Hall Bank Road	148	42%	5%	47%	70	48%	7%	55%	81
ONS CP4	Egmont	155	22%	1%	23%	34	28%	1%	29%	45

Ref	Name	Available Spaces	Average				Peak			
			Legally Parked %	Illegally Parked %	Total Parked %	Total Parked	Legally Parked	Illegally Parked	Total Parked %	Total Parked
ONS CP5	Cheshire Street	67	36%	3%	39%	26	43%	3%	46%	31
ONS CP6	Staley	224	23%	2%	25%	56	28%	3%	31%	69
Total		**749**	**30%**	**2%**	**32%**	**241**	**36%**	**3%**	**39%**	**291**

3.6.13 Table 3-10 shows that:

- Across all the surveyed on-street locations, there is a total of 749 available car parking spaces.
- During a weekday:
    - On average there was 208 parked vehicles
    - At its peak, there was 279 parked vehicles.
- During a Saturday:
    - On average, there was 241 parked vehicles
    - At its peak, there was 291 parked vehicles
- Armit Road reached max capacity (100%) during, this occurred between 20:00 and 07:00 hours. On a Saturday, Armit Road was closed to capacity (96% between 20:00 and 07:00 hours.

3.6.14 As previously noted, to facilitate the construction phase, a number of existing bus stop will be temporarily suspended in a phased approached. The temporary suspension of these bus stops will be delivered via TROs. Table 3-11 lists the bus stop that may be temporarily suspended at periods during the Construction Phase. These are also included within Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**].

Table 3-11: Potential List of Temporary Bus Stop Suspensions

TRO Area	Unique Bus Stop Ref	Road/ Location	List of Services
Tameside, Greater Manchester	MANAWTDG	Wakefield Road (east side)	356
Tameside, Greater Manchester	MANAWTDA	Wakefield Road (north west side)	356
Tameside, Greater Manchester	MANAWTAW	Manchester Road (west side)	356
Tameside, Greater Manchester	MANAWTAD	Manchester Road (east side)	356
Tameside, Greater Manchester	MANAWPWT	Manchester Road (east side)	356

TRO Area	Unique Bus Stop Ref	Road/ Location	List of Services
Tameside, Greater Manchester	MANAWAGP	Egmont Street (south east side)	350, 870, S350B
Tameside, Greater Manchester	MANAWPWM	Manchester Road (west side 2 no.)	356
Tameside, Greater Manchester	MANAWJAD	Manchester Road (east side 2 no.)	356
Tameside, Greater Manchester	MANAWPWJ	Manchester Road (east side 2 no.)	356
A635 Manchester Road	MANAWPWD	Egmont Street (east)	356
A635 Manchester Road	MANAWPWG	Egmont Street (west)	356
A635 Manchester Road	MANTPGJW	Queen Street (west)	343
A635 Manchester Road	MANAWJWT	Queen Street (east)	343, 822
A635 Manchester Road	MANAWJWP	Portman Street	343
Shaw hall Bank Road, Oldham Road	MANTMTGT	Greenfield Station Stop G (north west)	180, 350, 352, 356, 357, 828, S350B
Shaw hall Bank Road, Oldham Road	MANAMADJ	Greenfield Station Stop D (south east)	180, 350, 352, 356, 357, 828, S350B
Shaw hall Bank Road, Oldham Road	MANAMWPM	Greenfield Station Stop A (north west)	84, 180, 184, 356, 357, 784, 828, S84
Oldham Road	MANAMWPT	Greenfield Station (Stop B)	84, 184, 350, 352, 356, 784, 829, S84, S350B
Oldham Road	MANAMPGP	Greenfield Station	84, 184, 350, 352, 356, 784, S84, S350B

3.6.15 To ensure there are no underlying highway safety issues within the Study Area, STATS 19[15] personal injury collision (PIC) data (2019-2023) has been analysed to identify whether there are any existing accident clusters on the routes identified for construction traffic or for a diversion route. A cluster is identified as more than 3 accidents occurring within a 30 m distances within the five year period. A Detailed review of accident data was undertaken and presented within Volume 3, Section 4.8 of the Appendix 10B: Transport Statement of this Report [**NR14**]. It highlighted that there was 9 clusters within the Study Area.

3.6.16 A summary of these clusters based on STAT 19 data is provided within Table 3-12. Further details on PIC within proximity to the Order Scheme are discussed within Volume 3, Appendix 10B Transport Statement of this Report [**NR14**].

Table 3-12: Accident Data Summary

Ref	Location/ Road Name	Accidents			
		Slight	Serious	Fatal	Total
1	Beaufort Road	1	1	1	3
2	Wakefield Road	2	1	0	3
3	Chapel Road/ Oldham Road	3	0	0	3
4	Tame Street/ High Street	1	2	0	3
5	Oldham Road/ Mossley Road	4	1	0	5
6	Mossley Road/ Gorsey Lane	2	1	0	3
7	Mottram Road/ Huddersfield Road	4	1	0	5
8	Grove Road/ Huddersfield Road	2	1	0	3
9	Mossley Road/ Curzon Road	6	0	0	6

3.6.17 Table 3-12 shows that:

[15] https://www.data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-accidents-safety-data

- There are only 9 accident clusters within the Study Area.
- 1 fatality occurred, and this was on Beaufort Road.
- the majority of these clusters include between 3-6 accidents over a 5 year period.
- The majority of accidents that occurred across these clusters are defined as 'slight'.

3.6.18 Given the temporary level of daily traffic predicted along the core construction route, it is unlikely that this would exacerbate the existing accident levels.

3.7 Construction Phase: Construction Traffic Impacts

3.7.1 Construction activity will be phased to limit the level of construction traffic on the network at any one time and the construction phase will conclude in 2032. However, based on current known information and indicative construction programme, peak construction period is likely to occur in 2029. Therefore, this assessment considers changes in baseline in a future year of 2029.

3.7.2 Future baseline traffic volume data for 2029 has been derived by factoring 2024/ baseline using the Department for Transport's national traffic forecasting tool, Trip End Model Presentation Program (TEMPRO). Table 3-13 provides a summary of the applicable average TEMPRO growth factor applied to baseline traffic.

Table 3-13: TEMPRO Growth Factors

Area Description		All purposes		
Level	Name	Origin	Destination	Average
Authority	Oldham	1.0296	1.0295	1.0296
Authority	Tameside	1.0248	1.0248	1.0248
Average				**1.0272**

3.7.3 Table 3-13 provides a summary of the potential change in future 2029 baseline traffic as a result of assumed daily levels of construction traffic along the core construction route.

3.7.4 Table 3-14 presents the Base 2029 two-way AADT (Annual Average Daily Traffic) flows which have been derived by factoring up average daily flows from the ATC surveys to a future year of 2029 using the average TEMPRO growth factor set out in Table 3-13. Table 3.14 also presents the anticipated daily two-way construction traffic flows along key routes and associated percentage increase in traffic flows compared to baseline flows. The construction traffic flows have been derived based on the approach/ assumptions set out in section 3.4. In areas where ambient traffic flow

levels are currently low, even modest increases in vehicle numbers or types associated with construction traffic can result in disproportionately high percentage changes. As such, careful consideration is warranted where Rule 1 or Rule 2 thresholds are triggered, to ensure that the significance of these changes is appropriately assessed in context.

Table 3-14:Construction traffic impacts (two-way AADT)

ATC Ref	Description	Base 2029 Two-way AADT Flow			Core Traffic AADT Two-way Flow			% Change		
		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total
CP 991011	Wakefield Road	9036	287	9323	353	98	451	4%	34%	5%
1	Printworks Road	245	17	262	46	8	54	19%	47%	20%
CP 991011	Wakefield Road	9036	287	9323	353	82	435	4%	29%	5%
CP 991011	A65	9036	287	9323	381	81	461	4%	28%	5%
18	Egmont St	3067	222	3289	134	8	142	4%	4%	4%
19	Cheshire St	759	30	788	134	8	142	18%	27%	18%
CP 991011	Manchester Road	9036	287	9323	435	62	497	5%	22%	5%
13	Stamford Road	8955	362	9317	32	4	36	0%	1%	0%
CP 991011	Manchester Road	9036	287	9323	354	43	397	4%	15%	4%
CP 991011	Manchester Road	9036	287	9323	353	38	391	4%	13%	4%
CP 991011	Manchester Road	9036	287	9323	353	38	391	4%	13%	4%
22	Well-I-Hole Road	5725	226	5951	353	38	391	6%	17%	7%
21	Church Road/ Armit Road	938	27	965	37	4	41	4%	15%	4%
5	Oaklands Road	4528	137	4665	353	34	387	8%	25%	8%
8	Shaw Hall Bank Road	3530	107	3636	39	1	40	1%	1%	1%
10	Oldham Road	16423	552	16975	721	32	753	4%	6%	4%
11	A670	10884	336	11221	353	14	367	3%	4%	3%
23	Sam Road	1319	40	1359	372	21	393	28%	52%	29%

3.7.5 As previously noted, the IEMA Guidelines for Environmental Assessment of Traffic and Movement include specific rules to help determine when highway links should be assessed due to changes in traffic (section 3.1.8 to 3.1.11).

3.7.6 These rules are designed to ensure that environmental assessments capture significant changes in traffic that could impact communities, ecosystems or infrastructure.

3.7.7 Therefore, based on the total percentage changes and/or percentage change in HGVs set out in Table 3-14, only Printworks Road, Cheshire Street and Sam Road could potentially satisfy Rule 1 and/ or Rule 2.

3.7.8 The percentage change (47%) in heavy vehicles predicted on Printworks Road exceeds rule 1 and the percentage change in total vehicles (20%) could potentially exceed rule 2 if Printworks is considered a sensitive area. However, upon further review, the impacts on Printworks Road are not considered significant for the following reasons:

- The actual number of additional heavy vehicles on Printworks Road daily would be 8 two-way vehicles, the high percentage change is due to low ambient baseline HGV volumes. The additional 8 two-way heavy vehicles daily will have a negligible effect on traffic levels, congestion and delay. Furthermore, the increase would be temporary and occur over a short distance, between Wakefield Road and Printworks compound (30-40 m).
- Printworks Road between its junction with Wakefield Road and Printworks compound is not considered a sensitive area, as there are no schools or hospitals present.
- A review of accident data did not highlight any existing accident clusters along Printworks Road.

3.7.9 Although the percentage change in total vehicles (18%) on Cheshire Street could potentially exceed rule 2 if Cheshire Street is considered a sensitive area, upon further review, the impacts on Cheshire Street are not considered significant for the following reasons:

- There is no combination of substantial impacts (see section 3.1.9):
    - There are no accident clusters along Cheshire Street.
    - The daily change in total vehicle numbers is likely to result in marginal changes in hourly vehicle movements, increase of c14 two-way movements,
    - The additional vehicle movements along Cheshire Street will not significantly increase journey times along it.

3.7.10 The percentage change (52%) in heavy vehicles predicted on Sam Road exceeds rule 1 and given that Diggle School is located along Sam Road, Sam Road is considered a 'sensitive area' and therefore the predicted temporary change (29%) in total daily two-way vehicle movements also exceeds rule 2.

3.7.11 However, upon further review, the Order Scheme will not result in a combination of substantial impacts (i.e. substantial increase in traffic volumes and journey times or substantial increase in traffic volumes along routes with accident clusters) on Sam Road and therefore the effects are not considered significant:

- The actual number of additional heavy vehicles on Sam Road daily would be 21 two-way vehicles over a day, whilst the high percentage change is due to low ambient baseline HGV volumes. The additional 21 two-way heavy vehicles daily will have a negligible effect on traffic levels, congestion and delay.
- The temporary predicted high percentage increase in all traffic flows along Sam Road is due to the low ambient baseline traffic levels. The actual change in all vehicle movements is 393 two-way daily movements which equates to c16 two-way vehicle movements per hour. Assuming the vehicle movements were condensed over a 12hr period, this would equate to an increase of c33 two-way vehicle movements per hour. The potential additional traffic movements hourly is not expected to have a significant effect on journey times, delay or congestion.
- A review of accident data did not highlight any existing accident clusters along Sam Road.

3.7.12 It should be noted that there will be potential changes in baseline traffic along other localised routes (between core route and compounds) over short distances to facilitate construction traffic access into compounds. However, localised impacts between core construction route and compounds will be considered further within the CTMP and appropriately managed and mitigated to ensure impacts are temporary and not significant.

3.7.13 Further consideration to traffic / transport impacts during peak periods is considered within the Volume 3, Appendix 10B: Transport Statement of the Report [**NR14**].

3.8 Construction Phase: Impacts on Diversionary Routes

3.8.1 It is acknowledged that there will be increases to baseline traffic along diversionary routes when road closures/ diversions are in place. As part of the CTMP, these will be quantified and if applicable appropriately mitigated to ensure impacts are temporary and not significant.

3.9 Construction Phase: Impacts on Existing Car Parking

3.9.1 As noted in section 3.6, there are potentially 263 off-street car parking and 749 on-street car spaces that could be temporarily removed for periods during the construction phase of the Order Scheme.

3.9.2 As noted, on average at any given time during a weekday, there are 302 cars parked across these locations (94 off-street and 208 on-street). During a Saturday, on average at any given time there are 296 cars parked across these locations (55 off-street and 241 on-street). During peak periods this could increase to 423 on a weekday 379 on a Saturday. The displacement of this car parking could impact the highway network within the Study Area.

3.9.3 Works linked with improving access to and from new Mossley Station include the re-siting of bus stops and the provision of a new puffin crossing ("the crossing") on Manchester Road. The crossing is proposed following discussions with TMBC in their role as highway authority, which is required to provide a safe crossing point in this location for pedestrians to access the new station. Traffic and access arrangements in this area will be subject to a range of other modifications to serve the new station including a new vehicular access point from Manchester Rd and relocation of bus stops on Manchester Road.

3.9.4 In order to facilitate these works which are needed to provide safer pedestrian routes, parking restrictions are proposed to be introduced on Manchester Road, which will result in the loss of parking on the public highway. As a result of the loss of parking on the public highway, TMBC are proposing to introduce a residential parking zone on Manchester Road between Mill Lane and Queen Street.

3.9.5 Therefore, the CTMP will further consider the displacement of car parking during the construction phase and set out relevant management and mitigation measures which will be agreed with TMBC / OMBC to ensure associated impacts are not significant (for further details on related mitigation measures refer to Chapter 14 Summary of Mitigation of Volume 1 of this document [**NR14**]). It should be noted that works will be phased and temporary and therefore any impacts in parking would not occur all at once. Furthermore, sites at Egmont Street and Saddleworth Rangers have been identified as temporary parking locations for residents affected by the parking suspensions. A number of existing parking spaces utilised by businesses/ commercial properties will also be removed and appropriate mitigation measures to limited associated impacts will also be set out within the CTMP.

3.10 Construction Phase: Impacts on Bus Services

3.10.1 As noted in section 3.6, 14 bus stops will be suspended for periods during the construction phase of the Order Scheme. This affects a total of 14 different services across the 19 bus stops. The CTMP will further consider

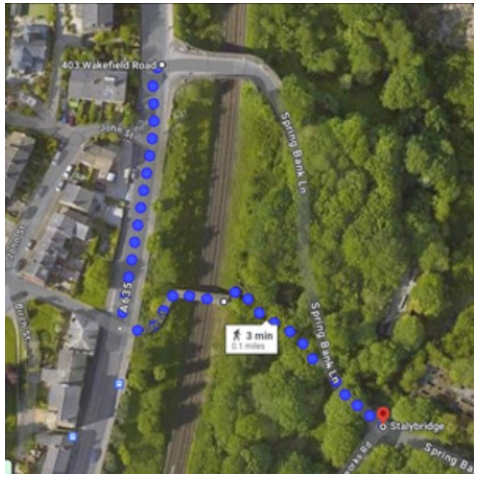
the suspension of public transport services during the Construction Phase which will set out the proposed management and mitigation measures to be agreed with the LHAs / local public transport providers to ensure impacts on the transport network are not significant. All works will be phased and temporary in nature and therefore not all of these bus stops will be suspended at once and occur at the same time to ensure suitable alternative bus stops and services are available.

3.11 Impacts on PRoW

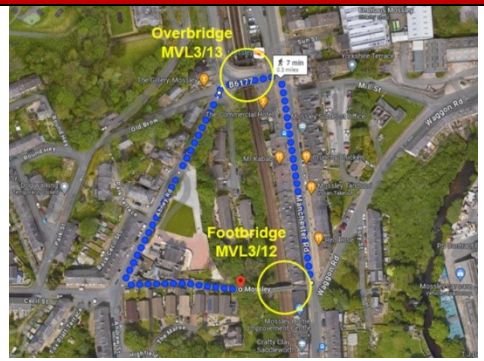
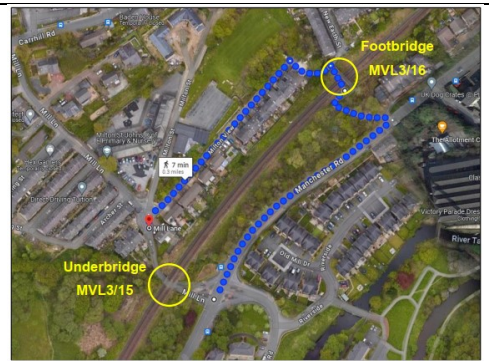
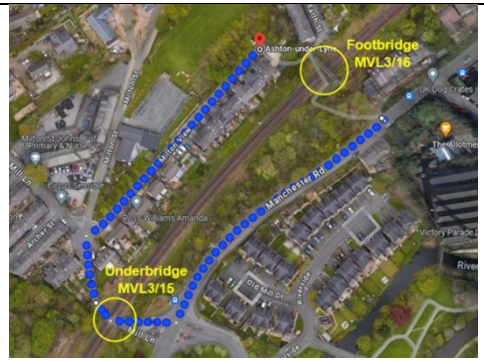
3.11.1 A desktop review of the impacted PRoW has been undertaken to develop a qualitative and quantitative appraisal of the works being undertaken and they will be impacted. This is summarised in Table 3-15.

Table 3-15: Impacts on PRoW Summary

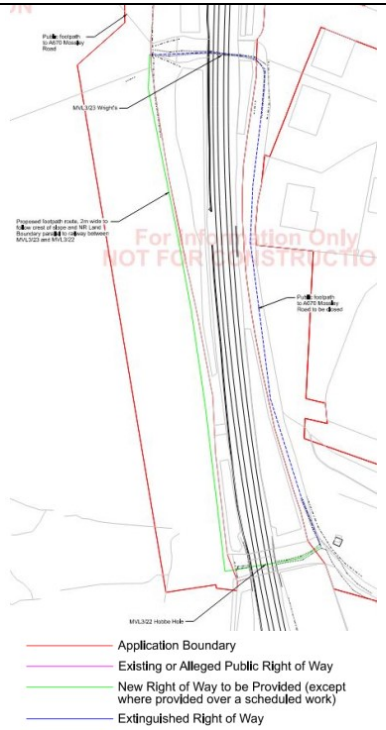
Relevant Works Elements Ref	Summary	Diversion	Impact
Heyrod Hall Overbridge (MVL3/7)	During construction, public access from Wakefield Road to properties on the east side of the rail corridor will not be available. The shortest pedestrian diversion route is via the Heyrod Road footbridge (MVL3/6).		Impacts will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 3mins (0.1 mile). Access to be reinstated after construction.
Spring Bank Lane Footbridge –(MVL3/8)	During the construction period, the footbridge will be closed with no public access and appropriate diversions will be in place. The proposed pedestrian diversion will be via Spring Bank Lane (MVL3/9). Therefore, works will not be undertaken concurrently with MVL3/9 works to ensure an alternative route during MVL3/8 works.		Impacts will be temporary and will affect a small proportion of the general public in the vicinity of the works. The proposed diversion will increase pedestrian/ cycle journey times by 3 mins (0.1 miles). Access to be reinstated after construction.
Spring Bank Lane overbridge –(MVL3/9)	During the construction period, there will be a requirement to close Spring Bank land and restrict public access. As such, appropriate diversions in place.	Stepless:	Stepless diversion impact will be temporary and will affect a small proportion of the general public in the vicinity of the works.

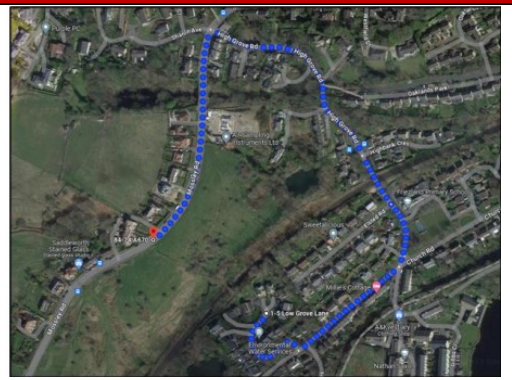
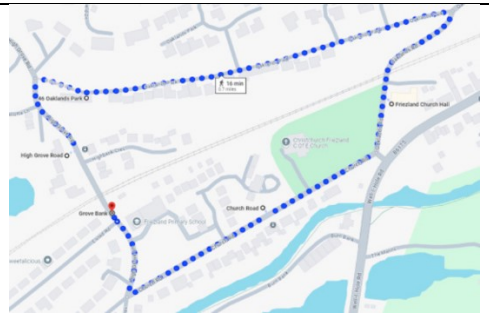
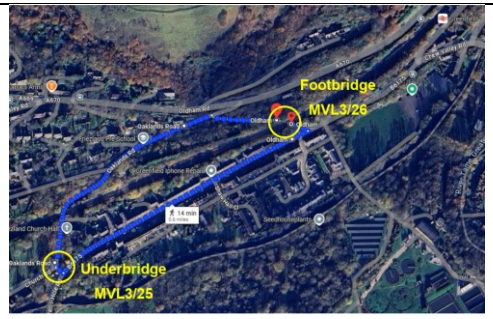
Relevant Works Elements Ref	Summary	Diversion	Impact
	The stepless diversion for pedestrians would be via A635 Wakefield Road and Printworks Road.		Diversion will increase pedestrian/ cycle journey times by 30 mins (1.4 miles). Access to be reinstated after construction.
Spring Bank Lane (stepped) -MVL3/9	Stepped diversion for pedestrians using Spring Bank Lane footbridge (MVL3/8) and therefore works will not be able to be undertaken concurrently	Stepped. 	Stepped Diversion Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 3 mins (0.1 miles). Access to be reinstated after construction.

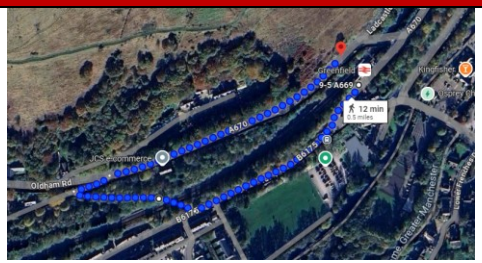
Relevant Works Elements Ref	Summary	Diversion	Impact
Manchester Road underbridge (MVL3/10)	During the construction period, there will be a requirement to restrict public access through the underbridge which includes closing the footway alongside the road. Therefore, appropriate diversions will be in place. Diversion route is via the footbridge (MVL3/10a).		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works at weekend and at night. Diversions will increase pedestrian/ cycle journey times by 8 mins (0.3 miles). Access to be reinstated after construction.
Manchester Road Footbridge (MVL3/10a)	Manchester Road and the Footbridge will be closed to the public during the works. Access will be required along the private road Lower Beestow during construction - access to the properties on the West side would need to be maintained.		During the weekend closures, access to the footbridge and along Manchester Road will be impacted temporarily. During the lane closure there will be no access via the footbridge, however access along Manchester Road will be available. Closure of the footbridge will result in an 8-minute pedestrian diversion (0.3 miles) to be in place via Manchester Road. Access to be reinstated after construction.

Relevant Works Elements Ref	Summary	Diversion	Impact
Abney Footbridge – (MVL3/12)	During the construction period, there will be a requirement to close the footbridge to the public and implement appropriate diversions. . The proposed pedestrian diversion route is via Abney Road, Stamford Road, and Manchester Road. The site is to be accessed vis Mossley station.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7 mins (0.3 miles). Access to be reinstated after construction.
Mill Lane –(MVL3/15)	During the construction periods, the underbridge will be closed to the public and appropriate diversion put in place. The proposed pedestrian diversion route is via New Earth Footbridge.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7 mins (0.3 miles). Access to be reinstated after construction. Access to be reinstated after construction.
New Earth Footbridge – (MVL3/16)	The footbridge will be closed to the public during construction. Access for construction vehicles will be via Earth Street. Pedestrian diversion route via Milton View, Mill Lane underbridge and Manchester Road.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7 mins (0.3 miles). Access to be reinstated after construction. Access to be

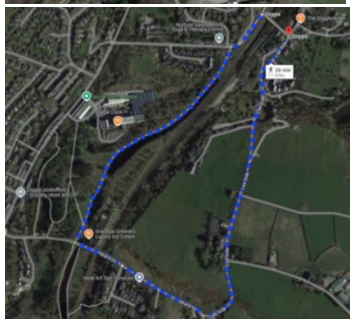
Relevant Works Elements Ref	Summary	Diversion	Impact
			reinstated after construction.
Roughtown Road – (MVL3/17)	It is recommended that the one-way restriction from the end of the road closure to Manchester Road is removed for the duration of the works to allow access to properties along Roughtown Road from Manchester Road. Pedestrian diversion route for those able to use steps will be via Roughtown Footbridge (MVL3/18). The vehicular diversion, and for those unable to use stairs, will be via Mill Lane Underbridge (MVL3/15)	Stepless: Stepped. 	Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times for those using steps will have no change. For those who cannot use steps the diversion will increase by 10 mins (0.4 miles). Access to be reinstated after construction.
Stockport Road Level Crossing	A new section of public footpath is to be constructed from Midge Hall underbridge to the Stockport Road Level Crossing. The work will be undertaken while the existing path is open. Once this is completed the existing Stockport Level crossing path will be closed.		There will be no impact during the construction of the new footpath. Once the new path is completed and the old path is closed, this will have a permanent impact. This will increase

Relevant Works Elements Ref	Summary	Diversion	Impact
			the pedestrian time of travelling to/from Heron Lane by 200 metres or adding 2 minutes to the journey
Wrights Overbridge – (MVL3/23)	This footpath will be closed to the public during construction works. A new section of PRoW will be provided. The footpath over the structure will be diverted via the adjacent MVL3/22 Hobble Hole underbridge. During construction, pedestrians will be rerouted via Mossley Road and High Grove Road.		The impact In the permanent scenario, the shortest diversion will be via MVL3/22, which is 175m long and will result in no additional time. During construction if the MVL3/22 has to be closed there will be a temporary impact and will affect a small proportion of the general public in the vicinity of the works. Pedestrians can take a 12-minute diversion via High Grove Road.

Relevant Works Elements Ref	Summary	Diversion	Impact
			
Charlotte Street – (MVL3/24)	The underbridge will be closed to the public during construction and an appropriate pedestrian diversion put in place. Diversion will be via Church Road and Oaklands Road		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times By 16-minutes. Access will be returned once works are completed.
Footway Underbridge – (MVL3/26)	During the construction works, the footway/ underbridge will be closed to the public and with a pedestrian diversion in place via MVL2/25		Impact will be temporary and affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian journey times by 14 minutes. Access will be returned once works are completed.

Relevant Works Elements Ref	Summary	Diversion	Impact
Oldham Road and Oldham Road Footbridge – (MVL3/28/27b)	Pedestrian access over the railway is proposed to be maintained throughout the works. However, during certain construction activities of risk to the public, access may be closed. The pedestrian stepless diversion would be via MVL3/26		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 12-minutes. New improved access will be returned once works are completed.
Wickers Underbridge – (MVL3/29)	During the construction works, MVL3/29 will be closed to the public and with a pedestrian diversion in place via Moorgate Halt Level Crossing. Once complete the Moorgate Halt crossing will be closed		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 13 minutes. Access will be returned once works are completed
Butterhouse Lane Footbridge – (MVL3/31A)	During the construction works, the footpath will be closed to the general public with appropriate diversions in place. The pedestrian diversion will be via Brownhill Lane (under MVL3/31 Uppermill Viaduct) or Huddersfield Canal Towpath and underbridge MVL3/32		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 13-minutes . Access will be returned once works are completed

Relevant Works Elements Ref	Summary	Diversion	Impact
Subway –(MVL 3/32)	The underbridge will be closed to the public during construction works and an appropriate diversion put in place. The pedestrian diversion route via Ward Lane or an unmarked footpath may be available next to the railway boundary fence, shortening the journey.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 29-minutes.
Ravenstone Drive Footbridge – (MVL3/35)	The footbridge will be closed to the general public during construction. The pedestrian diversion route would be via Ward Lane Overbridge (MVL3/36). The route requires crossing under the bridge and crossing the canal and then back onto the road. This route would not be suitable for those unable to use steps.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7-minutes

Relevant Works Elements Ref	Summary	Diversion	Impact
Ward Lane Overbridge – (MVL3/36)	The overbridge will be closed to the general public during construction. The pedestrian diversion route is via the canal and Ward footbridge (MVL3/35).		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7-minutes
Diggle Road Overbridge – (MVL3/39)	The overbridge will be closed to the public during construction. The shortest pedestrian diversion route is over Standedge Tunnel portal via Harrop Court Road, alternatively via the canal path and Ward Lane	 	Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 5-minutes over tunnel portal. The alternative route will increase pedestrian/ cycle journey times by 26-minutes via Ward Lane.

3.11.2 As shown in Table 3-15 there are approximately 20 PRoW which will be impacted requiring temporary diversion. Only some of these existing PRoW are suitable for those with mobility impairments given that part of the route includes steps. Whilst every effort will be made to provide alternative routes for each of these temporary closures, only three will have stepless routes. In addition, the vast majority of these PRoW diversions will result in minor increase in journey times, between 3mins and 15mins (100m and 1200m), although there will be 4 temporary diversions which will result in diversions of more than 15mins (more than 1200metres), these include:

- Spring Bank Lane Overbridge (MVL3/9)
- Charlotte Street (MVL3/24)
- Subway (MVL3/28)
- Diggle Road Overbridge (MVL3/39).

3.12 Operational Activities and Impacts

3.12.1 The key operational activities considered as part of this assessment include:

- Permanent changes to the highway network including new/ upgraded bridge structures and PRoW
- Permanent changes to Mossley and Greenfield Stations.

3.12.2 Further details on the operational proposals/ changes are set out in within Volume 1, Chapters 1 to 4 of this Report [**NR14**] and also discussed within Volume 3, Appendix 10B: Transport Statement of this Report [**NR14**]**.**

3.12.3 Mossley Station is to be relocated approximately 380m to the north of the current station location. Access to and from the main station car park will be modified, with modest increases to parking provision. The level of traffic to/ from the station will not significantly change in comparison to baseline conditions.

3.12.4 Greenfield Station will be improved as part of the Order Scheme but the location and access arrangements will be unchanged and the level of traffic to/ from the station will not significantly change in comparison to baseline conditions.

3.12.5 The changes to the stations are likely to result in similar volumes of traffic when compared to baseline traffic volumes, the impacts and effects will be negligible. New/ additional vehicular trips generated by the Order Scheme will be minimal and infrequent and therefore the impacts/ effects are not considered significant

3.12.6 Although a number of bridges will be modified/ reconstructed during the construction phase, these permanent changes are primarily to facilitate the modernisation of the rail line and achieve required height clearance for trains. Any modifications to road alignment, carriageway width and footway provisions will be marginal and overall adverse/ positive effects will be negligible.

3.12.7 It should also be noted that there will be 3 permanent diversions to PRoW; these are Stockport Road Level Crossing (refer to Volume 2, Figure 1.1.6 of this Report [**NR14**] and Wrights Overbridge (MVL3/23) and Moorgate Halt Level Crossing.

3.12.8 At Stockport Road Level Crossing (which is NMU only – no vehicular traffic), a section of the PRoW is proposed to be permanently closed, and a permanent PRoW diversion constructed to replace the existing route running north via the Heron Lane underbridge MVL3/19 from Midge Hall underbridge to the Stockport Road Level Crossing. There will be no impacts during the construction phase of the new footpath as the existing level crossing is due to remain open and operational during this period. Once the new path is completed, the existing path and associated level crossing will be closed. That replacement route will permanently increase the pedestrian time of travelling to/from Heron Lane by 200 metres or adding 2 minutes to each journey - which is not considered to be significant.

3.12.9 At MVL3/23 – Wrights Overbridge, which carries a PRoW between Low Grove Lane and Mossley Road is to be demolished. This footpath will be closed to the public during works. A new section of PRoW will be provided. In the permanent scenario, the proposed PRoW diversionary route associated with this bridge will not result in additional journey time and the route will be improved through de-vegetation, removal of existing obstacles as well as minor surfacing works. This will result in a permanent slight positive effect on non-mortised users along this route.

3.12.10 At Moorgate Halt Level Crossing (which is NMU only – no vehicular traffic), a section of the PRoW is proposed to be permanently closed, with a proposed enhancement of the existing footpath between Oldham Road and Ladcastle Road, passing under Wickens Underbridge, which will provide an alternative footpath. Once the enhanced path is completed, the existing path and associated level crossing will be closed. That replacement route will permanently increase the pedestrian time of travelling to/from Wickens underbridge by 200 metres or adding 2 minutes to each journey - which is not considered to be significant.

3.12.11 Currently the section of the alternative route which runs along Oldham Road is partially within a 20mph speed limit zone and partially within a 30mph zone. It is proposed to extend the existing 20mph speed restriction further to the south, so that the entirety of the section of the route along Oldham Road is within a 20mph speed limit zone. A Safety Risk Assessment has been produced to support the alternative footpath proposals, which has concluded that the mitigation measure of moving the

location of the current change in speed limit on the A670 will retain the risk level at the existing low level.

3.13 Cumulative Effects

3.13.1 In addition to the relevant works s elements of the Order Scheme, additional works using Permitted Development Rights (PDRs) will be undertaken as part of the wider TRU W2B Project. In relation to traffic and transport, these works will likely be undertaken concurrently with the relevant works elements s of the Order Scheme and therefore may give rise to cumulative effects both during the construction phase of the Project.

3.13.2 Relevant works being undertaken under PDRs for Traffic and Transport are indicated in Table 3-1 (section 3-2) and include construction and operation of compounds, laydown, storage areas and worksites, construction traffic and traffic management.

3.13.3 The potential effects of the design, construction and operation of the works being undertaken by PDRs will be managed in accordance with the relevant clauses included within Network Rail's Contract Requirements Environment (NR/L2/ENV/015 ,Volume 3, Appendix 1A of this Report [**NR14**]). Further mitigation in relation to works being undertaken by PDR's will be secured via adherence to the control measures outlined with the CoCP (Part A) and compliance with relevant Environmental Management Plans.

4. MITIGATION AND CONSIDERATION OF CONTROL MEASURES

Construction

4.1.1 The movement of construction traffic through the study are along the core construction route is not expected to result in significant adverse effects on traffic and transport during construction. Whilst there could be times where significant adverse effects could occur locally (roads between core route and compounds) or as a result of diversions/ traffic management, these will be temporary and phased to mitigate/ limit impacts. Therefore, additional mitigation measures are recommended during construction to minimise risk and as part of best-practice/ established measures. Potential mitigation measures during the Construction Phase are summarised below:

- HGV Routing, as far as reasonably practicable, will be along the strategic road network and using designated routes.
- Provision of temporary alternatives to maintain connectivity for PRoW closed during construction, as far as reasonably practicable, to reduce loss of amenity.
- Where possible, Provision on alternative car parking for residents affected by TROs.
- Phasing of Traffic Management and TROs to limit associated impacts and to ensure impacts are temporary.
- Providing on-site welfare facilities to reduce travel / traffic movements by site workers.
- A Construction Traffic Management Plan (to be submitted under the Code of Construction Practice (CoCP) Part B, to be secured via a planning condition included in the Order application document 'Request for Deemed Planning Permission and Statement of Proposed Conditions' [**NR11**]. The CTMP will be prepared in close collaboration with, and to be approved by the local authorities. The CTMP will apply only to the Order Scheme. As a minimum, it will include:
    - Temporary/ Permanent Road closures and diversions.
    - Construction Traffic access/ egress and routing.
    - Permitted working hours and restrictions.
    - Safety and environmental controls.
    - Temporary Traffic management.
    - Temporary access arrangements/ mitigation measures.
    - Monitoring and reporting process.
- A Construction Worker Tavel Plan for the Order Scheme will be prepared to promote sustainable travel to/from compounds and relevant work

locations during construction, with the travel plan aiming to reduce the level of workforce commuting by private car, especially sole occupancy car travel. The Travel Plan will include:

- Aims and objectives.
- Travel plan measures – measures to achieve aims/ objectives – i.e. travel options/ to from compounds, identifying main compound hubs from which construction staff will be bussed to other work locations etc.
- Action Plan – when measures will be in place and how is responsible for their delivery.
- Monitoring/ Coordination – provide details on key points of contacts who will take overall responsibility for the successful delivery of the travel plan.

- The Order Scheme's Code of Construction Practice Part A **[NR17]** sets out a suite of measures including:
  - A Construction Traffic Management Plan, to be agreed with OMBC and TMBC, which will contain measures relating to:
    - temporary and permanent road closures and diversions as identified in the Order;
    - construction traffic routes including access and egress from the main trunk roads and also at site level;
    - imposed time restrictions on use and any lorry routes strictly prohibited from use;
    - controls to minimise any interference with a carriageway or footway, including control of tracking of mud and rubble by construction traffic from the Site;
    - temporary traffic control measures as may be required;
    - means of monitoring construction Heavy Goods Vehicle (HGV) compliance with the agreed traffic routes;
    - site specific controls in consideration of the potential for nuisance (noise and vibration, mud and dust);
    - mirrors placed at critical turning junctions to assist drivers, if requested by and agreed with TMBC / OMBC;
    - prohibition of parking of any construction site vehicles along public roads;
    - Audit and/ or perform monitoring of construction traffic to ensure that agreed traffic routes are being used;

- Nuisance Management Plan (NMP) - clearly provide information that will show how nuisance from construction delivery to local residents and businesses will be avoided, e.g. wheel wash facilities, organising mechanical road sweepers, covering of HGV deliveries.

Operation

4.1.2 The assessment has not identified any substantial adverse impacts that require mitigation due to operation of the Proposed Scheme alone. New/ additional vehicular trips generated by the Order Scheme be minimal and infrequent and all PRoW impacted are to be permanently reinstated on realigned routes.

4.1.3 Therefore, the Order Scheme's traffic and transport environmental effects during the operational phase are not considered to be significant and no further mitigation is considered necessary.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT VOLUME 3 APPENDIX 10B - TRANSPORT STATEMENT

Rule 10(6)(d)

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CONTENTS

1. INTRODUCTION 3
1.1 Overview 3
1.2 Scheme Overview 3
1.3 Scope Methodology 4
1.4 Study Area 6
2. POLICY 9
2.2 National 9
2.3 Regional 13
2.4 Local 16
3. THE ORDER SCHEME 19
3.1 General Overview 19
3.2 Construction Phase 19
3.3 Operational Phase 31
4. BASELINE CONDITIONS AND ACCESSIBILITY 41
4.2 Wider Transport Network Overview 41
4.3 Local Transport Network 49
4.4 Wider Cycle Network 59
4.5 Local Cycle Network 60
4.6 Wider Public Transport 61
4.7 Accessibility 61
4.8 Road Accident Data 66
4.9 Surveys 68
5. TRANSPORT IMPACTS, MITIGATION AND RESIDUAL IMPACTS 87
5.2 Initial Impacts 87
5.3 Mitigation Measures 110

5.4 Residual Impacts 111

6. SUMMARY AND CONCLUSION 115

6.1 Summary 115

6.2 Conclusion 115

1. INTRODUCTION

1.1 Overview

1.1.1 This document forms Appendix 10B Transport Statement of Volume 3 of the Environmental Report [**NR14**] for the 'Stalybridge to Diggle (Saddleworth) Enhancements' Order. The purpose of this Transport Statement (TS) is to provide an independent, comprehensive and systematic review of the transport implications for works which require either temporary or permanent traffic management. The report identifies the anticipated transport impacts of the Order Scheme and outlines whether any necessary mitigation measures for all modes of travel are required.

1.2 Scheme Overview

1.2.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound programme of rail improvements to bring more frequent, faster, and greener trains across the Pennines between Manchester, Huddersfield, Leeds and York on a better, cleaner, more reliable railway.

1.2.2 TRU is a phased programme of works to address the existing overcrowding and congestion on the route attributable to the existing limited capacity and dated infrastructure. The project supports economic growth and "levelling up" opportunities across the north of England. The existing route carries a mix of fast express trains, local stopping services, and freight trains but has not seen significant investment for many years.

1.2.3 The TRU programme involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), removal, remodelling, and replacement of bridges and structures to accommodate OLE, track and signalling upgrades, and structural strengthening works. Where level crossings are affected by the improved services proposed, TRU also involves level crossing closures and, where necessary, their replacement by safer alternatives

1.2.4 Further information on the Order Scheme' is provided within section 2 of this Report with additional detail provided within Volume 1, Chapters 1-4 of this Report [**NR14**]. The Order Scheme's boundary is illustrated in Figures 1.1.1 and 1.1.6 Volume 2 of this Report [**NR14**].

1.2.5 This TS has been prepared in support of a Transport and Works Act Order (TWAO), which seeks to authorise a series of infrastructure improvements and associated works. The purpose of this statement is to assess the potential transport impacts arising from the Order Scheme, with particular focus on traffic movements during both the construction and operational phases.

1.3 Scope Methodology

1.3.1 The assessment has been undertaken in accordance with relevant national guidance, including the National Planning Policy Framework (NPPF)[1], which emphasises the importance of promoting sustainable transport and ensuring that development proposals do not result in unacceptable impacts on highway safety or severe residual cumulative impacts on the road network.

1.3.2 Additionally, the approach aligns with the Institute of Environmental Management and Assessment (IEMA) guidelines on the Environmental Assessment of Traffic and Movement[2], which provide a framework for identifying, assessing, and mitigating transport-related environmental effects in a proportionate and transparent manner.

1.3.3 The majority of traffic impacts are anticipated to occur during the construction phase, which will be carefully phased and managed to minimise disruption. These impacts are temporary in nature and will be subject to mitigation measures to ensure safe and efficient movement for all road users.

1.3.4 During the operational phase, changes in traffic volumes are expected to be negligible. However, consideration has been given to a number of permanent changes associated with the Order Scheme. These include modifications to existing bridges, enhancements at Mossley and Greenfield Stations, and alterations to three public rights of ways (PRoW) (further detail provided in Volume 1, Chapter 1, Table 1-1 of this Report [**NR14**]). The implications of these changes have been assessed in terms of accessibility, connectivity, and integration with the wider transport network.

1.3.5 This statement outlines the methodology used to assess transport impacts, summarises the findings, and sets out proposed mitigation measures where appropriate.

1.3.6 The assessment has been structured to consider both the construction and operational phases of the proposed scheme. Key components of the methodology include:

- Baseline Conditions
    - Review of existing transport infrastructure and traffic conditions within the Study Area, including specific consideration of conditions in the vicinity of permanent changes resulting from the Order Scheme

[1] National Planning Policy Framework - GOV.UK

[2] iema-report-environmental-assessment-of-traffic-and-movement-rev07-july-2023.pdf

- Collection of traffic count data and relevant transport studies, where available.

- Trip Generations
  - Construction Phase
    - Estimation of traffic movements associated with construction activities, including workforce travel, delivery of materials, and removal of waste.
    - Consideration of phasing and duration of works to understand peak impacts.
    - Assessment of potential disruption to existing transport networks and users.
  - Operational Phase Assessment
    - Consideration of permanent infrastructure changes, including:
      - Modifications to bridges.
      - Enhancements at Mossley and Greenfield Stations.
      - Alterations to two public rights of way.
      - Assessment of impacts on accessibility, connectivity, and integration with the wider transport network.

- Transport Impacts and Mitigation
  - Quantify transport impacts within the Study Area as a result of the Construction and Operational Phases
  - Identification of appropriate mitigation measures to reduce or eliminate effects.
  - Consideration of cumulative impacts in conjunction with other planned developments.

1.4 Study Area

Physical Study Area

1.4.1 The Study Area is show in Figure 1-1 below and was defined through an iterative process which took into account construction compound locations, interaction between compound relevant work locations, core construction routes (the main HGV delivery and LGV / small van routes to and from the compounds and work locations) , diversionary routes, PRoW affected by the Order Scheme and permanent changes such as at bridges, stations, roads, PRoW.

1.4.2 Any interventions that do not impact the road network have not been considered for further assessment.

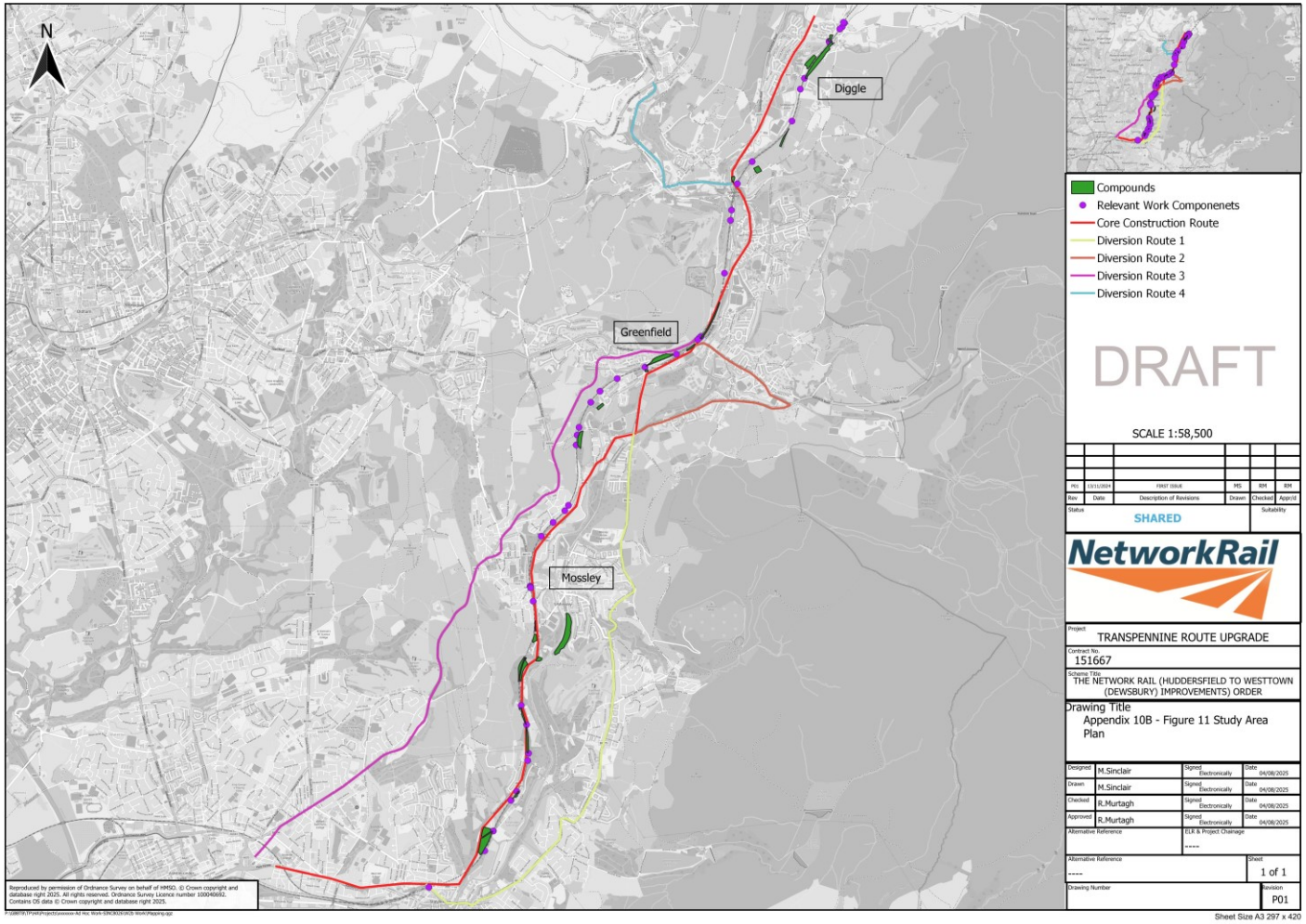


Figure 1-1 Study Area Plan

Temporal Study Area

1.4.3 The following assessment scenarios are considered within the subsequent assessment:

- Base Year (2024/25) – which is when the traffic/ transport surveys were undertaken;
- Construction Phase (2027-2032).
- Operational Phase at Scheme Opening (2033).

2. POLICY

2.1.1 As part of this TS, a review has been undertaken of relevant transport and land use planning policies. This review has been undertaken to ensure that the Order Scheme proposals are in line with, and support, the objectives of relevant policies.

2.2 National

National Policy Framework (NPPF) [Dec 2024 Update]

2.2.1 The National Planning Policy Framework (NPPF)[1]was updated in December 2024 and sets out the Government's wider planning policies. The presumption in favour of sustainable development remains at its core.

2.2.2 Sections 1 to 4 of the NPPF[1] establish the foundation for sustainable development, emphasising the integration of transport considerations into both plan-making and decision-making. Transport is recognised as essential to achieving economic, social, and environmental goals. Local plans must account for infrastructure needs, and developments should ensure safe, suitable access for all users. Tools like Transport Assessments and Travel Plans are encouraged to support informed decisions and mitigate impacts.

2.2.3 Sections 5 to 8 of the NPPF focus on aligning housing, economic growth, town centre vitality, and community health with transport planning. New housing should be located where transport infrastructure can support it. Economic development is linked to improved connectivity, while town centres should be accessible by sustainable modes. Active travel is promoted through walkable neighbourhoods and well-designed streets, reinforcing the importance of transport in shaping healthy, inclusive communities

2.2.4 Paragraph 105 of the NPPF states that planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails

2.2.5 Section 9 (Promoting Sustainable Transport) of the NPPF[1] outlines the Government's approach to integrating transport considerations into planning decisions to support sustainable development. It emphasises the importance of reducing the need to travel, especially by private car, and promoting walking, cycling, and public transport.

- **Paragraph 105** encourages planning policies to support a mix of uses, reduce travel demand, and promote sustainable transport modes.
- **Paragraph 106** highlights the need for transport issues to be considered early in the plan-making and development process.

- **Paragraph 107** supports the use of tools such as Transport Assessments and Travel Plans to inform development proposals.
- **Paragraphs 108–109** stress the importance of ensuring safe and suitable access for all users and preventing unacceptable impacts on highway safety or traffic flow.
- **Paragraph 110** sets out criteria for developments to promote sustainable transport, including prioritising pedestrian and cycle movements, providing access to public transport, and incorporating facilities for charging electric vehicles.
- **Paragraph 111** states that development should only be refused on transport grounds if the residual cumulative impacts are severe.

2.2.6 Section 10 to 14 of the NPPF[1] address infrastructure, land use, design, environmental protection, and climate change. Section 10 supports high-quality digital infrastructure, indirectly reducing travel demand through improved connectivity. Section 11 promotes efficient land use, encouraging development in accessible locations to support sustainable transport. Section 12 emphasises well-designed places that integrate walking, cycling, and public transport. Section 13 protects Green Belt land, allowing transport infrastructure only in exceptional cases. Section 14 focuses on climate change mitigation, advocating for low-carbon transport options, electric vehicle infrastructure, and development patterns that reduce reliance on private cars.

Planning Practice Guidance (PPF) [2014][3]

2.2.7 PPG 2014 stipulates that the scope and level of detail within a TA or Statement will vary from site to site, the following should be considered when looking at the scope of the proposed assessment:

- Information about the proposed development, site layout;
- Information about neighbouring uses, amenity and character, existing functional classification of the road network;
- Data for existing public transport provision;
- A qualitative and quantitative description of the travel characteristics of the proposed development, including movements across all modes of transport that would result from a development;
- An assessment of trips from relevant committed developments within the area;
- Data about the current traffic flows on links and at junctions within the Study Area and identification of critical links and junctions of the highway network;

[3] Planning practice guidance - GOV.UK

- An analysis of the injury collision record on the public highway within the vicinity of the site access for the most recent three-year period, or five years if it has been identified as being within a high collision area;
- An assessment of the likely associated environmental impacts of transport related to the development, particularly in relation to proximity to sensitive area;
- Measures to improve the accessibility of the location, where these are necessary to make the development acceptable in planning terms;
- A description of parking facilities in the area and the parking strategy of the development;
- Ways of encouraging environmental sustainability by reducing the need to travel; and
- Measures to mitigate the residual impacts of development.

National Design Guidance

2.2.8 The National Design Guide[4] (2021) serves as a key resource for promoting high-quality design in new developments, guiding local authorities, developers, and communities in creating well-designed places that are functional, attractive, and sustainable.

2.2.9 The National Design Guide outlines ten characteristics of well-designed places, with “Movement” being a core component. It promotes transport strategies that support sustainable, inclusive, and efficient mobility.

- Connected Networks (M1)
    - Places should have a well-connected network of routes for all modes of transport, including walking, cycling, public transport, and vehicles. This supports accessibility, legibility, and ease of movement for all users.
- Active Travel (M2)
    - Design should prioritise walking and cycling through safe, direct, and attractive routes. Streets and paths should encourage physical activity and reduce reliance on private cars.
- Integrated Infrastructure (M3)
    - Parking, servicing, and utilities should be well-considered and integrated into the design without dominating the public realm. This includes provision for electric vehicle charging and cycle storage.

[4] National design guide - GOV.UK

- Design for All Users
    - Movement networks should be inclusive, catering to people of all ages and abilities. This includes accessible public transport stops, safe crossings, and clear wayfinding.
- Sustainable Transport Principles
    - The guide supports reducing car dependency and promoting low-carbon transport options. It aligns with broader planning goals to reduce emissions and improve public health.

The UK climate Change Act[5]

2.2.10 The UK Climate Change Act (2008) established a target to reduce emissions by 80% from 1990 levels by 2050, with interim carbon budgets set up to 2032. In June 2019, in line with the Paris agreement, the Act was amended to aim for net zero carbon emissions by 2050.

Railway High-Level Output Specification (HLOS-CP7) [1993][6]

2.2.11 This document, prepared in accordance with schedule 4A of the Railways Act 1993 (as amended by schedule 4 of the Railways Act 2005), outlines the objectives set by the Secretary of State for the upcoming review period CP7. Covering the period from 1 April 2024 to 31 March 2029, the statement provides guidance for the office of rail and road on the expected outcomes for the operations, maintenance, and renewal of railway infrastructure.

2.2.12 Network Rail's long-term strategy focuses on economic growth, connectivity, environmental sustainability, user needs, and financial sustainability. They aim to improve safety at level crossings and engage with local transport authorities for feedback on planned works. The strategy also includes enhancing rail infrastructure resilience to climate change and extreme weather, following recommendations to ensure a safe railway.

2.2.13 These are set out within paragraph 7, 15, 24 and 28 of the document.

Network North: Transforming British Transport

2.2.14 The Network North Strategy (2023), offers an approach to enhancing connectivity and transport infrastructure across the North of England,

[5] Climate Change Act 2008

[6] https://assets.publishing.service.gov.uk/media/638783d28fa8f5370714e94d/railways-act-2005-statement-high-level-output-specification-2022-web-version.pdf

within the context of the evolving plans for HS2. It confirms the full delivery of NPR as a key strategic rail objective.

2.2.15 Overall, its relevant core aims and priorities are:

- Improve everyday local journeys by investing in the transport modes people use most, especially in towns, suburbs, and cities.
- Enhance regional connectivity between towns and cities to reduce journey times and increase capacity and frequency.
- Refocus transport investment away from long-distance schemes like HS2 and toward infrastructure that delivers immediate benefits to communities.
- Rail Improvements: Investment in regional rail hubs and potential tram extensions (e.g., Manchester Metrolink and Nottingham Tram) to improve urban mobility.
- Active Travel and Accessibility: Support for walking and cycling infrastructure, particularly in urban areas, to promote sustainable travel options.

2.2.16 The delivery approach to achieve this is:

- Localised Investment: Prioritising transport schemes that reflect the needs of local communities rather than centralised, long-term megaprojects.
- Levelling Up: Targeting investment in under-served regions outside London to address disparities in transport access and performance.
- Union-Wide Commitment: Ensuring transport improvements benefit all parts of the UK, including Scotland and Wales.

2.3 Regional

The Greater Manchester Transport Strategy 2040

2.3.1 The Greater Manchester Transport Strategy 2040 (2017, updated Jan 2021[7]) sets out a long-term vision for a world-class, integrated transport network that supports sustainable economic growth, improves quality of life, and helps the region become carbon neutral by 2038. Central to the strategy is the “Right Mix” vision, which aims for 50% of all journeys to be made by walking, cycling, or public transport by 2040—equating to one million more sustainable journeys each day. The strategy is built around seven customer principles (including integration, inclusivity, and environmental responsibility) and five spatial themes, from local neighbourhood travel to global connectivity. It is supported by detailed delivery plans and complementary strategies such as Streets for All, City

[7] Greater Manchester Transport Strategy 2040 | Bee Network | Powered by TfGM

Centre Transport Strategy, and the Electric Vehicle Charging Infrastructure Strategy.

Places for Everyone (PfE)[8]

2.3.2 The Greater Manchester Combined Authority (GMCA) adopted the Places for Everyone Joint Development Plan for 2022-2039 (2024), covering nine of its boroughs (including Oldham and Tameside Councils). It focuses on sustainable movement and enhancing the transport network.

2.3.3 An overall summary of PfE is set below:

- Integrated Transport and Development:
    - The PfE plan ensures that new housing, employment, and commercial developments are sustainably integrated into Greater Manchester's transport network.
    - It aligns with Transport for Greater Manchester's Five-Year Transport Delivery Plan, promoting coordinated infrastructure investment 1.
- Sustainable and Active Travel:
    - A core aim is to reduce car dependency by encouraging walking, cycling, and public transport.
    - New developments must be designed to support active travel networks, with safe, accessible routes and connections to public transport hubs.
- Transport Infrastructure Investment:
    - The plan supports the delivery of key transport infrastructure, including improvements to roads, public transport, and active travel facilities.
    - It prioritises brownfield development in areas with existing or planned transport capacity, helping to reduce pressure on the Green Belt.
- Accessibility and Connectivity:
    - PfE promotes inclusive access to transport, ensuring that all communities—especially those in more deprived or disconnected areas—benefit from improved mobility.
    - It supports strategic transport corridors that link neighbourhoods to employment centres and regional destinations.

[8] Places For Everyone - Greater Manchester Combined Authority

2.3.4 Both OMBC and TMBC are among the nine boroughs covered by PfE, and the plan forms part of their statutory development framework since its adoption in March 2024. Local implementation will focus on:

- Enhancing transport links to town centres and employment zones
- Supporting regeneration through improved connectivity
- Delivering infrastructure that aligns with local priorities and TfGM's regional strategy
- The plan also informs site allocations and transport assessments for future developments in both boroughs.

Transport for North (TfN) [March 2024][9]

2.3.5 TfN is a statutory regional transport body that includes northern city regions, Local Enterprise Partnerships, Highways England, Network Rail, and HS2 Ltd. By 2050, the vision is for the North of England to become a vibrant, socially inclusive region. Major programs like the TransPennine Route Upgrade aim to provide faster, greener, and more reliable journeys, improve passenger experience and capacity, and enhance freight efficiency across the Pennines

2.3.6 It sets out a long-term vision to transform connectivity across the North of England by 2050, built around three core ambitions:

- Transforming Economic Performance
    - Improve strategic transport links between towns, cities, and employment hubs
    - Support inclusive growth by connecting people to jobs, education, and services
    - Enhance freight movement and logistics efficiency
- Rapid Decarbonisation of Surface Transport
    - Promote modal shift to walking, cycling, and public transport
    - Invest in electrification and low-emission technologies
    - Align transport with climate goals and environmental sustainability
- Enhancing Social Inclusion and Health
    - Ensure transport systems are accessible, affordable, and inclusive

[9] Strategic Transport Plan - Transforming the North | Transport for the North, 2024 - Transport for the North - Transport for the North

- Improve local connectivity to reduce isolation and support healthier lifestyles
- Design transport networks that serve diverse communities and reduce inequalities

2.4 Local

Oldham Metropolitan Borough Council

2.4.1 The Development Plan for Oldham includes several key documents and policies:

- Joint Core Strategy and Development Management Policies DPD (2011)[10]
- Places for Everyone Joint Development Plan (Greater Manchester Local Authorities)
- Saved policies of the Unitary Development Plan (2006)

Joint Core Strategy and Development Management Policies Development Plan Documents (DPDs) [2006][11]

2.4.2 The Joint Core Strategy and Development Management Policies DPD[9] sets out the long-term spatial vision and planning framework for Oldham, guiding development up to 2026. It replaces most of the policies in the 2006 Unitary Development Plan (UDP)[12] and aligns with national planning policy.

2.4.3 Key Traffic and Transport Objectives:

- Promote sustainable transport by encouraging walking, cycling, and public transport use.
- Reduce car dependency and manage travel demand through land use planning and transport integration.
- Support accessibility to jobs, services, and facilities, particularly in regeneration areas and town centres.
- Improve transport infrastructure to support economic growth and housing delivery.
- Protect and enhance the environment by reducing transport-related emissions and promoting low-carbon travel.

[10] Joint Core Strategy and Development Management Policies Development Plan Documents (DPDs) | Joint Core Strategy and Development Management Policies Development Plan Documents (DPDs) | Oldham Council

[11] Joint Core Strategy and Development Management Policies Development Plan Documents (DPDs) | Joint Core Strategy and Development Management Policies Development Plan Documents (DPDs) | Oldham Council

[12] About the Unitary Development Plan | Unitary Development Plan (UDP) | Manchester City Council

2.4.4 Strategic Approach:

- Focus development in accessible locations, particularly near public transport corridors.
- Require Transport Assessments and Travel Plans for major developments.
- Safeguard land for future transport infrastructure improvements.

2.4.5 This DPD[10] forms part of the statutory development plan for Oldham and is used to assess planning applications. It complements regional strategies like the Greater Manchester Transport Strategy 2040 and aligns with the Places for Everyone joint plan.

Saved UDP Polices [2026][12]

2.4.6 Oldham Council adopted the UDP[12] in July 2006, and certain policies were “saved” under the Planning and Compulsory Purchase Act 2004 to remain in force until replaced by newer planning documents. While many have since been superseded by the Joint Core Strategy and Development Management Policies DPD (2011)[11], a limited number of policies still apply.

2.4.7 Although most transport-related policies have been replaced, the saved policies still provide guidance in areas such as:

- Protection of transport corridors and infrastructure for future development
- Access and highway safety considerations in development proposals
- Parking standards and layout to ensure safe and efficient use of land
- Integration of transport with land use planning, particularly in regeneration areas
- Support for public transport and non-car modes, where applicable

2.4.8 These policies continue to inform planning decisions where newer policies do not yet apply or where site-specific allocations are still governed by the UDP[12].

<u>Tameside Metropolitan Borough Council</u>

2.4.9 Tameside Council is preparing a new plan called Homes, Spaces, Places – Shaping Tameside for tomorrow (HSP), which will align with national policy and the strategic planning context of the 'Places for Everyone plan Joint Development Plan' (PfE)[8] until 2037. The council currently uses its Unitary Development Plan (UDP)[12] as a framework for development and conservation in Tameside, guiding land use decisions and planning applications.

2.4.10 The UDP[12] is structured around several core themes:

- Economic Development: Supporting employment growth and regeneration
- Housing and Community Facilities: Providing a mix of housing types and improving access to services
- Town Centres and Retail: Strengthening town centres as hubs for commerce and community life
- Countryside and Recreation: Protecting open land and enhancing recreational opportunities
- Built and Natural Environment: Conserving heritage assets and promoting biodiversity
- Utilities and Infrastructure: Ensuring adequate provision of services and energy

2.4.11 The key Traffic and Transport Considerations are set out within the Transportation and Access section (Part 2, Chapter 6) which outlines the borough's transport policies, including:

- Promoting sustainable transport (walking, cycling, and public transport)
- Improving accessibility to jobs, services, and facilities
- Reducing congestion and environmental impacts of traffic
- Supporting strategic road and rail improvements
- Ensuring new developments include appropriate transport assessments and travel plans

2.4.12 The UDP[12] remains a key part of Tameside's Local Plan, although some policies have been superseded by more recent documents like the Greater Manchester Spatial Framework and Places for Everyone.

<u>Climate Change</u>

2.4.13 Both Oldham Metropolitan Borough Council (OMBC) and Tameside Metropolitan Borough Council (TMBC) have declared a climate emergency and are committed to taking significant actions to reduce carbon emissions and enhance climate resilience.

2.4.14 Following the declaration, a climate change strategy was produced to outline the actions needed to reach this target. One of eight 'Themes for action' within the strategy is 'Transport – carbon busting options for all'

2.4.15 This declaration includes setting targets for reducing greenhouse gas emissions, improving sustainability in local practices, and integrating climate considerations into all areas of council decision-making.

3. THE ORDER SCHEME

3.1 General Overview

3.1.1 The Order Scheme involves a range of infrastructure upgrades to support railway electrification and improve operational efficiency. These are detailed in section 1.3 of Chapter 1 of this Report [**NR14**] and are included in the Order Scheme boundary (Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**]).

3.1.2 In addition to works included in the Order Scheme, other works will be carried out using Permitted Development Rights. These are summarised in Table 1-2 of Chapter 1 of this Report [**NR14**]. .

3.2 Construction Phase

3.2.1 As part of the Order Scheme, multiple construction compounds will be established at various locations to support delivery.

3.2.2 Table 3-1 below provides an overview of the various work packages during the construction phase of the Order Scheme, which compounds are within those work packages and the relevant works which are served by the various compounds.

Table 3-1 Construction Compound Overview

Work Package	Compounds	Interventions/ Relevant Works at Structures
All	Whitelands	All
	Plevins	All
Alpha	Printworks Road Office	All
	Wakefield Road	MVL3/7, MVL3/8, MVL3/9, MVL3/10
	Bridge 10A/ Tunnel Laydown Area	MVL3/10a
Scout	Scout Spoil Point	MVL3/11
	Scout East Laydown	MVL3/11
Mossley	Manchester Road / Mossley New Compound	MVL3/12, MVL3/12a, MVL3/13, MVL3/14, MVL3/15

Work Package	Compounds	Interventions/ Relevant Works at Structures
Bravo	Heron Lane	MVL3/16, MVL3/17, MVL3/18, MVL3/19, MVL3/20
	Armit Road	MVL3/22
	Oaklands Road/ Satellite	MVL3/23, MVL3/24, MVL3/25, MVL3/26, MVL3/27a, MVL3/27b,
	Shaw Hall Bank Road	MVL3/28
Charlie	Oaklands Road/ Satellite	MVL3/29, MVL3/31, MVL3/31a, MVL3/32
	Brownhill Lane	MVL3/29
Diggle	Grandpa Green/ Grandpa Green 2	MVL3/35
	Diggle Rail Hub/ Welfare Office	MVL3/36
	Sam Road	MVL3/39, MVL3/39a, MVL3/39b

3.2.3 It should be noted that Table 3-1 presents the current understanding of the construction phase, although this may be subject to refinement and all such details will be confirmed in the Construction Traffic Management Plan (CTMP) which will be delivered by way of a condition included in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**]. The CTMP will be reviewed and agreed with both OMBC and TMBC.

3.2.4 It is expected that the majority of construction workers will utilise the main compounds of Whitelands Road, Wakefield Road, Plevins, Oaklands Road and Diggle welfare and office. It is also anticipated that a shuttle bus will move construction staff from these main construction compounds to the relevant work locations.

3.2.5 The selection and siting of these compounds has taken into consideration access, operational needs, and environmental constraints.

3.2.6 Figure 3-1 below illustrates the location of the compounds and relevant work locations.

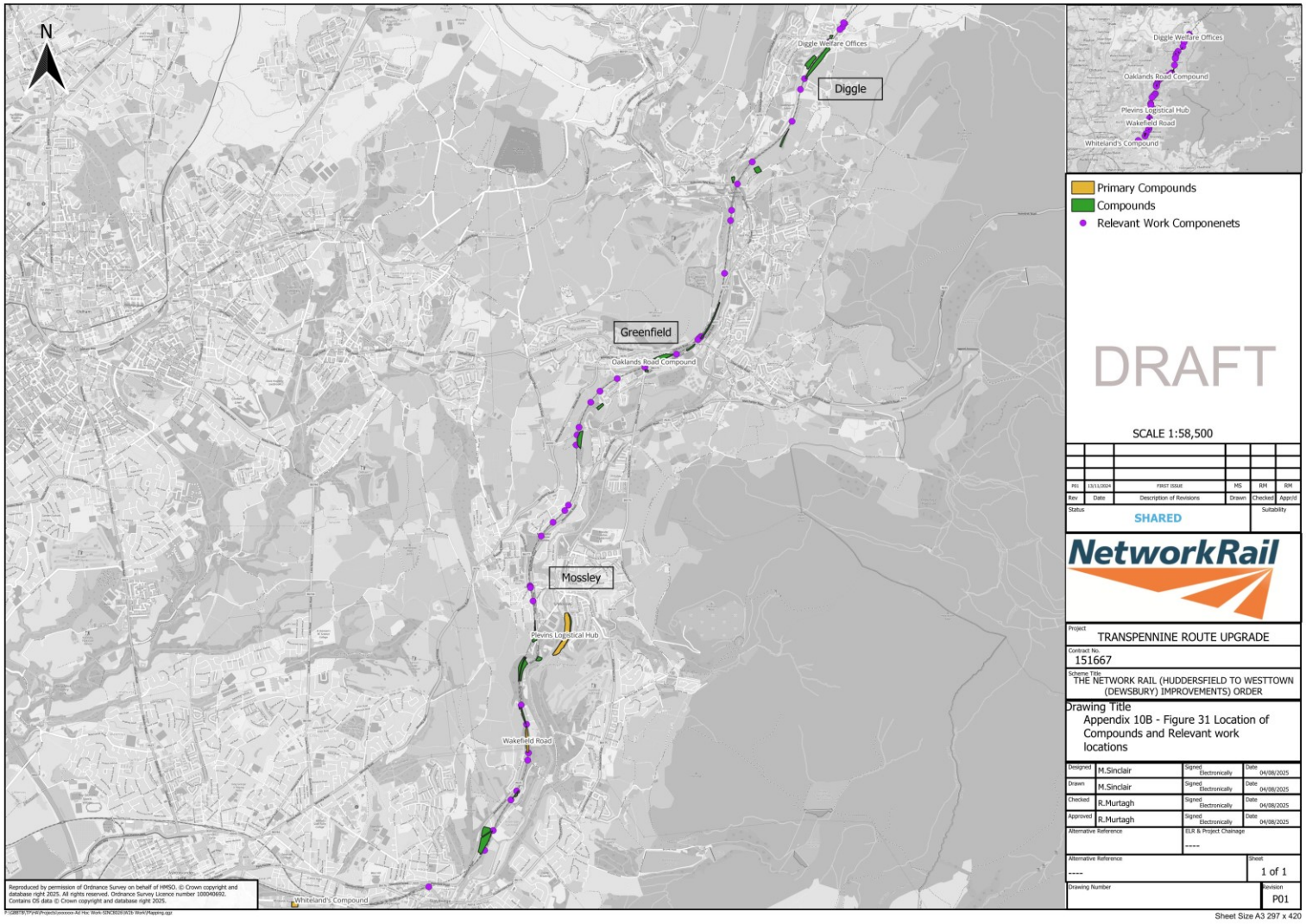


Figure 3-1 Location of Compounds and Relevant work locations

3.2.7 Typical compound setup activities include:

- Site marking and fencing
- Vegetation clearance and earthworks
- Installation of surfaces, drainage, and access
- Erection of welfare and office facilities
- Storage for materials, plant, and fuel
- Lighting for safe operations, especially during night-time and during winter.

3.2.8 Compound layouts will be designed to minimise impacts (e.g., noise shielding) and a Code of Construction Practice (CoCP) will be prepared that governs environmental mitigation, with:

- Part A covering general measures (e.g., dust, noise, waste)
- Part B detailing site-specific plans (e.g., pollution control, CTMP)

3.2.9 The Construction Traffic Management Plan (CTMP) will be prepared for agreement with the local authorities to manage vehicle movements, signage, and road closures.

3.2.10 All construction related staff will be encouraged to use public transport or shuttle bus services between compounds, supported by Travel Plans. A Framework Construction Worker Travel Plan is included within Appendix 10C of this Report [**NR14**].

Working Hours

3.2.11 Standard working hours are defined as 08:00 to 18:00 Monday to Friday; 08:00 to 13:00 on Saturdays with 30 minutes either side for setting up and organising / cleaning the site. Standard working hours refer to all activities where construction does not interfere with or require a closure of the operating railway.

3.2.12 Network Rail reserves the right to conduct non-rail works outside the standard working hours should an extension of work hours be required to meet an “entry into service” deadline. This is most normally required when works must be completed in advance of other planned works under extended “possession” of the railway (possessions are normally closure of the railway such as - at night-time, weekends or bank holidays). In these circumstances, Network Rail would inform the relevant local authority(s) and residents as applicable, a minimum of 14 days in advance of the start of the extension of working hours.

3.2.13 Non-standard working hours will also be utilised in connection with any construction works that would interfere with the operation of the railway. This means when the operating railway is closed so that construction works can progress (this is known as “possessions”).

3.2.14 In addition, Network Rail and contractors will need to access the track in quick possessions known as Rules of the Route (RotR) that occur at night during midweek, normally between 10pm and 4am whenever required.

Construction Phase Activities and Vehicle Movements

3.2.15 Due to the early stage of the development of the Order Scheme precise construction vehicle figures are subject to finalisation. However, in order to provide a robust assessment of the traffic impacts, a model has been developed, in liaison with the Principal Contractor, for construction traffic estimation process using the latest information available.

3.2.16 A number of internal construction planning reports and other details were prepared to develop and understand construction requirements. That construction data was reviewed and interrogated to understand construction staff requirements, HGV movements and traffic management proposals.

3.2.17 This information has been used along with a number of traffic assumptions to develop daily construction vehicle and staff movement forecasts to each of the compounds and work interventions through the construction duration of the project. This analysis developed daily and peak construction traffic figures from the enabling and construction. A high-level summary of key assumptions is set out below:

- Construction Timeframe: Consists of Enabling Works and 'Core' Construction Works (operational compounds and relevant work components. It is anticipated that the construction timeframe will run from mid-2027 to 2032 and will be phased, where possible, to limit overlaps in enabling works and when compounds/ relevant works components are operational.
- During Enabling works, the typical and daily HGV movements at Key compounds (Printworks Road, Plevins, Oaklands Road Compounds, Diggle Rail Hub) was estimated to be:
    - 30 two-way HGV movements during peak periods. This would last for approximately 33% of the total build days.
    - 5 two-way HGV movements during peak typical periods. This would last approximately 66% of the total build days
    - These numbers were then assessed against the number of build days to provide total and average HGV movements.
- During Enabling works, the Typical and daily HGV movements at all other compounds was estimated to be:
    - 10 two-way HGV movements during peak periods. This would last approximately 25% of the total build days
    - 2 two-way HGV movements during peak typical periods. This would last approximately 75% of the total build days

- These numbers were then assessed against the number of build days to provide total and average HGV movements.
- The level of personnel and deliveries required during the enabling works at each compound was assumed to be a third of that required when each compound is operational.
- For the 'core' construction period, construction planning reports were reviewed to understand the potential requirements of the Principal Contractor(s). Based on this information and discussions with the Principal Contractor, the daily number of two-way HGV deliveries were identified for each compound and relevant work component/ location. In addition, the number of required daily personnel at these locations was derived.
- Daily light good vehicles are based on number of personnel (assumed occupancy of 2 staff per vehicle) and likely number of light good deliveries daily.
- During the construction phase there would be periods of heightened activity associated with possessions and blockades (the planned and temporary closure of a section of railway). For possessions/ blockades it was assumed that increased working activity would occur every 3 months during the construction phase. Blockades are estimated to take place in March, June, September and December from 2028 to 2032.
- The derived daily vehicle numbers for each compound/ relevant work location were then applied to the to the programme periods for when works would be undertaken/ compounds would be in operation. This identified daily typical and peak activity across the Study Area. These daily movements were then assigned to the core construction routes.
- A number of key compounds (Whitelands Road, Wakefield Road, Plevins, Oaklands Road, Diggle Welfare & Office) will operate shuttle buses which will bus personnel from these compounds to relevant work locations. This will help limit the level of vehicle movements on the local road network. However, for robustness, no allowance/ discount has been applied to reflect this.

3.2.18 Based on this approach, discussions with the Principal Contractor and best information currently available, a summary of the typical construction activity at each compound is set out in Table 3-2 below along with the expected construction personnel and vehicle trip requirements. For drawings illustrating access arrangements to compounds, please refer to Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**].

Table 3-2 Construction Compound Overview and Trip Generation

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Whitelands Road	The compound will be constructed on an existing brownfield site. The compound will be used as site offices with welfare facilities and parking.	**Access:** Existing access via Whitelands Road **Key Activity Routes:** Whitelands Road, Stamford Road Activity Routes: Printworks Road, Wakefield Road/ Manchester Road	**Typical Activity:**50 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 30 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 7
Printworks Compound	There will be an office/ welfare complex, staff parking and storage areas. There will be safe walking routes, all vehicles will be able to turn on-site, and access will be via a new access onto Printworks Road.	Access: New priority Controlled Junction via Printworks Road. Key Activity Routes: Printworks Road, Wakefield Road/ Manchester Road	Typical Activity: 23 personnel Peak Activity: 75 personnel	Typical Activity Daily Cars/ LGVs: 46 Daily HGVs: 7 Peak Activity Daily Cars/ LGVs: 46 Daily HGVs: 7
Wakefield Road Plant Access and Compound	To be utilised for storage of plant and materials. On-site welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a	Access: **New/improved access via Wakefield Road** Key Activity Routes: Wakefield Road/ Manchester Road, Springbank Lane.	Typical Activity: **46 personnel** Peak Activity: **75 personnel**	Typical Activity **Daily Cars/ LGVs:28 Daily HGVs: 3** Peak Activity **Daily Cars/ LGVs: 43** **Daily HGVs: 3**

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
	new/ modified access onto Wakefield Road.			
Scout Tunnel (includes Scout Spoil Point, Scout Laydown, and Manchester Road Compound)	Currently used as car parking and will be repurposed to allow for spoil to be removed from the tunnel and for stockpiling. Improvements to site access to be considered to limit impact on local highway network. Staff to be brought to site by minibus due to limited on-site parking. No welfare at this site.	**Access:** Improved access via Manchester Road **Key Activity Routes:** Manchester Road.	**Typical Activity:** 47 personnel **Peak Activity:** 47 personnel	**Typical Activity** Daily Cars/ LGVs: 24 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 24 Daily HGVs: 2
Scout Tunnel Eastern Portal (includes Scout East Laydown, Ramp and Access)	Existing car parking area to be replaced by compound which will facilitate workable area for tunnel works. Welfare to be provided and staff to be brought to site by minibus due to limited on-site parking.	**Access:** Improved access via Manchester Road **Key Activity Routes:** Manchester Road. Stamford Road.	**Typical Activity:** 36 personnel **Peak Activity:** 36 personnel	**Typical Activity** Daily Cars/ LGVs: 18 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 18 Daily HGVs: 0

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Plevins Logistic Hub	This will be the main logistics hub supporting scheme wide interventions. Access via Manchester Road	**Access:** Cheshire Street/ Egmont Street. Improvements to Manchester Road/ Egmont Street Junction **Key Activity Routes:** Manchester Road. Egmont Street. Cheshire Street. Stamford Road.	**Typical Activity:** 235 personnel **Peak Activity:** 300 personnel	**Typical Activity** Daily Cars/ LGVs: 126 Daily HGVs: 8 **Peak Activity** Daily Cars/ LGVs: 158 Daily HGVs: 8
Mossley Station Compound	Required to support works at Mossley Station. To be utilised for storage of plant and materials. On-site welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Manchester Road.	**Access:** Existing access to be modified/ improved. **Key Activity Routes:** Manchester Road, Stamford Road.	**Typical Activity:** 36 personnel **Peak Activity:** 107 personnel	**Typical Activity** Daily Cars/ LGVs: 21 Daily HGVs: 4 **Peak Activity** Daily Cars/ LGVs: 57 Daily HGVs: 4
Heron Lane Compound	Greenfield site which will be constructed to contain site welfare, stores, material storage, security hub and parking. Provides direct access	**Access:** Existing access to be modified/ improved. Traffic management maybe required. **Key Activity Routes:** Manchester Road, Heron Lane	**Typical Activity:** 20 personnel **Peak Activity:** 20 personnel	**Typical Activity** Daily Cars/ LGVs: 10 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 10 Daily HGVs:

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
	to track.			2
Armit Road Compound	Greenfield site that will be used for the surrounding interventions with access via Armit Road.	**Access:** Existing access to be modified/ improved. **Key Activity Routes:** Manchester Road, Church Road, Armit Road	**Typical Activity:** 15 personnel **Peak Activity:** 15 personnel	**Typical Activity** Daily Cars/ LGVs: 8 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 8 Daily HGVs: 2
Oaklands Road Compound	To be utilised for storage of plant and materials. On-site offices, welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Oaklands Road.	**Access:** Modified access via Oaklands Road. **Key Activity Routes:** Manchester Road, Oaklands Road, Well-I-Hole Road/ Shaw Hall Bank Road, Church Road, Armit Road, High Grove Lane, Oldham Road.	**Typical Activity:** 30 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 20 Daily HGVs: 10 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 10
Greenfield Compound (Shaw Hall Bank Road)	This compound is to support construction at the Greenfield Station. Provide car parking for staff.	**Access:** existing access via Shaw Hall Bank Road. **Key Activity Routes:** Manchester Road, Oaklands Road, Well-I-Hole Road/ Shaw Hall Bank Road	**Typical Activity:** 10 personnel **Peak Activity:** 10 personnel	**Typical Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Grandpa Greens / Grandpa Greens 2 (as part of Ward Land Compound Works)	The site is currently informal car parking and a greenfield site. Small welfare area and parking provision to be provided.	**Access:** improved access via Ward Lane. **Key Activity Routes:** Ward Lane, Huddersfield Road, Dobcross New Road	**Typical Activity:** 20 personnel **Peak Activity:** 20 personnel	**Typical Activity** Daily Cars/ LGVs: 10 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 10 Daily HGVs: 0
Diggle Rail Hub / Welfare Office Compound	Access via Lee Side. New access already installed which is appropriate for HGVs. To be utilised for storage of plant and materials. Welfare and full office set up to be provided.	**Access:** Lee Side (new access already installed by W3). **Key Activity Routes:** Lee Side, Diggle Road, Sam Road, Ward Lane, Huddersfield Road.	**Typical Activity:** 50 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 30 Daily HGVs: 7 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 7
Sam Road Car Park (as part of Diggle Compound Works	The site is currently used as an off-street car park. The site will be used for car parking and access to the track	**Access:** Use existing access **Key Activity Routes:** Sam Road, Ward Lane, Huddersfield Road.	**Typical Activity:** 10 personnel **Peak Activity:** 10 personnel	**Typical Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0

3.2.19 It is assumed that typical two-way daily movements across all compounds during the construction period would be approximately 726 Light Vehicles and 98 HGVs. Where possible, construction traffic will be managed to

limit the level of construction traffic on the local highway network during Weekday AM/ PM peak hours and Saturday peak hours.

3.2.20 During these peak hour periods, it is assumed that approximately 10% of the daily construction vehicles could be on the network within these peak hours (73 Light Vehicles and 10HGVs [two-way movements]).

3.2.21 Construction works will be phased and therefore not all compounds/ relevant works will be in operation for the entirety of the construction period.

3.2.22 Whilst it is acknowledged that there will be periods of increased vehicle activity, this well be temporary and only occur over short periods of time and be managed to limit impacts. As noted, for robustness, the core construction route assumes that all HGVs will travel to/ from the compounds via from the south as this is currently considered the most direct route from the strategic road network.

3.2.23 As part of the core construction route, Light vehicles associated with the construction phase (workers and small van deliveries) are assumed to approach the compounds and work locations from the north and south via a 50 – 50 split. In reality, light vehicles will utilise several routes and dissipate over the wider transport network which will reduce the impact on the study network associated with light vehicles.

3.2.24 The potential level of two-way construction vehicles on the local highway network during peak hours is presented in Table 5-1 within section 5 of this report.

Traffic Management and TRO Activities

3.2.25 There will be a requirement to introduce temporary Traffic Management and Traffic Regulation Orders (TROs) to facilitate the construction phase of the Order Scheme and to safely manage and control the movement of people and traffic through the Study Area. Given that the planning of the construction phase is still subject to refinement, the level and type of temporary Traffic Management and TROs required is subject to change and will be detailed within a CTMP, the agreement of which will be secured via a planning condition included in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**] which will be conditioned and subject to agreement with TMBC and OMBC.

3.2.26 It is anticipated that Traffic Management will include:

- Lane/ road closures
- Road diversions
- Diversions of footways and PRoW
- Traffic control measures (stop/ go, contra flow, temporary traffic signal etc).

3.2.27 TROs will include:

- Suspension to waiting, parking and loading
- Suspension of bus stops.

3.3 Operational Phase

3.3.1 The Order Scheme is forecast to deliver modernisation and efficiencies to this section of the railway and therefore the level of rail movements (passenger and freight) between various origins and destinations through the Order Scheme are expected to increase.

3.3.2 Although passenger usage may increase in the future, increased usage of the railway is considered permitted intensification. Should passenger usage increase and result in an increase of highway movements to/from stations on the route, it would also result in forecast decreases in highway movements on the wider network as users transferred from car to the improved rail service.

3.3.3 This potential change in traffic flows due to the operation of the Order Scheme is unlikely to be of significance in terms of the operation of the highway network and is not within the scope of this transport assessment.

3.3.4 Nevertheless, further details on the key permanent changes to Mossley and Greenfield Stations, Stockport Road Level Crossing PRoW, Wrights Overbridge (MVL3/23) PRoW, Moorgate Level Crossing PRoW, Heyrod Hall Overbridge (MVL3/7), Manchester Road Footbridge (MVL3/10a), Ward Lane Overbridge (MVL3/36) and Oldham Road Overbridge (MVL3/39) is set out within this section.

Mossley Station

3.3.5 The existing rail station is located 500 m southeast of Mossley town centre. Mossley station is part of the scheme needed to improve services between Leeds and Manchester. Currently only platform 1 has step-free access via the station car park near Manchester Road (A635). The only connection between platforms 1 and 2 is via the station footbridge and platform 2 stairs, and so there is no step free access to platform 2. The station has parking for 56 vehicles including 2 accessible bays.

3.3.6 Mossley Station is proposed to be decommissioned and relocated approximately 300 metres to the North. The benefits of relocating the station north along Manchester Road include an improved vehicle drop off, accessible parking and cycle parking. This would however result in a reduction in connectivity to the wider public transport network and the town centre. The work includes:

- removal of the existing footbridge, partial demolition of the existing platforms, removal of platform furniture

- the relocated Mossley station will include an accessible footbridge connecting platforms 1 and 2, providing step-free access to both.
- a new station building,
- New car park with additional accessible parking spaces to be located at the rear of platform 1
- New access onto Manchester Road.

3.3.7 Figures 3-2 and 3-3 illustrates the proposed Mossley Station.

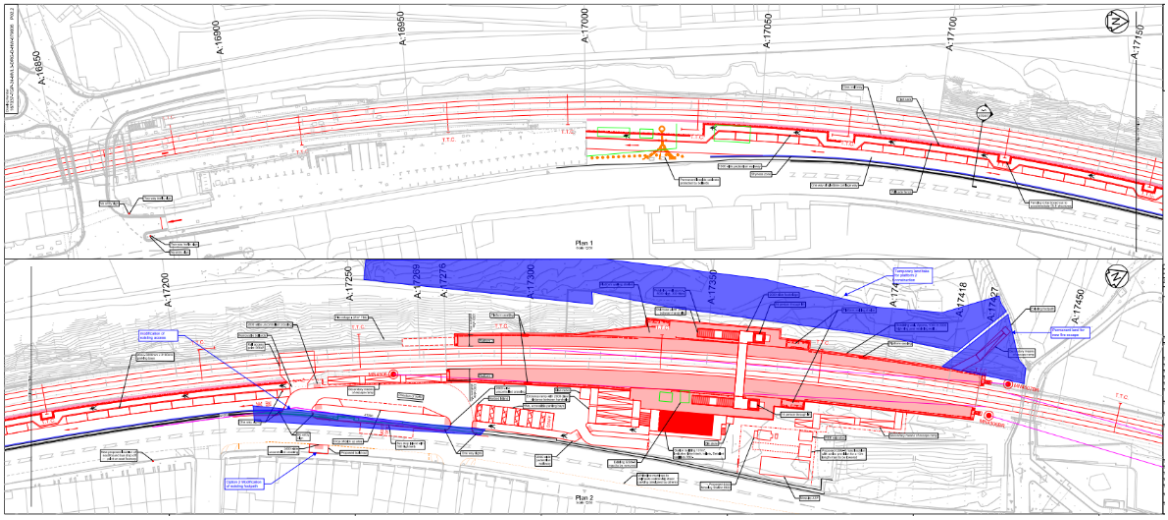


Figure 3-2 Proposed Mossley Station

Figure 3-3 Proposed Mossley Station Visual

3.3.8 Additionally, works linked with improving access to and from new Mossley Station also include the re-siting of bus stops and the provision of a new pedestrian crossing on Manchester Road. The new crossing is proposed following discussions with Tameside Metropolitan Borough Council in their role as highway authority, which is required to provide a safe crossing point in this location for pedestrians to access the new station. Traffic and access arrangements in this area will be subject to a range of other modifications to serve the new station including new vehicular access and egress points from Manchester Road and relocation of bus stops on Manchester Road.

3.3.9 In order to facilitate these works, which are needed to provide safer pedestrian routes, parking restrictions are proposed to be introduced on Manchester Road, which will result in the loss of between 5 and 6 on-street parking spaces immediately in front of residential properties. That parking is currently unrestricted or uncontrolled (in that parking permits are not required). That informal parking area will be prevented by the introduction of parking restrictions being implemented to facilitate the proposed pedestrian crossing as detailed within the relevant drawings within the Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**].

3.3.10 Given that the existing parking area is uncontrolled in nature, and that the introduction of restrictions is likely to affect only 5 – 6 spaces, the impact of this change is not expected not to be significant.

Greenfield Station

3.3.11 Greenfield Station is located to the northwestern periphery of Greenfield. An existing station footbridge (MVL3/27A) connects platforms 1 and 2,

and the overbridge Oldham Road (MVL3/28) is located at the high mileage end of the platforms.

3.3.12 Greenfield Station, is proposed to be refurbished and upgraded to improve the facilities at station such as step free access and suitable drop – off and parking facilities. This includes:

- Platforms 1 and 2 are to be extended. Platform 1 is to be extended by 52 m and platform 2 is to be extended by 34 m.
- New waiting shelters and cycle storage to be provided on the platform.
- The MVL2/27a footbridge will be removed and a new accessible station footbridge MVL3/26 is to be provided.
- Oldham Road overbridge to be reconstructed in a separate public footbridge spanning over the station.
- Parking spaces for persons of reduced mobility (PRM) are to be demarked at the station entrance. These will be located outside the station building perpendicular to Shaw Hall Bank Road.
- The remaining parallel parking bays on Shaw Hall Bank Road will be modified to provide a staff parking space and to potentially facilitate cycle storage works.

3.3.13 Figures 3-4 and 3-5 illustrate the proposed Greenfield Station.

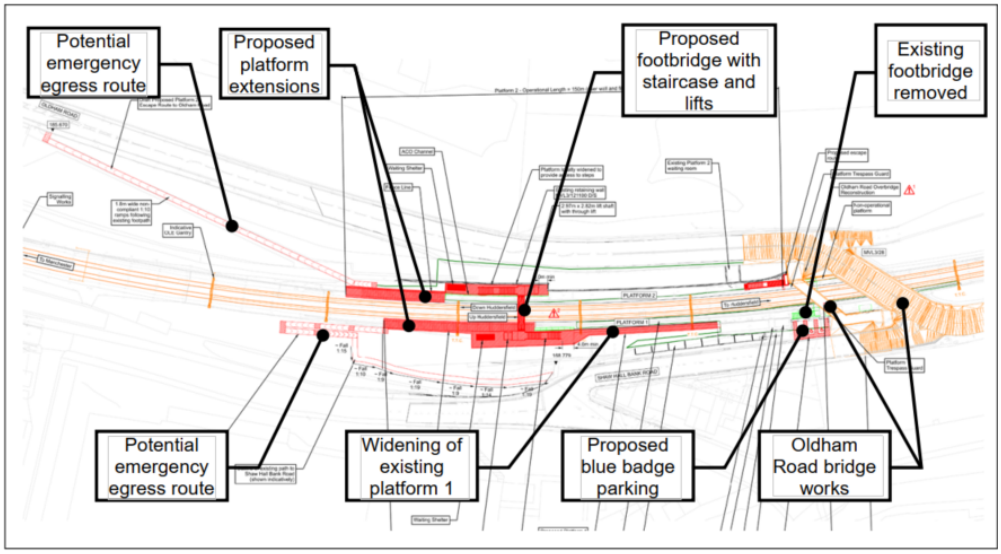


Figure 3-4 Proposed Greenfield Station

Figure 3-5 Proposed Greenfield Station Visual

Stockport Road Level Crossing

3.3.14 The Stockport Road Level Crossing is located between Heron Lane and Midge Hall underbridge. The level crossing provides a direct route from the west side of the tracks to the east side. However, due to the increase of the line speed there is an increased risk to members of the public using the crossing. Therefore the existing level crossing and PRoW will be removed and a new diversion route will be created which will run adjacent to the track and connect into the existing Midge Hall underbridge crossing.

3.3.15 The proposed route will increase the distance by approximately 200 m (or 2 mins and 20 seconds). The proposed new PRoW will be fenced off with kissing gates where it ties into the existing pathways as well as waymarking and suitable signage. The existing and proposed PRoW is illustrated in Figure 3-6.

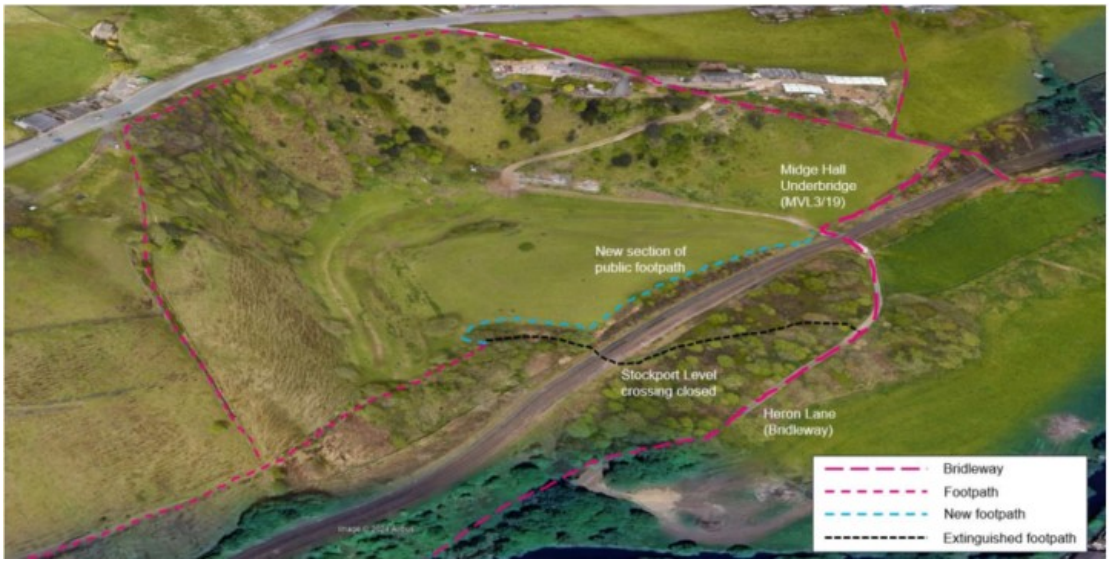


Figure 3-6 Proposed Stockport Road Level Crossing Diversion

Wrights Overbridge (MVL3/23)

3.3.16 The existing PRoW footpath between Low Grove Lane and Mossley Road will be closed and diverted to the Hobble Hole underbridge (MVL3/22). A new section of PRoW will be provided in adjacent fields to connect back into the footpath to provide a safe route for pedestrians and equestrian users.

3.3.17 The proposed diversionary route will not result in any increase in travel distance. The proposed new PRoW will be fenced off with kissing gates where it ties into the existing pathways as well as waymarking and suitable signage. The existing and proposed route is illustrated in Figure 3-7.

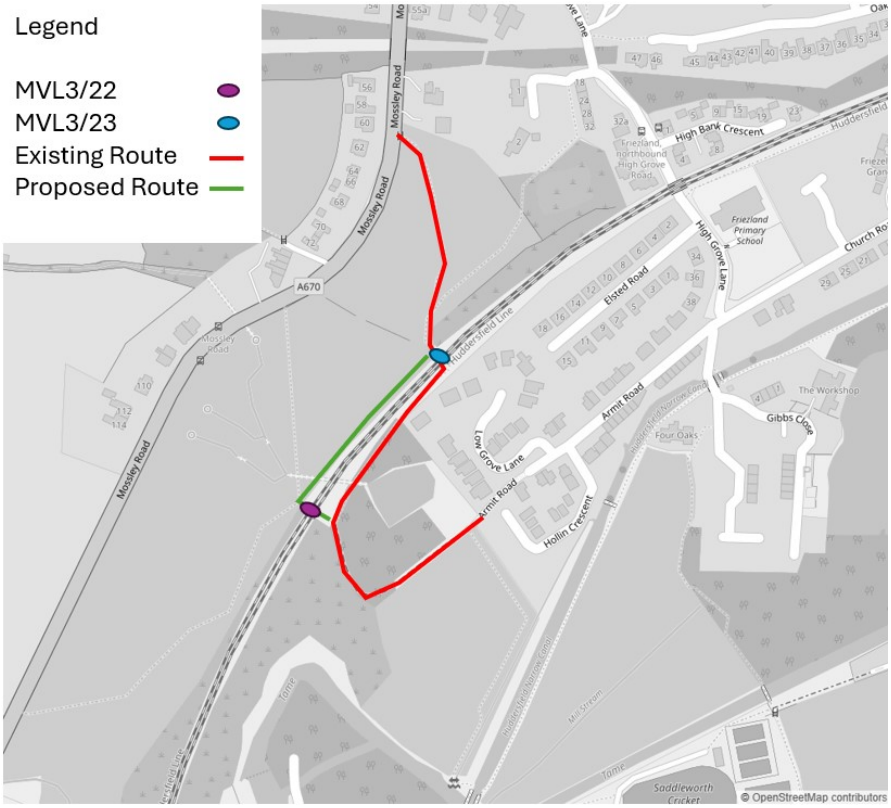


Figure 3-7 Proposed Hobble Hole Underbridge (MVL3/22) PRoW Crossing

Moorgate Halt Level crossing

3.3.18 The Moorgate Halt level crossing is located between Ladcastle Road and Oldham Road. The level crossing (pedestrian use only) provides a direct route from the west to the east side of the tracks. However, due to the increase of the line speed there is an increased risk to members of the public using the crossing. Therefore the existing level crossing and PRoW will be removed and a new diversion route will be created which will run 200 m to the south and connect into the existing Wickens underbridge crossing which will be upgraded.

3.3.19 The proposed route will increase the distance by approximately 200 m (2 mins and 20 seconds). The upgraded PRoW will include waymarking and suitable signage. The existing and proposed PRoW is illustrated in Figure 3-8.

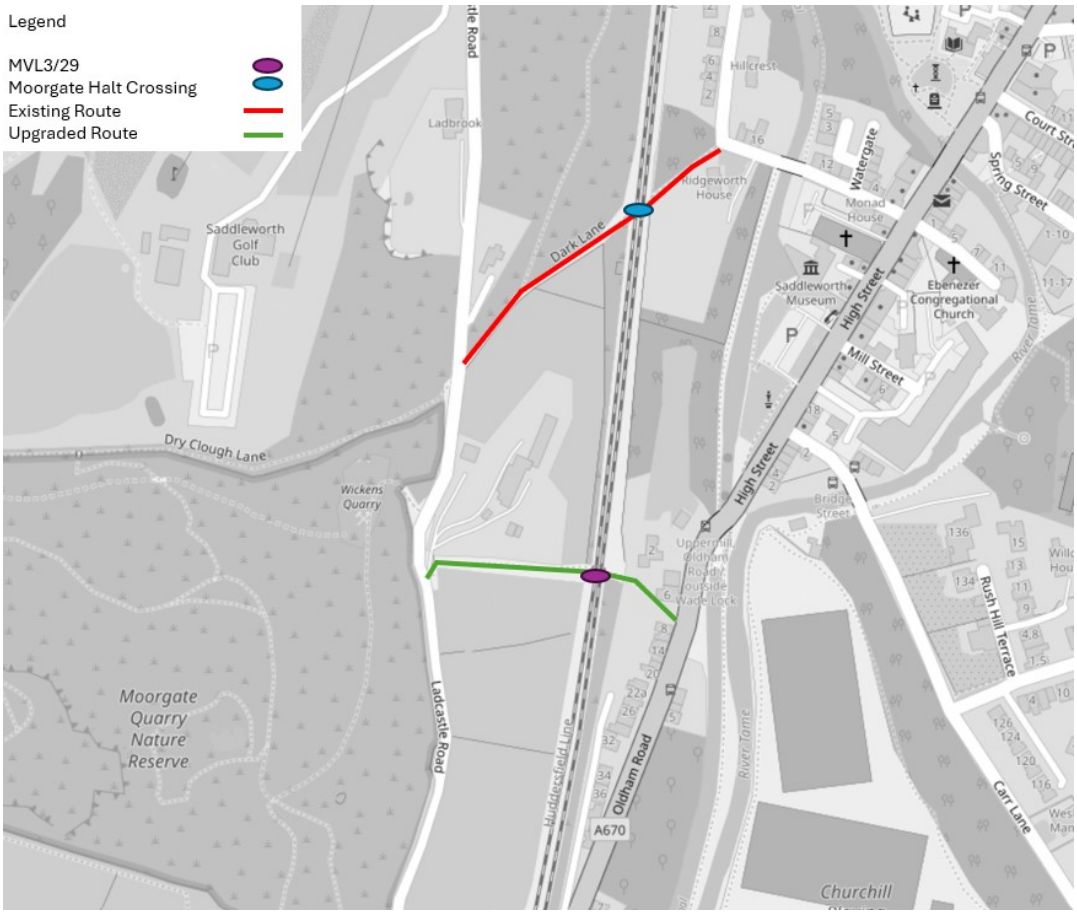


Figure 3-8- Proposed Wickens Underbridge (MVL3/29) PRoW Crossing

3.3.20 Drawings detailing the bridges and other structures to be replaced or upgraded as part of the Order Scheme are included at Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**]. The location of these is shown in Volume 2, Figures 1.1.1 and 1.1.6 of this Report [**NR14**]**.**

3.3.21 The majority of works at these locations will result in only minimal / minor changes to existing provisions. However, permanent / meaningful changes will occur at the following bridge locations as summarised in Table 3-3.

Table 3-3 Summary of Bridge works

Works Component Ref	Summary of works
Heyrod Hall (MVL3/7)	Replace the existing highway overbridge with a new structure to provide a safe route across the railway corridor for vehicles and pedestrians
Springbank Lane Footbridge (MVL3/8)	Refurbishment works to the underside and outside of the bridge.
Spring Bank Lane Overbridge (MVL3/9)	Refurbishment works on the structure of the bridge.
Manchester Road Footbridge (MVL3/10a)	Replace the existing stepped footbridge with a grade separated alternative to provide a safe stepped route over the railway corridor for pedestrians.
Abney Footbridge (MVL3/12)	Refurbishment works on the structure of the bridge.
Mill Lane Overbridge (MVL3/15)	Refurbishment works to the underside and outside of the bridge.
New Earth Footbridge (MVL3/16)	Refurbishment works to the underside and outside of the bridge.
Roughtown Road Footbridge (MVL3/17)	Refurbishment works to the underside and outside of the bridge.
Wrights Overbridge (MVL3/23)	Removal of existing footbridge
Charlotte Street Underbridge (MVL3/24)	Refurbishment works to the underside and outside of the bridge.
Footway Underbridge (MVL3/26)	Refurbishment works to the underside and outside of the bridge.
Oldham Road and Oldham Road Footbridge (MVL3/28/27b)	Bridge to be realigned as part of the Greenfield Station upgrade
Wickers Underbridge (MVL3/29)	Refurbishment works to the underside and outside of the bridge.
Butterhouse Lane Footbridge (MVL3/31A)	Refurbishment works to the underside and outside of the bridge.
Subway (MVL3/32)	Refurbishment works to the underside and outside of the bridge.
Ravenstone Drive Footbridge (MVL3/35)	Refurbishment works to the underside and outside of the bridge.
Ward Lane Overbridge (MVL3/36)	Replace the existing highway overbridge with a new structure to provide a safe route across the railway corridor for vehicles and pedestrians.
Oldham Road Overbridge (MVL3/39)	Replace the existing highway overbridge with a new structure to provide a safe route across the railway corridor for vehicles and pedestrians.

3.3.22 Table 3-3 shows that four bridges are being replaced, with the other bridges being improved to allow for the electrification of the railway. The permanent bridge changes will deliver limited benefit in terms of footway and carriageway widths as there is limited space to provide these replacements. Where possible, improvements will be provided.

4. BASELINE CONDITIONS AND ACCESSIBILITY

4.1.1 This section provides an overview of the existing transport conditions within the Study Area, both from a general overview perspective and from a local perspective around those locations that will be permanently changed as part of the Order Scheme.

4.2 Wider Transport Network Overview

4.2.1 This section provides an overview of the general transport network within the Study Area. The Study Area has been broken down into sections to facilitate discussion, as described below:

Stalybridge Tunnell and Printworks Compound Area

4.2.2 The primary access routes for the Order Scheme will be Printworks Road and Wakefield Road (A635). Wakefield Road serves as the main highway in the area, connecting Stamford Street to the south with Mossley to the north. It has a 40 mph speed limit and is equipped with footways and street lighting on both sides of the carriageway. The road accommodates approximately 8,943 vehicles daily, including 281 heavy goods vehicles (HGVs).

4.2.3 Printworks Road is a 30 mph road with footways on both sides, although the footway on the north side temporarily stops at the railway underbridge and resumes afterward. This road connects to Wakefield Road via a priority junction that offers standard visibility and includes a dedicated right-turn lane from Wakefield Road into Printworks Road.

4.2.4 Heyrod Hall Footbridge provides a pedestrian link between Wakefield Road and Printworks Road. On Printworks Road, access to the footbridge is limited to 10 mph due to uneven road conditions and lacks footway provision. In contrast, Wakefield Road offers footway access on the east side of the carriageway, facilitating safer pedestrian access to the footbridge.

4.2.5 Public transport in the area includes one bus stop within 200 metres of the Printworks Road/Wakefield Road junction and two additional stops near the Heyrod Hall footbridge. These stops are served by bus route 356, which operates on an hourly basis.

4.2.6 There are currently no dedicated cycle routes along either Wakefield Road or Printworks Road.

Spring Bank Lane and Wakefield Road Compounds Area

4.2.7 To facilitate works in this area and the proposed compounds, the main routes to be utilised are likely to be Wakefield Road/ Manchester Road and Spring Bank Lane.

4.2.8 Spring Bank Lane Footbridge crosses between A635 Wakefield Road on the western side and Spring Bank Lane on the eastern side, in the northern section of Heyrod. Spring Bank Lane footbridge connects to Spring Bank Lane through a set of steps. The current steps are in a poor state of repair. Spring Bank Lane is a 30 mph road with footway provided on the northside of the carriageway. The footway is narrow and overgrown in places.

4.2.9 Spring Bank Lane Overbridge forms a priority junction with the A635 Wakefield Road. The bridge is signposted as a 'Weak Bridge' with a maximum tonnage of 10. The junction has sub-standard visibilities onto A635 Wakefield Road. The A653 Wakefield Road is a 40 mph Road with footway provision on both sides of the carriageway. Wakefield Road in vicinity of the compound is 30 mph with footway on on-side of the carriageway

Plevins Compound Area

4.2.10 Plevins Logistic Hub will be set up to support all interventions across the project. Plevins is located off Cheshire Street approximately 500m from Mossley Station. The site is an existing warehouse facility with access of a priority junction from Cheshire Street. The surrounding area is mainly residential. The main routes to the compound would be via Cheshire Street and Egmont Street.

4.2.11 Cheshire Street is a residential street, with a 30 mph speed limit. The street is approximately 9 metres wide however, there is on-street car parking on both sides of the road which narrows the road. There are footways on both sides of the road and Cheshire Street links to Manchester Road / Wakefield Road via Egmont Street. Cheshire Street does not have any bus stops or cycling infrastructure.

4.2.12 Egmont Street is a residential street, with a 30 mph speed limit. The street is approximately 9 metres wide however, there is on-street car parking on both sides of the road which narrows the road. There are footways on both sides of the road and 3 bus stops. The bus stops provide services 350, S350B, 820 and 870 with a frequency of approximately every 30 minutes. Egmont Street provides connections to A635 Manchester Road which is the main route through the town centre and connects Mossley to Stalybridge and the M60 to the south-west, and Greenfield to the north-east. Egmont Street provides connections to a traffic free cycle route located to the east of the river Tame.

Mossley Station Area

4.2.13 To facilitate the works in this area, the key routes are likely to be Manchester Road and Stamford Road.

4.2.14 The station is located in Mossley town centre which is situated approximately 15k m east of Manchester and 5 km south-east of Oldham.

Given that the station is within the town centre, it is close to local shops and Mossley Park. The A635 is the main route through the town centre and connects Mossley to Stalybridge and the M60 to the south-west, and Greenfield to the north-east. The B6177 connects Mossley to the A670, which provides onward connection to Ashton-under-Lyne and the M60 to the south-west, and Uppermill and the A62 towards Huddersfield to the north-east. Both the A635 and B6177 are subject to a 30 mph speed limit with parking restrictions (double yellow) in the vicinity of the station.

Stockport Road Level Crossing to Oaklands Road Compound Area.

4.2.15 To facilitate the works in this area, the key routes to be utilised are likely to be Mossley Road, Manchester Road, Shaw Hall Bank Road. Wright Mill overbridge carries a bridleway which connects Heron Lane, Mossley Road and Midge Hill Farm on the west, with Calf Lane on the east. Heron Lane is a single track laneway with no footpaths provided. It provides a link from Manchester Road to Mossley Road via an underbridge.

4.2.16 The Wrigth Mill overbridge and Heron Lane underbridge are accessed from footpaths across open fields and single track paths to connect into Manchester Road via Cait Lane from Mossley Road.

4.2.17 High Grove Lane is a residential area which consists of two-way traffic with footpaths on both sides of the road. At the underbridge the road narrows to single carriageway with no footway provision and a maximum height of 10feet, 6inches. High Grove Lane connects Mossley Road to the Manchester Road.

4.2.18 Oaklands Road passes underneath the railway line at the Royal George Underbridge. Friezland Church Hall is south-east of the bridge, whilst a cemetery is on the south-west. On the north side of the bridge Oaklands Road continues up the slope of the hillside.

4.2.19 Along the top of the cliff face runs the A670 Oldham Road, which then crosses over the railway line at the north eastern end of the station. The station bridge which is to be demolished and replaced is situated at the northern end of the station, just south of the Oldham Road Overbridge.

4.2.20 The Oldham Road Overbridge which passes over the railway is currently relatively narrow with inadequate footpaths on either side for pedestrians. The bridge also sits on a turn in the road, with poor highway sight lines across the bridge. Shaw Hall Bank Road joins with Oldham Road Overbridge on the south eastern side, at a tight junction with poor sight lines.

4.2.21 Wickens Underbridge carries a PRoW between Oldham Road on the east and Ladcastle Road on the west underneath the railway and is largely covered on both sides by tree cover. On the west of the bridge, the PRoW continues through a field, whilst on the east of the bridge access comes through from between several properties. The Shaw Hall Bank Road is a

30 mph road with footway provided on both sides of the carriageway providing connection to the Greenfield railway station.

4.2.22 A site compound is required at Oaklands Road to the north of the George Street Underbridge Works. The Compound will be accessed via an existing access on Oaklands Road at its junction with Oaklands Park.

4.2.23 There are of bus stops located along Manchester Road and Mossley Road, which are served by hourly services 343, 356, 357 and 828. On Shaw Hall Bank Road, there are a number of bus stops also, and these are served by Service 385 which has an hourly frequency between Ashton and Mossley

4.2.24 Although there are no cycle routes in this area, there is a traffic free cycle route located to the east of the river Tame.

Greenfield Station Area.

4.2.25 To facilitate works, compounds and diversionary routes in this area, it is likely the that key routes to be utilised will be A670, Shaw Hall Bank Road, Chew Valley Road and Chapel Road.

4.2.26 Greenfield Station is approximately 6.9 kilometres north of Stalybridge Station, and approximately 3.75 kilometres south of Standedge Tunnel Western Portal. The Shaw Hall Bank Road forms a priority junction with the A670. The A670 is a 40 mph Road with footway provision on both sides of the carriageway. Directly south of the station at the hairpin bend, Shaw Hall Bank Road forms a priority junction with Cherry Valley Road. Directly to the east, Cherry Valley Road forms a priority junction with Chapel Road that runs north/ south, parrel with the A670 for c500m before Chapel Road merges with the A670 via a priority junction. On-street car parking occurs on the eastern side of Shaw Hall Bank Road on approach to its junction with Chew Valley Road. Existing commuters using the Greenfield Station are known to park here and in the nearby surrounding area.

4.2.27 There is no dedicated cycle provision along A670 or Shaw Bank Road.

Diggle Area

4.2.28 Ravenstone Drive Footbridge is an overbridge which connects Ravenstone Drive on the east of the railway with the canal footpath on the west of the railway. It is accessed via stairs on both sides of the railway, and the west side of footpath is covered by trees and woodland. Access to the eastern side comes from between two residential properties, with the closest property approximately 30 metres from the bridge. The footbridge is approximately 900 metres south of the Standedge Tunnel western portal.

4.2.29 The Ward Lane Overbridge is located approximately 125 metres north of Ravenstone Drive Footbridge. It carries Ward Lane over the railway, and

on the west continues over the Huddersfield Narrow Canal. The bridge is approximately 20 metres from the nearest property on its south-east corner, whilst a car park forms a junction with Ward Lane adjacent to the north-west corner of the bridge and runs along the west of the railway line. Ward Lane is a narrow single lane carriageway with a speed limit of 30 mph road and no footway provide on either side of the bridge. The bridge is signed as a 'Weak Bridge' with a maximum wait of 17 Tonnes allowed.

4.2.30 Ravenstone Drive Footbridge (MVL3/35) spans over the railway and is owned and maintained by Network Rail, providing pedestrian access.

4.2.31 Station Road overbridge is a 30 mph road with footway provide on the south sides of the carriageway. The bridge is signed as a 'Weak Bridge' with a maximum wait of 17 Tonnes allowed. The West side Station Road links into Sams Road and provides linkages to the Huddersfield Road. There is a local car park which provides access to a footpath which runs adjacent to the tracks.

4.2.32 On the east side of the bridge Lee Side links to Ward Lane which provides an alternative crossing location. To the north, Harrop Ct Road and Boat Lane provides mainly local access to residential properties.

4.2.33 There are limited public transport and dedicated cycling provision in this area, although there is a traffic free cycle route located to the south of the River Tame.

Potential Diversionary Route Areas

4.2.34 During the construction works, there are number of routes that could be utilised as diversionary routes during road closures:

Mossley Road Area:

4.2.35 The Mossley Road runs adjacent to the Manchester Road to the west. Mossley Road provides direct connection between Ashton under Lyme and Oldham Road close to Greenfield Station. Mossley Road provides direct access to a variety of residential and commercial properties. In some specific urban areas there is on-street parking for the residential properties.

4.2.36 There are bus services (350, 357, 820, 870) that run along Mossley Road providing connections between Oldham and Micklehurst. Mossley Road changes from urban areas to rural areas along its length with pedestrian footways and crossing points provided on both sides of the carriageway in urban areas and reducing to one side of the carriageway in some of the rural areas.

4.2.37 Mossley Road is mainly a 40 mph road with some urban sections with a restricted speed limit of 30 mph.

B6175 Area:

4.2.38 The B6175 runs adjacent to Manchester Road to the east. The B6175 connects Stamford Street in the south to A670 in the north. The B6175 runs through a number of towns including, Micklehurst, Bukton Vale, Copley. The B6175 provides direct access to a variety of residential and commercial properties as well as Mossley Hollins High School, Millbrook Primary & Nursery School, St Rapheal's Catholic Primary School and Lockside Medical centre. In some specific urban areas there is on-street parking for residential properties which reduces the width of the road.

4.2.39 There are bus services (343, 348 and 870) that run along the B6175 providing connections along the route. The B6175 Road generally runs through urban areas with pedestrian footways and signalised crossing points provided on both sides of the carriageway. Towards the north of the road the areas become more rural with the footways reducing to one side of the carriageway in urban areas and reducing to one side of the carriageway in some of the rural areas.

4.2.40 B6175 Road is mainly a 40 mph road with some urban sections with a restricted speed limit of 30 mph.

Dobcross New Road Area:

4.2.41 To the north of Greenfield Station and Uppermill, the A670 forms a mini roundabout junction with High Street / Dobcross New Road. It is likely that Dobcross New Road will facilitate diverted traffic during the construction phase of the works. In proximity to Dobcross New Road, The A670 is a 30 mph road, with footpaths on both sides of the carriageway. Approximately 3.2km to the north of Dobcross Road, the A670 connects to Huddersfield Road. To the west, Dobcross New Road provides a link to Oldham Road via Delph New Road and Wall Hill Road.

4.2.42 In proximity to the Dobcross New Road mini-roundabout, there are several flag pole bus stops. The bus stops located on Dobcross New Road are served by buses 350, 825 and 826 (350 Ashton-under-lyne service is the most frequent and operates every c30min). The bus stops located on A670 close to its junction with Dobcross New Road are served by buses 184, 356, 784, 822, 828, S84 and S350) (184 Oldham service is the most frequent with 2 services per hour).

Chew Valley Road:

4.2.43 Chew Valley Road connects the A635 Manchester Road to the B6175 Well-I-hole Road. The Manchester Road / Chew Valley Road junction takes the form of a mini roundabout, while the B6175 / Chew Valley Road is a priority junction. Chew Valley Road provides access to residential and commercial properties as well as St Marys Primary School. The Chew Valley Road contains a number of crossing types including zebra crossing and refuge islands, with footways provided on both sides of the

carriageway. The road also contains speed humps for reducing car speeds.

4.2.44 There is on-street car parking outside residential properties along the length of the route reducing road space. There are bus stops located on both sides of the road which are serviced by 180, 350, 352, 357, 828 with a frequency of approximately every 30 minutes.

4.2.45 Chew Valley Road is a 20 mph road.

Potential Existing Car Parking Areas Effected by Order Scheme

4.2.46 During the construction works, existing car parking at various locations could be temporarily removed/ suspended; these locations are indicatively shown in Figure 4-1 and described in the following section.

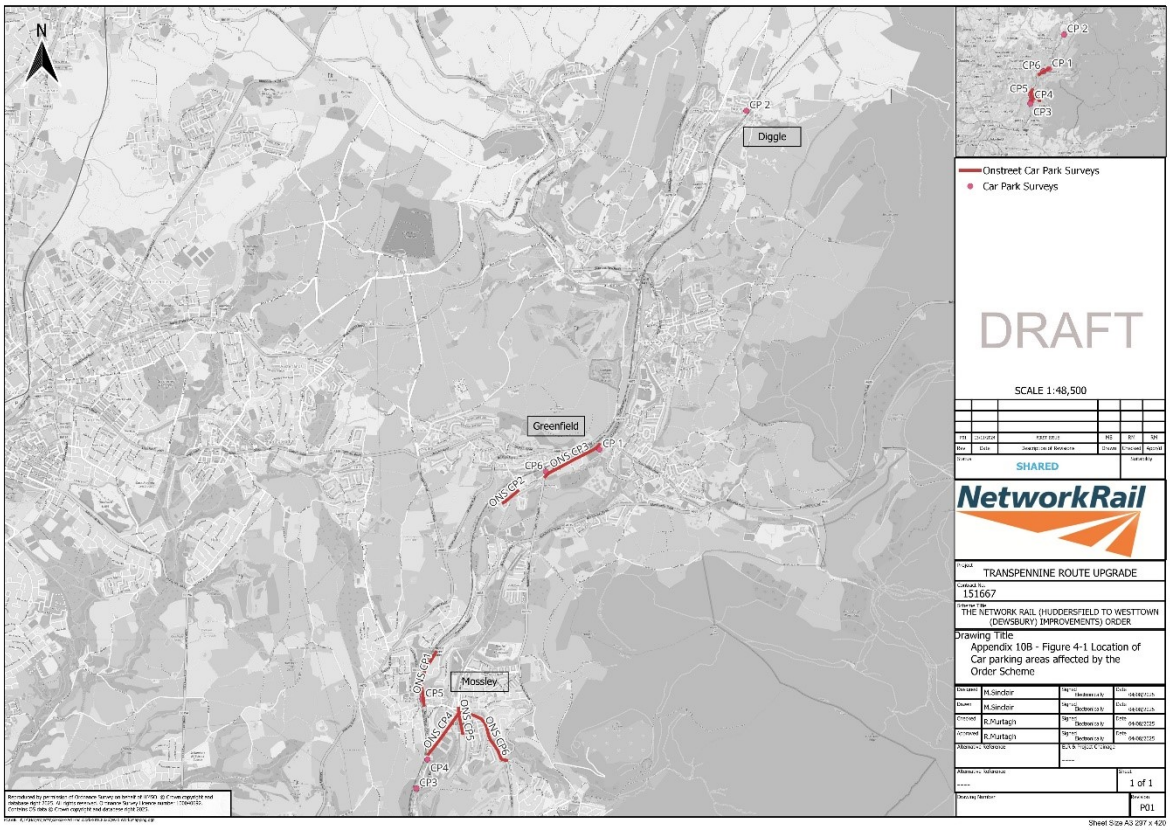


Figure 4-1 - Location of Car parking areas affected by the Order Scheme.

Off-street car parks:

4.2.47 Detailed TRO drawings showing existing car parks potentially impacted are included at Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**]:

- CP 1 - Saddleworth Rangers Car Park: This car park is located off Shall Hall Bank Road close to it junction with Chew Valley Road. It facilitates in the region of 91 informal car parking spaces.

- CP 2 - Sam Road Car Park: This car park is located off Sam Road, close to its junction with Harrop Green Lane/ Station Road. It is also close to the railway line and Standedge Tunnel Diggle Portal. It is a public car park with approximately 27 informal spaces.
- CP 3 – New Scout Mill Parking Area: This car park is located along Manchester Road approximately 50 0m south of the Manchester Road / Egmont Street junction. It is a private car park facilitating a number of business/ commercial properties. These businesses/ commercial properties also utilise the car parking area for servicing/ deliveries. The parking is informal and can accommodate approximately 30 vehicles.
- CP 4– Manchester Road (private car park): This car park is located along the Manchester Road approximately 20 m south of the Manchester Road / Egmont Street junction. The car park is located opposite Mitre House and the signage states that this is a private car park for residents of Mitre House only. The parking is informal and can accommodate approximately 29 vehicles.
- CP 5– Mossley Station Car Park: This car park is located at the existing Mossley Road station. The car park provides car parking for the passengers using the station and can accommodate 56 car parking spaces including 2 disabled bays. Car parking at this location is free. Access to the car park is via signals at the Manchester Road junction.
- CP 6 – Friezland Church Hall Car Park: This car park is located at Friezland Church Hall approximately 50 metres from the B6175 / Oaklands Road junction. The car park provides car parking for those attending the Church Hall. The car parking is informal and can accommodate 30 car parking spaces. Access to the car park is via a priority junction with the Oaklands Road.

On-street parking areas:

4.2.48 To facilitate the construction phase, there is a requirement to temporarily suspend on-street parking in a phased approach. The suspension of on-street car parking will be delivered through TROs. Exact details on where, when and duration of the parking suspensions with be agreed as part of the CTMP and as part of the TRO process. The location of potential on-street parking to be suspended is set out within Deposited Plans and Sections, Traffic Regulation Plans and Open Space Plans [**NR9**]:

- ONS CP 1 A635 Manchester Road – This on-street parking is located from the Manchester Road / Stamford Road junction opposite Mossley station to 50 metres south from the A635 Manchester Road / Mill Lane signalised junction. The on-street parking provides access to the residential properties fronting on to the A635 Manchester Road. The on-street parking covers an area

of approximately 550 metres and can accommodate 131 number of spaces.

- ONS CP 2 Armit Road – This on-street parking at the Armit Road / Church Road / High Grove Lane junction. The parking area extends for approximately 250 metres to the southwest to the end of Armit Road. The on-street parking provides access to the residential properties fronting on to Armit Road. The on-street car parking covers an area of approximately 250 metres and can accommodate 24 number of spaces.
- ONS CP 3 B6175 – This on-street parking is located at the Shaw Hall Bank Road / Chew Valley Road junction to the B6175 / Oaklands Road junction. The parking area extends for approximately 600 metres and provides on-street parking access for the residential properties fronting on to Shaw Hall Bank Road. The on-street parking can accommodate 148 number of spaces.
- ONS CP 4 Egmont Street - can accommodate approximately 155 car parking spaces. Cheshire Street has on-street parking on both sides of the road and this runs for the entire length of the street (approx. 200 metres). The on-street parking provides access to residential properties fronting onto Cheshire Street and can accommodate approximately 67 car parking spaces.
- ONS CP 5 Cheshire Street - This parking area located on Egmont Street runs from the Egmont St / Staley Road junction to the A635 Manchester Road for approximately 500 metres and provides residential parking for residents on the north and south side of the Egmont Street whilst providing access to businesses and the football pitches in the middle of the street.
- ONS CP 6 Staley Road – This on-street parking is located on Staley Road, Cheshire Street and Egmont Street. On Staley Road the parking is located from the Staley Road / Egmont St junction to the Staley Road / B6175 junction. This parking area extends approximately 750 metres and provides on-street parking provides access to the residential properties fronting on to Staley Road and can accommodate approximately 224 car parking spaces.

4.3 Local Transport Network

Mossley Station

4.3.1 Mossley Station is located at the junction of A635 Manchester Road and the B6177 Stamford Road. The station accommodates 108,000 passengers per annum (Office of Rail and Road (ORR) entries and exits, April 2022 to March 2023). The station is served by Northern Trains on the Huddersfield Line, connecting Greater Manchester with West Yorkshire. The typical services are:

- Westbound (towards Manchester Piccadilly) – Frequent services throughout the day, typically every hour.
- Eastbound (towards Huddersfield and Leeds) – Trains run approximately hourly.

4.3.2 A summary of the facilities provided at Mossley Station are set out in Table 4-1.

Table 4-1 Mossley Station Facilities Overview

Facilities	Present at Station
Opening Times	Mon-Fri 06:45 to 14:20 Sat 07:45 to 15:00
Ticket Office	Ticket office with ticket machines with smartcard issuing and top up
Car Parking	56 including 2 accessible bay
Waiting Area	Outdoor Sheltered Waiting area
Toilets	Not Available
Refreshments	Not Available
Telecommunications and Wi-Fi	Not Available
Bicycle Parking	18 sheltered spaces located on Platform 2
Accessibility	Level access from car park and ramp for train access

4.3.3 Vehicular access to the station and car park is from the junction of A635 Manchester Road and B6177 Stamford Road. The only pedestrian access to the station is provided via the station entrance located at the junction of A635 Manchester Road and B6177 Stamford Road. A footbridge with stepped access connects the Huddersfield-bound platform to the station entrance. A ramp connects the station car park to the Manchester-bound platform, but the Huddersfield-bound platform is not accessible except for stepped access from the footbridge.

4.3.4 Footways in and around Mossley Station are of a very high quality, with dropped kerbs, tactile paving and signalised pedestrian crossings available within the immediate vicinity of the station along A635 Manchester Road.

4.3.5 The existing Mossley Station has circa 56 free car parking spaces (1 accessible space) which are accessed via a two-way link via the signalised Stamford Road/ Manchester Road junction. Sheltered cycle parking is available, with 18 spaces located by platform 2. The station also has a taxi rank.

4.3.6 Access to the relocated Mossley station will be via Mill Lane and to the wider highway network via Mill Lane / A635 Manchester Road signalised junction. To/ from the relocated station via this route is through the underbridge which has a maximum height restriction of 6 feet, 6 inches. Manchester Road is a single lane carriageway and has a footpath on the northside of the road.

4.3.7 These areas benefit from excellent connectivity to the local bus network, with multiple bus stops within a short distance along both Manchester Road and Stamford Road serving a variety of local bus services including 343 (Hyde to Oldham), 350 (Oldham to Ashton) and 356 (Ashton to Oldham) which have frequency of approximately 60-75 minutes.

Greenfield Station

4.3.8 Greenfield Station is located at the junction of A670 Oldham Road and the Shaw Hall Bank Road. The station accommodates 145,000 passengers per annum (Office of Rail and Road (ORR) entries and exits, April 2022 to March 2023). The station is served by Northern Trains on the Huddersfield Line, connecting Greater Manchester with West Yorkshire. The typical services are:

- Westbound (towards Manchester Piccadilly):
    - Frequent services throughout the day, typically every 30minutes.
- Eastbound (towards Huddersfield and Leeds):
    - Trains run approximately hourly.

4.3.9 A summary of the facilities provided at Greenfield Station are set out in Table 4-2.

Table 4-2 Greenfield Station Facilities Overview

Facilities	Present at Station
Opening Times	Mon-Fri 06:50 to 14:25 Sat 07:45 to 15:20
Ticket Office	Ticket office with ticket machines with smartcard issuing and top up

Facilities	Present at Station
Car Parking	12 including 1 accessible bay
Waiting Area	Waiting room open when station is staffed. Outdoor seating provided
Toilets	Available
Refreshments	Not Available
Telecommunications and Wifi	Telephones only
Bicycle Parking	8 spaces located on Platform 1
Accessibility	Ramp access to station. Ramp for train access

4.3.10 Vehicular access to the station is via Shaw Hall Bank Road on the south eastern side.

4.3.11 Pedestrian access is via Shaw Hall Bank Road, with a footbridge over the railway track to reach Platform 2.

4.3.12 There are a number of bus stops located in this area, including close to Shaw Bank Road / A670 Road junction. The bus stops have full bus shelter. There is also a bus stop located on the Shaw Bank Road adjacent to Greenfield Station. These bus stops are served by the following buses; 84 – Uppermill – Every 30 minutes, 350 /356 – Oldham - Every 30 minutes, 184 – Huddersfield Town Centre – Hourly, 356 – Ashton-under-Lyne – Hourly, 828 – Diggle – Once a day.

Public Rights of Way

Stockport Road Level Crossing

4.3.13 Stockport Road Level Crossing is located on a footway which provides a connection between Foxwood Drive and Heron Lane. This route is approximately 650 metres long and runs through a number of fields. The path is over grown and at the railway forms a level crossing at the railway line as shown in Figure 4-2.

Figure 4-2 Stockport Road Level Crossing

Wrights Mill Overbridge (MVL3/20)

4.3.14 Wrights Mill overbridge provides a connection between Mossley Road and Low Grove Lane. This route is approximately 150 metres long and runs along Midge Hill. The path is overgrown and forms a single path across the bridge as shown in Figure 4-3.

Figure 4-3 Wrights Mill Overbridge

Moorgate Halt Level Crossing

4.3.15 Moorgate Halt level crossing is located on a footway which provides a connection between Ladcastle Road and Moorgate Street – see Figures 4-4. This route is approximately 200 metres long and runs along a path. The path is overgrown and at the railway forms a level crossing at the railway line.

Figure 4-4 Moorgate Halt level crossing

Bridges

4.3.16 A summary of the existing conditions at each of the bridges is summarised in Table 4-3.

Table 4-3 Bridges existing conditions overview

Works Component Ref	Existing Condition	Existing Layout
Heyrod Hall (MVL3/7)	This over bridge provides a link between Wakefield Road and Heyrod Hall. The bridge currently does not have any footway provision and can allow one vehicle at a time to cross	
Springbank Lane Footbridge (MVL3/8)	It connects A635 Wakefield Road to Spring Bank Lane. It is 92 m from Spring Bank Lane overbridge (MVL3/9). There is stepped access on the East side, and therefore not considered accessible to cyclists.	
Springbank Lane Overbridge (MVL3/9)	The overbridge provides vehicular and pedestrian linkages from Springbank Lane to the Wakefield Road. There is a pedestrian footpath on the north side of the carriageway. .	
Manchester Road Footbridge (MVL3/10a)	Manchester Road Footbridge connects A635 (Manchester Road) to Lower Beestow (a private road up to several residential properties). It has stepped access on the East side down to Manchester Road, however, the footpath here ends and an OBB barrier restricts safe crossing of Manchester Road. On the west side, it levels off onto the ground at Lower Beestow. There are a number of residential properties located on side roads off Manchester Road	

Works Component Ref	Existing Condition	Existing Layout
	to the south east of the footbridge.	
Abney Footbridge (MVL3/12)	The footbridge provides a connection between Manchester Road and Andrew Street, providing access to a residential area. The bridge is accessed by the west and east approach via steps	
Mill Lane Underbridge (MVL3/15)	The underbridge provides a connection between Mill Lane and A635 Manchester Road. The underbridge provides vehicular and pedestrian access with a footway located on one side of the carriageway.	
New Earth Footbridge (MVL3/16)	The footbridge provides a connection for pedestrians between A635 Manchester Road and New Earth Street. Stepped access is on the South side of the footbridge.	
Roughtown Road Overbridge (MVL3/17)	The overbridge allow access to properties along Roughtown Road from Manchester Road. The bridge does not provide any pedestrian access.	

Works Component Ref	Existing Condition	Existing Layout
Wrights Overbridge (MVL3/20)	The overbridge provides only pedestrian access link over the railway between Mossley Road and Armit Road/ Church Road. The structure is in the southwest area of the ward Saddleworth South, Oldham.	
Charlotte Street Underbridge (MVL3/24)	The underbridge provides a link via High Grove Lane from Mossley Road to Church Road. The underbridge does not provide pedestrian footways.	
Footway Underbridge (MVL3/26)	Provides a pedestrian connection between Oaklands Road and Shaw Hall Bank Road. The footpath is accessed from the East and the West by steps.	
Oldham Road and Oldham Road Footbridge (MVL3/28/27b)	Provides a vehicular and pedestrian connection between Oaklands Road and Greenfield Station	
Wickers Underbridge (MVL3/29)	Provides a connection between Ladcastle Road and A670 at Uppermill.	

Works Component Ref	Existing Condition	Existing Layout
Butterhouse Lane Footbridge (MVL3/31A)	Butterhouse Lane Footbridge MVL3/31a provides a connection between Old Lane and Brownhill Lane (via further footpaths). The footbridge has stepped access on both sides, and therefore is not considered accessible to cyclists.	
Subway (MVL3/32)	The subway provides access from footpath along the river to Ward Lane. It is a grassy footpath.	
Ravenstone Drive Footbridge (MVL3/35)	The footbridge provides pedestrian access from Ravenstone Drive to the footpath along the river. The footbridge is accessed by steps on both sides.	
Ward Lane Overbridge (MVL3/36)	The vehicular bridge is located in the village of Diggle. The overbridge has a carriageway which accommodates 2 lanes of vehicular traffic, although there is no dividing line. There are no footpaths.	

Works Component Ref	Existing Condition	Existing Layout
Oldham Road Overbridge (MVL3/39)	The overbridge carries Station Road to Lee side in the village of Diggle. Station Road is an unclassified two-way single carriageway road with a pedestrian footpath to the south side, over the two track non-electrified railway.	

4.4 Wider Cycle Network

4.4.1 A review of the cycle network in the area shows that there is not a continuous cycle path located along or adjacent to the A635 or A670. There are a number of unpaved paths that are traffic free which run adjacent to the River Tame. These unpaved routes include small sections of cycle path which are:

- Stalybridge & Diggle Loop Line (Yellow Brick Road) which is approximately 1,400 metres in length.
- Saddleworth Linear which is approximately 1,770 metres in length.

4.4.2 A plan[13] showing full extent of cycle path is shown in Figure 4-5.

[13] Bike map | Cycle route planner | cycle.travel

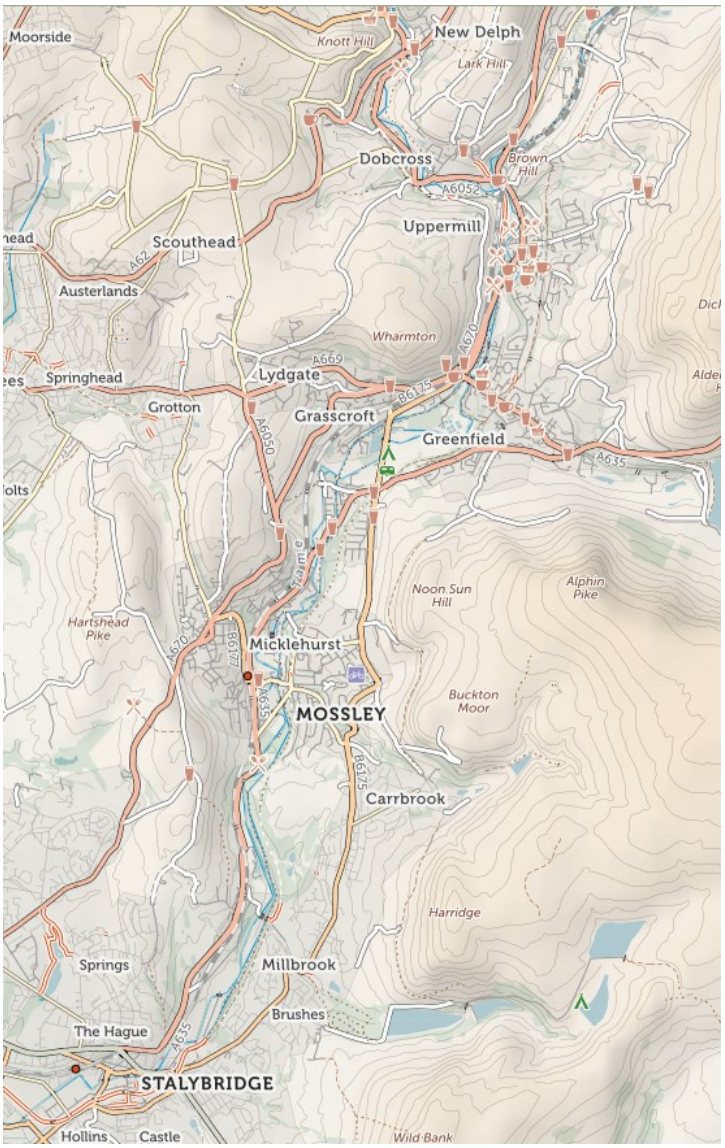


Figure 4-5 Overview of Cycle Infrastructure

4.5 Local Cycle Network

Mossley Station

4.5.1 There is a traffic free unpaved path (Saddleworth Linear) which connects to Mossley Station to the B6175 in the north. There is no direct cycle route provision to the south of the station. The station provides 18 sheltered cycle parking spaces.

Greenfield Station

4.5.2 There is no direct cycle route provision to the station however the station provides 8 non-sheltered cycle parking spaces.

4.6 Wider Public Transport

4.6.1 A review of the public transport provision identifies that there are a number of bus services that run the length of the route. There are a variety of bus stops provided from flagpole stops to bus stops with full bus shelters. Figure 4-6 shows the location of the bus stops as well as each service route.

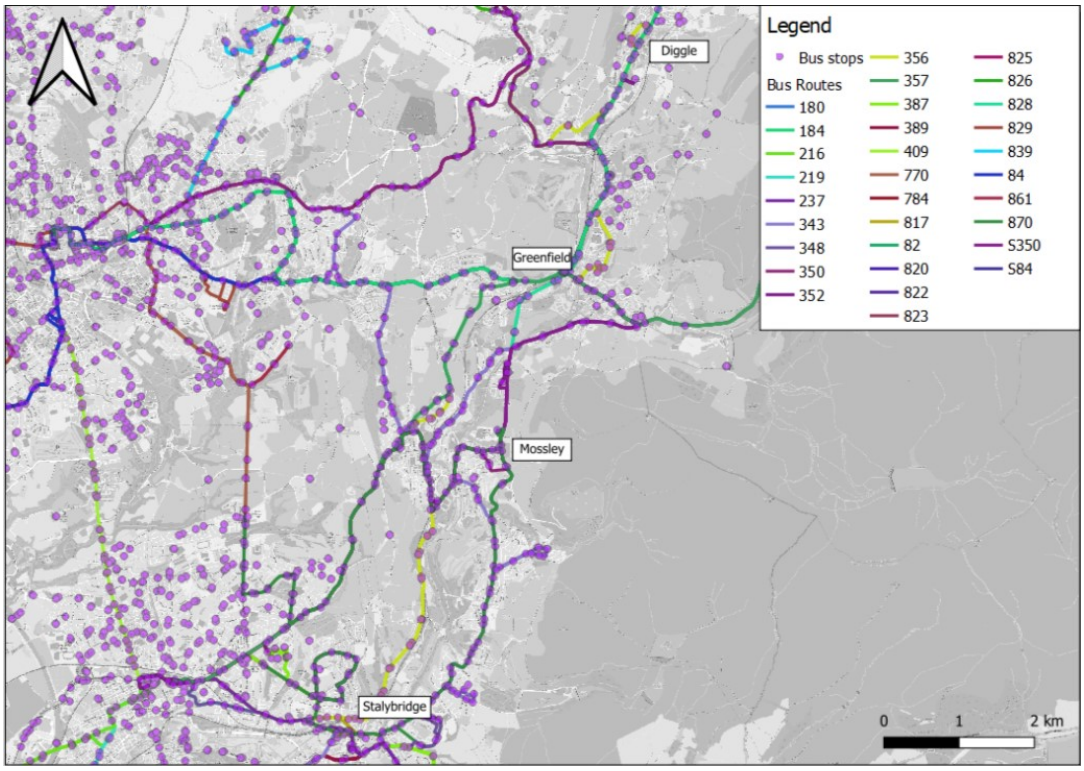


Figure 4-6 Wider Public Transport Review

4.7 Accessibility

Mossley Station

4.7.1 Figure 4-6 illustrates accessibility by active travel (walk/ cycle) and public transport within 400m, 800m, 1200m walking distance of the existing station.

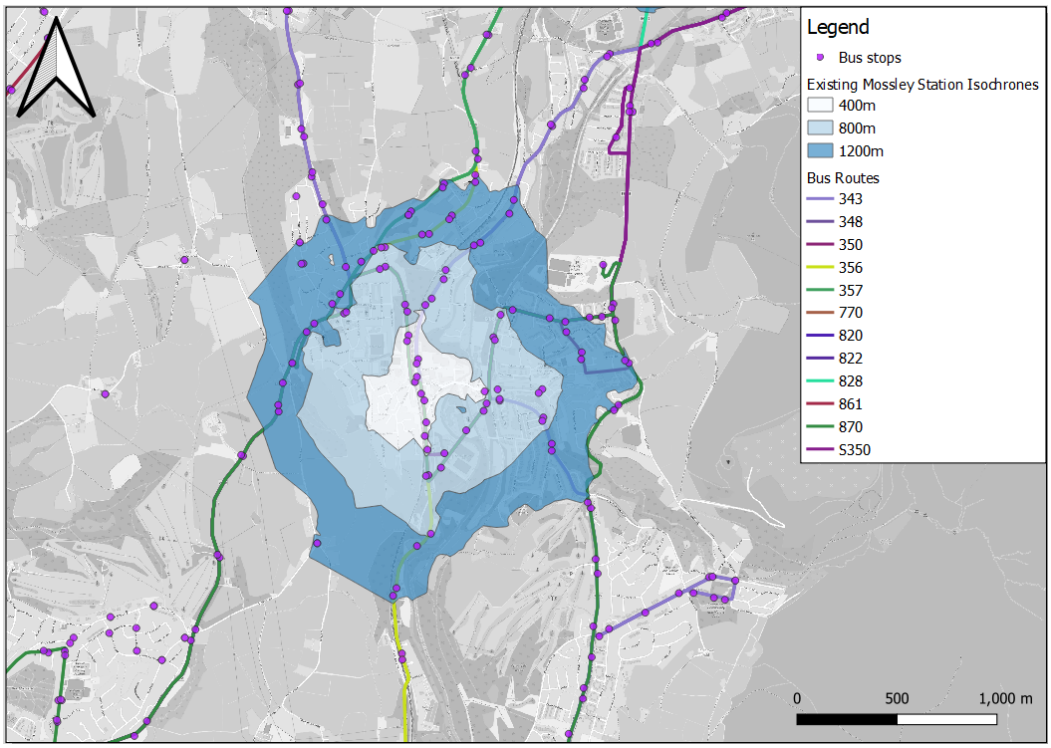


Figure 4-7 Mossley Station Accessibility

4.7.2 Figure 4-7 shows that:

- There are 11 bus stops within a 400 m walking distance of the station which provide access to 7 services, 350, 356, 820, 870, S350B, 343 and 822. These provide connections to local areas such as Greenfield, Oldham and Diggle..
- The majority of the Mossley is within 1200 m walking distance of the station

<u>Greenfield Station</u>

4.7.3 Figure 4-7 illustrates accessibility by active travel (walk/ cycle) and public transport within 400m, 800m, 1200m walking distance of Greenfield station.

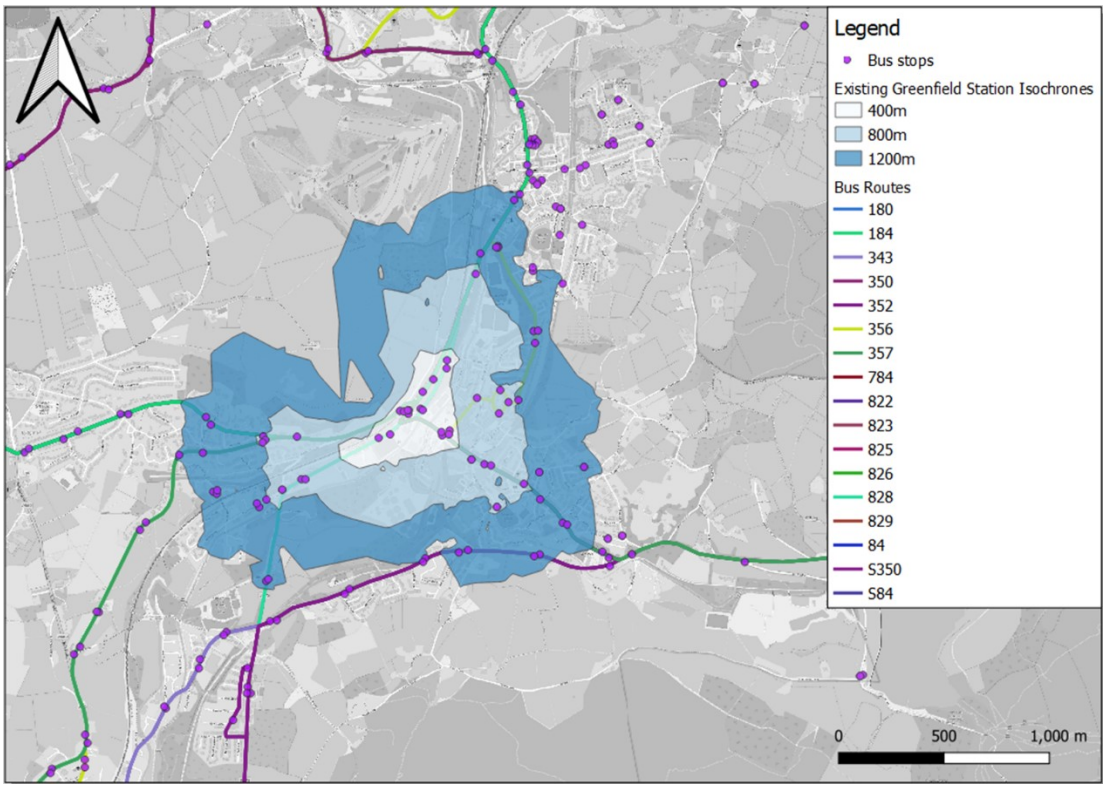


Figure 4-8 Greenfield Station accessibility

4.7.4 Figure 4-8 shows that:

- There are 16 bus stops within a 400 m walking distance of the station which provide access to 13 services, 828, 180, 350, 352, 356, 357, S350B, 822, 84, 184, 784, 829, S84. These provide connections to local areas such as Greenfield, Oldham and Diggle and the centre of Manchester.
- The majority of Greenfield and part of Uppermill are within 1200 m walking distance of the station

Key Compounds

4.7.5 The majority of the Order Scheme's compounds/ relevant works are located within or close to areas with an existing transport network/ infrastructure, including footways, street lighting and public transport.

4.7.6 Table 4-4 highlights the facilities (welfare, parking, minibus) proposed to be provided at the various compounds. Given that the majority of workers will be carrying Personal Protective Equipment (PPE) and work tools/ equipment, travel by car/ van is likely to be the preferred and most appropriate method of travel to compounds by construction workers. It is anticipated that travel to compounds by walk/ cycle will be limited, although travel to the key compounds (Whitelands Road, Wakefield Road, Plevins, Oaklands Road and Diggle Welfare & Office) by public transport may have some appeal to a small proportion of the workforce.

4.7.7 Figure 4-9 provides an overview of all bus stops in relation to compounds and those stops within a 400 m walking distance of key compounds (Wakefield Road, Plevins, Oaklands Road and Diggle Welfare & Office). There are no bus stops within 400 m of Whitelands Road site and therefore it is excluded from Figure 4-9.

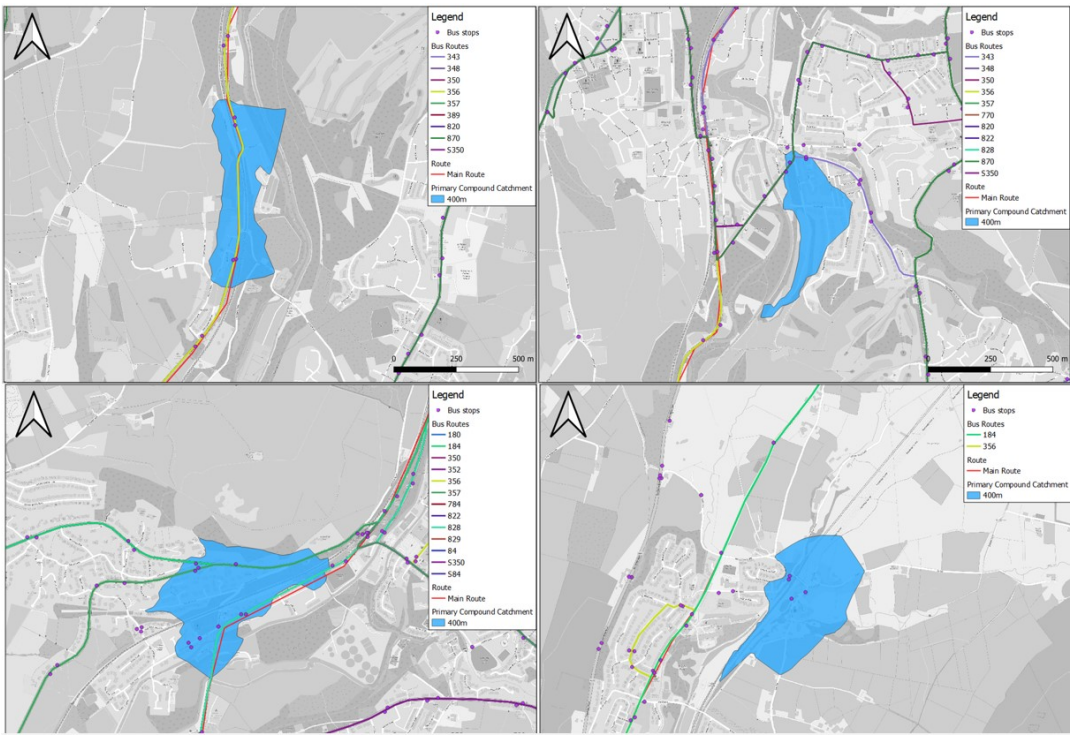


Figure 4-9 Key Compounds and Bus Stops within 400m Walking Distance

4.7.8 Table 4-3 provides an overview of the key compounds (Printworks Road, Wakefield Road, Plevins, Oaklands Road and Diggle Welfare & Office), the bus stops within a 400m walking distance and services operating from these stops which construction staff could utilise as part of their daily commute.

Table 4-4 Key Compounds - Public Bus Services

Compound	Bus Stop Reference	Bus Services	Bus Routes	Frequency
Whitelands	N/A	N/A	N/A	N/A
Wakefield Road	MANAWTDJ, MANAWTDG, MANAWTDA, MANAWTAW, MANAWTAT, MANAWTAP, MANAWTAM	356	Ashton-under-Lyne Interchange - Oldham Bus Station	hourly 07:00-20:00
Plevins	MANAWJWA, MANAWJWD,	343 822	Oldham - Lees - Mossley - Stalybridge - Dukinfield -	Hourly 06:00-

Compound	Bus Stop Reference	Bus Services	Bus Routes	Frequency
	MANAWJWG, MANAWJWM, MANAWJWP, MANAWJWT, MANTPGJW, MANAWMAG, MANAWMAD, MANAWMJA, MANAWJDA, MANAWMAJ, MANDGWJG, MANDGWJD, MANAWAGP MANAWPWG, MANAWPWD	350 356 820 870 S350B	Hyde Dobcross - Uppermill - Greenfield - Mossley - Oldham Mumps Oldham - Delph - Greenfield - Mossley - Ashton-under-Lyne Oldham - Diggle - Mossley - Stalybridge - Ashton-under-Lyne Oldham - Greenacres - Watersheddings - Moorside - Sholver Ashton Under Lyne - Stalybridge Dobcross - Oldham	17:00 N/A hourly hourly 07:00-20:00 N/A Every 2 hours 2 per day
Oaklands Road	MANAMWPM, Chew Valley Road (Stop C), Chew Valley Road, MANAMADJ, MANAMWPT, MANAMPGP, MANAPAWG, MANAPAWD, MANTPTWD, MANTPTWG	 828 180 350 352 356 357 S350B 822 84 184 784 829 s84	Rookbottom - Grasscroft - Greenfield - Uppermill - Diggle Greenfield - Grasscroft - Lees - Clarksfield - Oldham Oldham - Delph - Greenfield - Mossley - Ashton-under-Lyne Uppermill - Greenfield - Meltham - Upperthong - Holmfirth Ashton Under Lyne - Oldham olmfirth - Greenfield - Top Mossley - Ashton-under-Lyne Saddleworth School - Ashton-under-Lyne Interchange Dobcross - Uppermill - Greenfield - Mossley - Oldham Mumps Piccadilly Gardens - Hollinwood - Oldham - Lees - Uppermill Oldham - Greenacres - Diggle - Huddersfield Town Centre Diggle - Uppermill - Grasscroft - Clarksfield - Oldham	 N/A Every 20 mins Every 30 mins 3 per day Every hour 3 per day 2 per day N/A Every 20 mins Every 10 mins N/A 3 per day N/A

Compound	Bus Stop Reference	Bus Services	Bus Routes	Frequency
			Werneth - Chadderton - Clarksfield - Uppermill - Diggle Greenfield, Oldham Road / o/s Greenfield Station	
Diggle Welfare & Office	MANTJAPD MANAPAMG MANAPAMD	184 356	Oldham - Greenacres - Diggle - Huddersfield Town Centre Ashton Under Lyne - Oldham	Every 10 mins 1 per day

4.7.9 In addition to the public bus services, it is intended that each of these key compounds will operate a shuttle service to bus construction staff between compounds and relevant work locations.

4.8 Road Accident Data

4.8.1 To ensure there are no underlying highway safety issues in proximity to survey locations and key construction routes, STATS 19 personal injury collision (PIC) data from the past five years (2019-2023) has been analysed to identify whether there are any existing accident clusters within the Study Area.

4.8.2 A cluster is identified as more than 3 accidents occurring within a 30 m distance within the five year period. Figure 4-9 illustrates the accidents within the Study Area as well as the accident clusters of which there are 9.

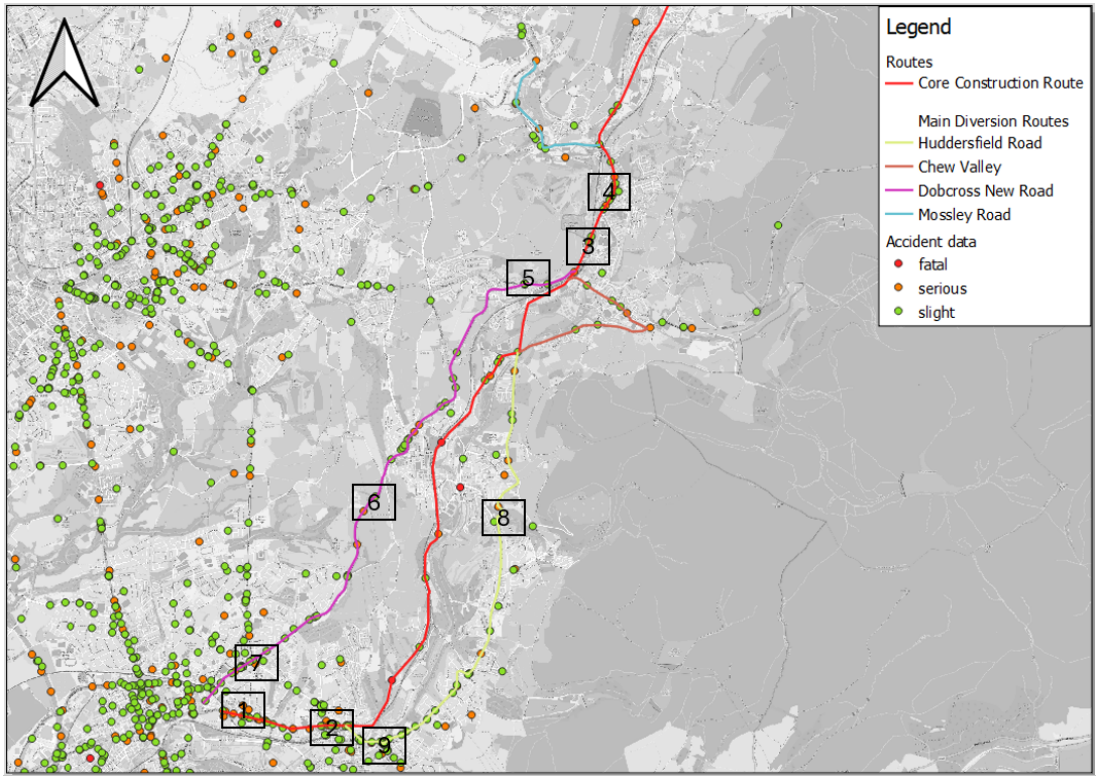


Figure 4-10 Accident Clusters within Study Area

4.8.3 A review of the accident data along the wider network is shown in Figure 4-10. The accident review included the core route along A635 and A670 as well as the potential diversion route on the Mossley Road and on the B6175.

4.8.4 A summary of these clusters based on STAT 19 data is provided within Table 4-5.

Table 4-5 Accident Data Summary

Ref	Location/ Road Name	Number of Accidents			
		Slight	Serious	Fatal	Total
1	Beaufort Road	1	1	1	3
2	Wakefield Road	2	1	0	3
3	Chapel Road/ Oldham Road	3	0	0	3
4	Tame Street/ High Street	1	2	0	3
5	Oldham Road/ Mossley Road	4	1	0	5
6	Mossley Road/ Gorsey Lane	2	1	0	3
7	Mottram Road/ Huddersfield Road	4	1	0	5
8	Grove Road/ Huddersfield Road	2	1	0	3

Ref	Location/ Road Name	Number of Accidents			
		Slight	Serious	Fatal	Total
9	Mossley Road / Curzon Road	6	0	0	6
Total		**25**	**8**	**1**	**34**

4.8.5 Table 4-5 highlights that across there 9 clusters:

- There was a total of 34 accidents:
  - 25 slight accidents.
  - 8 serious
  - 1 Fatal
- The number of accidents at any location ranged between 3 - 6.

4.8.6 The review of this accident data also showed that the 34 accidents resulted in a total of 51 injuries, of which 15 involved either pedestrians, cyclists or motorbikes.

4.8.7 In addition, the analysis also highlighted the majority of accidents were a result of driver error.

4.9 Surveys

4.9.1 To further understand baseline conditions within the Study Area, a number Traffic/ Transport surveys were undertaken by an independent third party survey company (Intelligent Data Count) during three rounds of surveys:

- Round 1: September 2024
- Round 2: November 2024
- Round 3: June 2025.

4.9.2 The surveys consisted of 5 types:

- Automated Traffic Counts (ATCs)
- Non-Motorised User Surveys (NMUs)
- Manual Classified Counts (MCCs)
- Off-Street car parking surveys (CP)
- On-Street car parking surveys (ONS CP)

4.9.3 Further details on the type of surveys, when surveys were conducted and the type of information collected is presented in Table 4-6.

Table 4-6 Survey Overview

Type of Survey	Date and Duration of Surveys	Type of information collected
ATC (Automatic Traffic Count)	ATC 1 to 9: 1 week duration between 00:00hrs on Tuesday 10th September to 23:59 on Monday 16th September 2024. ATC 10 & 11: 2 week duration between 00:00hrs on Tuesday 10th September to 23:59 on Tuesday 24th September 2024. ATC 12 to 14: 1 week duration between 00:00hrs on Thursday 14th November to 23:59 on Wednesday 20th November 2024. ATC 15 TO 23: minimum of 1 week duration between 00:00hrs on 26th May 2025 to 23:59 Sunday 15th June 2025.	Bi-directional Traffic Flow data, per hour, per day for survey duration. Vehicles categorised by class, eg. cars, light good vehicles, HGVs etc.
MCC (Manual Classified Turning Count)	MCC 1 to 5: from 07:00 to 10:00, 15:30 to 16:30 on Tuesday 10th September 2024, and from 10:00 to 16:00 on Saturday 14th September 2024. MCC 6: from 07:00 to 10:00, 15:30 to 16:30 on Thursday 14th November 2024. MCC 7 to 15: from 07:00 to 18:00 on Thursday 5th June 2025, and from 10:00 to 14:00 on Saturday 7th June 2025.	Vehicle movements at junction/ location for each 15-minute segment of survey period. Vehicles categorised by class e.g. cars, light good vehicles, HGVs etc.
NMU (Non-Motorised User)	NMU 1 to 5: 3 consecutive days, 12th to the 14th September 2024 between 07:00 and 19:00hrs each day. NMU 6: 3 consecutive days, 14th to the 16th November 2024 between 07:00 and 19:00hrs each day.	Pedestrian and cyclist movements for each 15-minute segment during survey period.
CP (off-street Car Parking Survey)	CP 1 to 4: from 06:00 to 20:00 on Thursday 5th June 2025, and from 06:00 to 20:00 on Saturday 7th June 2025	Vehicle arrivals departures every 15 mins to derive parking accumulation against on-site provision.
ONS CP (On-Street Car	ONS CP 1 to 5: from 06:00 to 21:00 on Thursday 5th June 2025, and from 06:00 to 21:00 on Saturday 7th June 2025	Hourly car parking beat surveys to capture number of

Type of Survey	Date and Duration of Surveys	Type of information collected
Parking Survey)		parked cars vs available spaces.

4.9.4 It should be noted that surveys were collected in accordance with Design Manual for Roads and Bridges (DMRB), Transport Analysis Group (TAG) Unit M1.2 (Department for Transport (DfT), 2020. Neutral periods are defined as Monday to Thursday from March through to and including November (excluding August) and avoiding bank holidays. For the non-motorised user surveys, consideration was taken of weather conditions with data collected on a number of days and representative values taken from those days with better weather conditions. The location and type of surveys were shared and agreed with OMBC and TMBC before the surveys were undertaken.

4.9.5 The surveys were also supplemented by DfT traffic data and Network Rail Level Crossing Data.

ATC Surveys

4.9.6 Figure 4-11 illustrates the locations of the ATC surveys that were conducted.

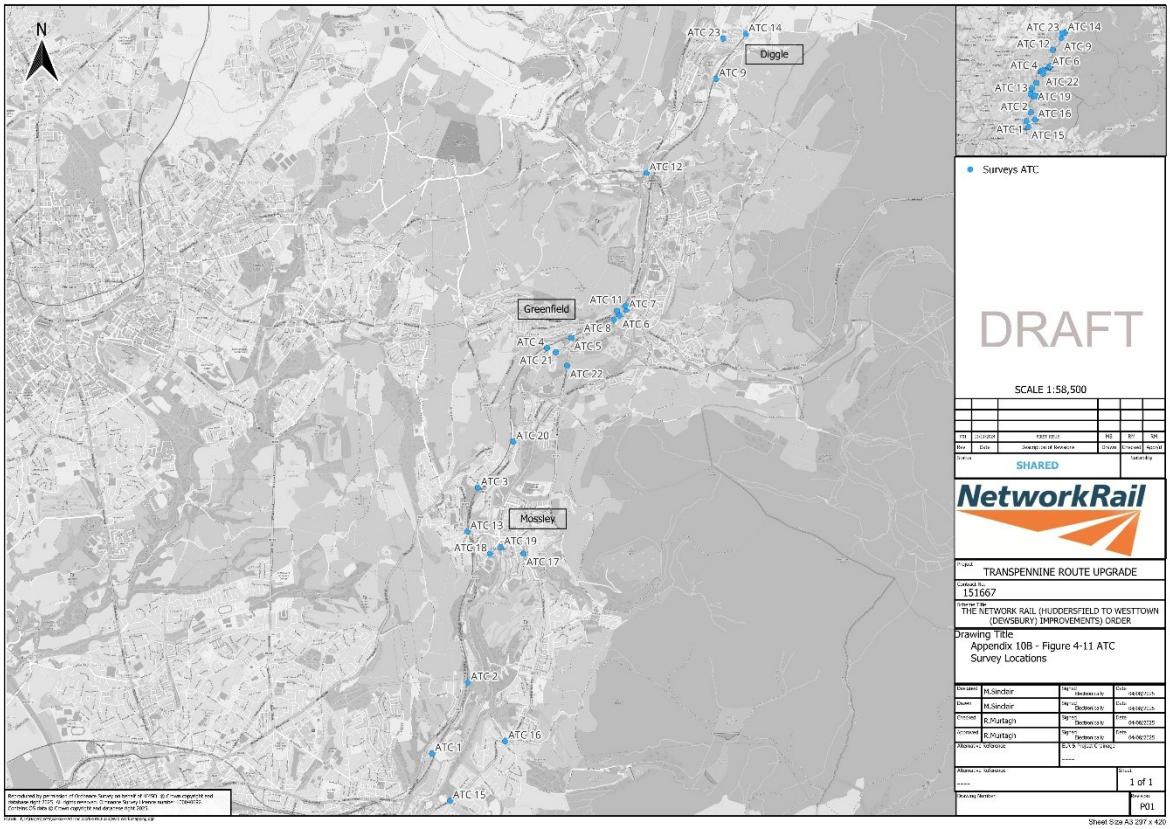


Figure 4-11 ATC Survey Locations

4.9.7 Table 4-7 provides a summary of the ATC survey results at each of these locations.

Table 4-7 ATC Survey Results

ATC Ref	Survey Period	Description	Surveyed (2024/2025)			
			Lights	Heavies	Total	Heavies %
CP991011	DfT 2024	Wakefield Road	8797	279	9076	3%
1	Sep 2024	Printworks Road	239	16	255	6%
CP991011	DfT 2024	Wakefield Road	8797	279	9076	3%
2	Sep 2024	Spring Bank Lane	1059	16	1075	2%
CP991011	DfT 2024	A65	8797	279	9076	3%
x	May/June 2025	Egmont St	2985	216	3202	7%
19	May/June 2025	Cheshire St	739	29	767	4%
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%
13	Nov 2024	Stamford Road	8718	352	9071	4%
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%

ATC Ref	Survey Period	Description	Surveyed (2024/2025)			
			Lights	Heavies	Total	Heavies %
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%
3	Sep 2024	Mill Lane	1736	15	1750	1%
CP991011	DfT 2024	Manchester Road	8797	279	9076	3%
22	May/June 2025	Well Hole Road	5573	221	5794	4%
21	May/June 2025	Church Road/ Armit Road	914	26	940	3%
4	Sep 2024	High Grove Lane	906	31	937	3%
5	Sep 2024	Oaklands Road	4408	133	4542	3%
8	Sep 2024	Shaw Hall Bank Road	3436	104	3540	3%
10	Sep 2024	Oldham Road	15989	537	16526	3%
11	Sep 2024	A670 (Between Greenfield and Uppermill)	10596	327	10924	3%
12	Sep 2024	Dobcross New Road	6830	240	7070	3%
9	Sep 2024	Ward Lane	402	11	413	3%
23	May/June 2025	Sam Road	1284	39	1323	3%
14	Nov 2024	Station Road	646	32	678	5%

Manual Classified Counts (MCC) Surveys

4.9.8 Figure 4-12 illustrates the locations of the MCC surveys that were conducted.

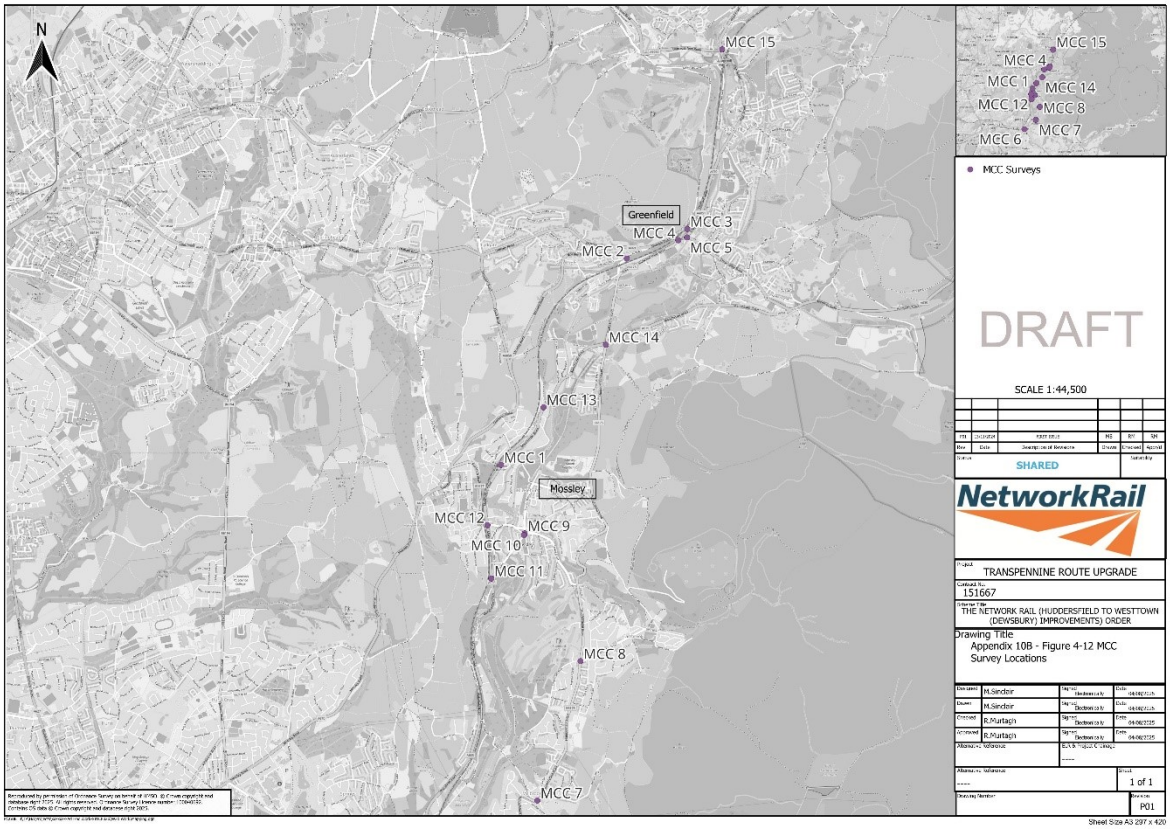


Figure 4-12 MCC survey locations

4.9.9 Table 4-8 provides a summary of the MCC survey results at each of these locations.

Table 4-8 MCC Survey Results

MCC No.	Location Ref	Total Two-way Flow through Junction		
		Weekday AM Peak (08:00-09:00)	Weekday PM Peak (16:30-17:30)	Saturday (11:30-12:30)
MCC 1	A635 Manchester Road / Three Counties Road / Mill Lane	689	691	617
MCC 2	Oaklands Road / Oaklands Park	493	527	404
MCC 3	A670 Oldham Road / A669 Shaw Hall Bank Road	1422	1459	1547
MCC 4	A669 Chew Valley Road / B6175 Shaw Hall Bank Road / A669 Shaw Hall Bank Road	911	995	948
MCC 5	A6051 Chapel Road / A669 Chew Valley Road	1059	1103	1153

MCC No.	Location Ref	Total Two-way Flow through Junction		
		Weekday AM Peak (08:00-09:00)	Weekday PM Peak (16:30-17:30)	Saturday (11:30-12:30)
MCC 6	B6175 Huddersfield Road / A6018 Mottram Road	1959	2198	2113
MCC 7	B6175 Huddersfield Road / Hartley Street / Grove Road	894	1170	1077
MCC 8	B6175 Huddersfield Road / Buckton Vale Road / Crowswood Drive	865	1068	955
MCC 9	Station Road / Staley Road / Egmont Street	495	573	493
MCC 10	Egmont Street / Cheshire Street	355	363	309
MCC 11	A635 Manchester Road / Egmont Street	768	819	748
MCC 12	A635 Manchester Road / Mill Street / B6177 / Mossley Station	1040	1137	1098
MCC 13	A635 Manchester Road / Tam Bank Close / Heron Lane	520	561	484
MCC 14	B6175 Well-I-Hole Road / A635 Manchester Road	1040	1149	933
MCC 15	A670 Wool Road / A670 High Street / A6052 Dobcross New Road	1215	1045	859

Non Motorised Users (NMU)

4.9.10 Figure 4-13 illustrates the locations of the NMU surveys that were conducted.

Figure 4-13 NMU survey locations

Springbank Lane Footbridge (MVL3/8) (NMU 1)

4.9.11 Figure 4-14 illustrates the movements recorded at as part of the NMU Survey.

Figure 4-14 NMU1 Survey Movements at Springbank Lane Footbridge (MVL3/8)

4.9.12 Table 4-9 provides a summary of the NMU survey results at MVL3/8 Footbridge and along Wakefield Road at this location.

Table 4-9 NMU 1 Survey Results

Period	Day	Pedestrians	Cyclists	Total										
		1	2	3	4	5	6	1	2	3	4	5	6	
AM Peak	**Day 1**	**3**	**4**	**3**	**1**	**6**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**21**
	Day 2	4	2	3	2	7	4	0	0	0	0	0	0	22
	Day 3	9	8	2	1	11	10	0	0	0	0	0	0	41
	Average	**5**	**5**	**3**	**1**	**8**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**28**
PM Peak	Day 1	13	9	3	1	16	9	2	1	0	0	2	1	57
	Day 2	6	7	0	3	4	8	1	0	0	0	1	0	30
	Day 3	4	6	9	4	11	10	1	0	1	0	1	0	47
	Average	**8**	**7**	**4**	**3**	**10**	**9**	**1**	**0**	**0**	**0**	**1**	**0**	**45**
Total	Day 1	27	19	14	10	33	20	2	1	0	0	2	1	129
	Day 2	21	19	16	15	26	22	1	0	0	0	1	0	121
	Day 3	38	30	33	19	53	39	1	1	1	0	1	1	217
	Average	**29**	**23**	**21**	**15**	**37**	**27**	**1**	**1**	**0**	**0**	**1**	**1**	**156**

4.9.13 Of the movements recorded at this location, only movements 3 and 4 cross the Footbridge. Table 4-10 therefore illustrates those movements which cross the bridge.

Table 4-10 NMU 1 Survey Results - Springbank Lane Footbridge (MVL3/8)

Period	Day	Movement: Pedestrians		Movement: Cyclists		Total
		3	4	3	4	
AM Peak	Day 1	3	1	0	0	4
	Day 2	3	2	0	0	5
	Day 3	2	1	0	0	3
	Average	**3**	**1**	**0**	**0**	**4**
PM Peak	Day 1	3	1	0	0	4
	Day 2	0	3	0	0	3
	Day 3	9	4	1	0	14
	Average	**4**	**3**	**0**	**0**	**7**
Total	Day 1	14	10	0	0	24
	Day 2	16	15	0	0	31
	Day 3	33	19	1	0	53
	Average	**21**	**15**	**0**	**0**	**36**

Wright's Overbridge (MVL3/23) (NMU 2)

4.9.14 On two separate occasions (September 2024 and May/June 2025) the survey company was unable obtain suitable data for this location due to limited locations to safely install equipment to record movements across the bridge.

Charlotte Street Overbridge (3/24) (NMU 3)

4.9.15 Figure 4-15 illustrates the movements recorded at as part of the NMU3 Survey.

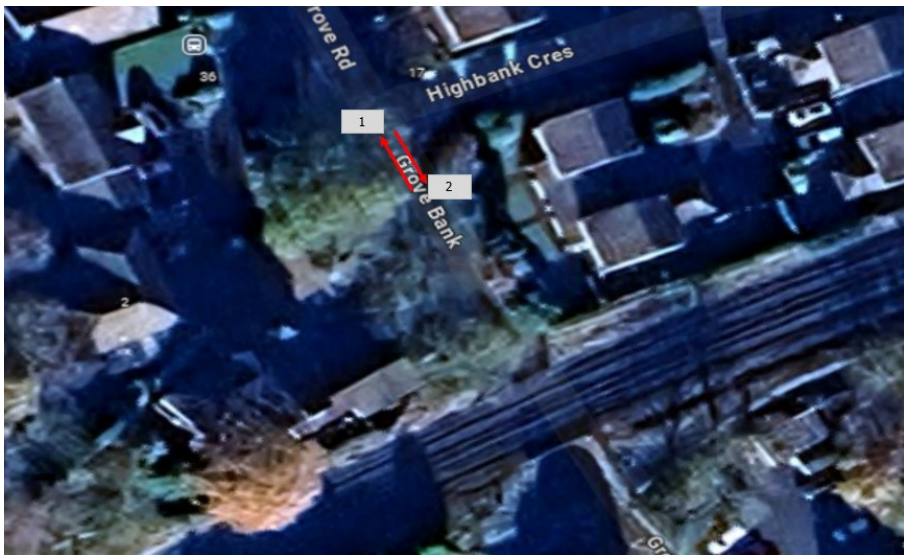


Figure 4-15 NMU3 Survey Movements at MVL3/24 OB

4.9.16 Table 4-11 provides a summary of the NMU3 survey results at MVL3/24 OB Charlotte Steet along Grove Bank.

Table 4-11 Survey Results – Charlotte Street Overbridge (MVL3/24)

Period	Day	Movement: Pedestrians		Movement: Cyclists		Total
		1	2	1	2	
AM Peak	Day 1	21	39	1	0	61
	Day 2	17	28	1	1	47
	Day 3	12	18	1	0	31
	Average	**17**	**28**	**1**	**0**	**46**
PM Peak	Day 1	12	32	0	1	45
	Day 2	18	34	3	2	57
	Day 3	13	17	3	0	33
	Average	**14**	**28**	**2**	**1**	**45**
Total	Day 1	94	108	4	3	209
	Day 2	79	101	9	5	194
	Day 3	59	75	4	3	141
	Average	**77**	**95**	**6**	**4**	**181**

Royal George Underbridge (MVL3/25)

4.9.17 Figure 4-16 illustrates the movements recorded at as part of the NMU4 Survey.

Figure 4-16 NMU4 Survey Movements at Royal George Underbridge (MVL3/25)

4.9.18 Table 4-12 provides a summary of the NMU4 survey results at Royal George Underbridge (MVL3/25) along Oaklands Road.

Table 4-12 Royal George Underbridge (MVL3/25) (NMU 4) Survey Results

Period	Day	Pedestrian Movements						Cyclists Movements						Total
		1	2	3	4	5	6	1	2	3	4	5	6	
AM Peak	Day 1	9	7	0	0	3	11	0	0	4	2	0	0	36
	Day 2	8	2	0	0	1	6	0	0	0	2	0	0	19
	Day 3	13	5	0	0	1	1	0	0	4	2	0	0	26
	Av.	**10**	**5**	**0**	**0**	**2**	**6**	**0**	**0**	**3**	**2**	**0**	**0**	**27**
PM Peak	Day 1	19	24	0	1	1	3	1	0	3	1	0	0	53
	Day 2	18	10	0	0	0	6	0	0	1	0	0	0	35
	Day 3	21	3	0	1	0	4	0	0	2	1	0	0	32
	Av.	**19**	**12**	**0**	**1**	**0**	**4**	**0**	**0**	**2**	**1**	**0**	**0**	**40**
Total	Day 1	55	44	0	2	9	28	1	0	9	3	0	0	151
	Day 2	55	31	0	0	3	24	0	0	4	5	0	0	122
	Day 3	58	34	0	1	3	14	0	0	12	4	0	0	126
	Av.	**56**	**36**	**0**	**1**	**5**	**22**	**0**	**0**	**8**	**4**	**0**	**0**	**133**

Ward Lane Overbridge (MVL3/36)

4.9.19 Figure 4-17 illustrates the movements recorded at as part of the NMU5 Survey.

Figure 4-17 NMU5 Survey Movements at Ward Lane Overbridge (MVL3/36)

4.9.20 Table 4-13 provides a summary of the NMU5 survey results at Ward Lane Overbridge (MVL3/36).

Table 4-13 NMU 5 Survey Results – MVL3/36 OB Ward Lane

Period	Day	Movement: Pedestrians		Movement: Cyclists		Total
		1	2	1	2	
AM Peak	Day 1	7	0	15	0	22
	Day 2	8	2	53	4	67
	Day 3	4	1	14	1	20
	Average	6	1	27	2	36
PM Peak	Day 1	9	0	13	1	23
	Day 2	7	1	11	1	20
	Day 3	5	2	17	1	25
	Average	7	1	14	1	23
Total	Day 1	44	0	62	2	108
	Day 2	43	3	93	8	147
	Day 3	41	6	71	6	124
	Average	43	3	75	5	126

Shaw Hall Bank Road Footway (MVL3/26)

4.9.21 Figure 4-18 illustrates the movements recorded at as part of the NMU6 Survey.

Figure 4-18 NMU6 Survey Movements at Shaw Hall Bank Road Footway (MVL3/26)

4.9.22 Table 4-14 provides a summary of the NMU6 survey results at MVL3/26 UB Royal George along Oaklands Road.

Table 4-14 Shaw Hall Bank Road Footway (MVL3/26) (NMU 6) Survey Results

Period	Day	Pedestrians						Cyclists						Total
		1	2	3	4	5	6	1	2	3	4	5	6	
AM Peak	Day 1	18	7	1	0	32	26	0	0	2	3	0	0	89
	Day 2	23	5	1	0	26	12	0	0	3	4	0	0	74
	Day 3	5	3	0	0	18	8	0	0	0	1	0	0	35
	Average	**15**	**5**	**1**	**0**	**25**	**15**	**0**	**0**	**2**	**3**	**0**	**0**	**66**
PM Peak	Day 1	21	21	1	0	44	30	0	0	3	2	1	2	125
	Day 2	11	21	0	0	11	27	0	0	0	2	0	0	72
	Day 3	4	27	0	1	32	21	0	0	0	1	0	0	86
	Average	**12**	**23**	**0**	**0**	**29**	**26**	**0**	**0**	**1**	**2**	**0**	**1**	**94**
Total	Day 1	59	51	2	0	128	90	0	0	6	12	1	2	351
	Day 2	53	52	1	0	76	69	0	0	5	8	0	0	264
	Day 3	50	53	0	1	107	71	1	1	5	6	0	0	295
	Average	**54**	**52**	**1**	**0**	**104**	**77**	**0**	**0**	**5**	**9**	**0**	**1**	**303**

Car Parking

4.9.23 The locations of the on and off-street car parking surveys are shown in Figure 4-1.

Off-Street Car Parking

4.9.24 The off-street car parking survey results are summarised Table 4-15 and the location of all off-Street car parking surveys are illustrated in Figure 10A 3.5 and 10A 3.6 within Volume 2 of the Environmental Report [**NR14**].

Table 4-15 Off-street car parking Survey Results

Ref	Car Park Location	Available spaces	Weekday			Saturday		
			Max Accumulation	Average Accumulation	Average Occupancy	Max Accumulation	Average Accumulation	Average Occupancy
CP 1	Saddleworth Rangers Car Park	91	44	28	31%	28	11	12%
CP 2	Sam Road Car Park	27	18	10	36%	15	11	40%
CP 3	New Scout Mill (Site 11)	30	8	4	15%	7	5	16%
CP 4	Manchester Road Private Car Park (Site 12)	29	8	5	16%	7	7	23%
CP 5	Mossley Station (Site 13)	56	58	43	78%	24	16	28%
CP 6	Friezland Church Hall (Site 14)	30	8	4	15%	7	5	1%
Total Across All CPs		**263**	**144**	**94**	**36%**	**88**	**55**	**21%**

4.9.25 Table 4-15 shows that most of the off-street car parks surveyed, with the exception of Mossley Station, have low levels of utilisation, between 1-40%. During a weekday, Mossley Station has an average occupancy of 78% (43 out of 56 spaces occupied) and a max occupancy of 104% (58 parked with only 56 spaces officially provided). However during Saturday, the average maximum occupancies were notably lower.

4.9.26 Across these six off-street car parks, there is a total provision of 263 car parking spaces. Of these spaces, on average, there are approximately 94 parked vehicles at any one time during a weekday and 55 during a Saturday.

On-street car parking

4.9.27 The on-street car parking Survey results are summarised Table 4-16

Table 4-16 On-street car parking survey results

Ref	Name	Available Spaces	Average				Peak			
			Legally Parked %	Illegally Parked %	Total Parked %	Total Parked	Legally Parked	Illegally Parked	Total Parked %	Total Parked
Weekday										
ONSP1	Manchester Road	131	26%	2%	28%	36	28%	3%	31%	41
ONSP2	Armit Road	24	61%	8%	69%	17	88%	12%	100%	24
ONSP3	Shaw Hall Bank Road	148	36%	4%	40%	59	39%	5%	44%	64
ONSP4	Egmont	155	17%	1%	18%	28	29%	4%	33%	51
ONSP5	Cheshire Street	67	40%	3%	43%	29	49%	3%	52%	35
ONSP6	Staley	224	17%	1%	18%	40	26%	2%	28%	64
Total		**749**	**26%**	**2%**	**28%**	**208**	**34%**	**4%**	**38%**	**279**
Saturday										
ONSP1	Manchester Road	131	26%	0%	26%	35	30%	2%	32%	41
ONSP2	Armit Road	24	72%	11%	83%	20	88%	12%	100%	24
ONSP3	Shaw Hall Bank Road	148	42%	5%	47%	70	48%	7%	55%	81
ONSP4	Egmont	155	22%	1%	23%	34	28%	1%	29%	45
ONSP5	Cheshire Street	67	36%	3%	39%	26	43%	3%	46%	31

Ref	Name	Available Spaces	Average				Peak			
			Legally Parked %	Illegally Parked %	Total Parked %	Total Parked	Legally Parked	Illegally Parked	Total Parked %	Total Parked
ONSP6	Staley	224	23%	2%	25%	56	28%	3%	31%	69
Total		**749**	**30%**	**2%**	**32%**	**241**	**36%**	**3%**	**39%**	**291**

4.9.28 Table 4-16 shows that:

- Across all the surveyed on-street locations, there is a total of 749 available car parking spaces.
- During a weekday:
  - On average there was 208 parked vehicles
  - At its peak, there was 279 parked vehicles.
- During a Saturday:
  - On average, there was 241 parked vehicles
  - At its peak, there was 291 parked vehicles
- Armit Road reached max capacity (100%) between 20:00 and 07:00, 00 hours. On a Saturday, Armit Road was close to capacity (96%) between 20:00 and 07:00 hours.

Typical Traffic Delay

4.9.29 To understand the typical traffic delay in and around the MCC Survey locations, a review of Goggle Traffic has been undertaken.

4.9.30 Google Traffic is a feature of Google maps that can display traffic conditions in real time on major roads. It can also be used to understand 'Typical' traffic conditions in which the user is able to specify a particular day of the week along with a time. It presents traffic delays using the following RAG (Red, Amber, Green) analysis indicators:

- **Green**: No traffic delays.
- **Amber**: Medium levels of traffic.
- **Red**: Traffic delays. The darker the red, the slower the speed of traffic on the road.

4.9.31 A review of Google traffic during the peak hours of the day shows that the majority of the core construction route (A670 Manchester Road, Wakefield Road, Oldham Road) is green in the AM, PM and Saturday peak. The only area which is red is at MCC6, which is at the southern end of the Order Scheme at the junction of B6175 Huddersfield Road and Stamford Road.

5. TRANSPORT IMPACTS, MITIGATION AND RESIDUAL IMPACTS

5.1.1 This section presents the Order Scheme's transport impacts in relation to additional traffic movements onto the local highway network and additional non-motorised movements within the Study Area.

5.1.2 It is worth noting that NPPF[1] paragraph 116-118 states:

> "116. Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenario…
>
> 118. All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored."

5.1.3 It is considered that the proposals will result in modest changes in trip movements within the Study Area when the Order Scheme is operational, the majority of changes in trip movements will occur during the construction phase and will be temporary. Nevertheless, the Order Scheme's potential transport impacts for both the construction and operational phases are considered.

5.2 Initial Impacts

Transport Network

5.2.1 Table 5-1 provides an overview of the potential increase in traffic volumes through each junction surveyed as a result of additional construction traffic within the Study Area.

Table 5-1 Traffic Volumes at specified junctions

MCC No.	Location Ref	Total Junction throughput				Construction Works: Total junction throughput			
		Weekday AM Peak (08:00-09:00)	Weekday PM Peak (16:30-17:30)	Saturday (11:30-12:30)	Total	Hourly Total	Weekday AM % Change	Weekday PM % Change	Saturday % Change
MCC 1	A635 Manchester Road / Three Counties Road / Mill Lane	689	691	617	397	40	6%	6%	6%
MCC 2	Oaklands Road / Oaklands Park	493	527	404	387	39	8%	7%	10%
MCC 3	A670 Oldham Road / A669 Shaw Hall Bank Road	1422	1459	1547	40	4	0%	0%	0%
MCC 4	A669 Chew Valley Road / B6175 Shaw Hall Bank Road / A669 Shaw Hall Bank Road	911	995	948	40	4	0%	0%	0%
MCC 6	B6175 Huddersfield Road / A6018 Mottram Road	1959	2198	2113	36	4	0%	0%	0%
MCC 8	B6175 Huddersfield Road / Buckton Vale Road / Crowswood Drive	865	1068	955	391	39	5%	4%	4%
MCC 9	Station Road / Staley Road / Egmont Street	495	573	493	142	14	3%	2%	3%
MCC 10	Egmont Street / Cheshire Street	355	363	309	142	14	4%	4%	5%
MCC 11	A635 Manchester Road / Egmont Street	768	819	748	142	14	2%	2%	2%
MCC 12	A635 Manchester Road / Mill Street / B6177 / Mossley Station	1040	1137	1098	497	50	5%	4%	5%

MCC No.	Location Ref	Total Junction throughput				Construction Works: Total junction throughput			
		Weekday AM Peak (08:00-09:00)	Weekday PM Peak (16:30-17:30)	Saturday (11:30-12:30)	Total	Hourly Total	Weekday AM % Change	Weekday PM % Change	Saturday % Change
MCC 13	A635 Manchester Road / Tam Bank Close / Heron Lane	520	561	484	391	39	8%	7%	8%
MCC 14	B6175 Well-I-Hole Road / A635 Manchester Road	1040	1149	933	391	39	4%	3%	4%
MCC 15	A670 Wool Road / A670 High Street / A6052 Dobcross New Road	1215	1045	859	367	37	3%	4%	4%

5.2.2 Table 5-1 shows that the percentage change when the construction traffic is added is between 0 and 10% which is within typical daily traffic variation of between 5 and 15%. Therefore, the impacts of construction traffic is not considered significant, that road users would experience similar changes in traffic volumes on a typical daily basis.

5.2.3 The review of Google maps traffic data showed that even at peak times there is limited queuing along the core construction route.

5.2.4 Given the temporary level of daily traffic increase arising from construction works predicted along the core construction/ diversionary routes, it is unlikely that this would exacerbate any existing accident problem.

Car Parking

5.2.5 As set out in section 4 of this Report, there are potentially 263 off-street car parking (residential, community, business) and 749 on-street car spaces that could be temporarily removed for periods during the construction phase of the Order Scheme.

5.2.6 As noted, on average at any given time during a weekday, there are 302 cars parked across these locations (94 off-street and 208 on-street). During a Saturday, on average at any given time there are 296 cars parked across these locations (55 off-street and 241 on-street). During peak periods this could increase to 423 on a weekday 379 on a Saturday.

Public Transport

5.2.7 Figure 5-1 illustrates potential existing bus stops that could be affected by the Order Scheme.

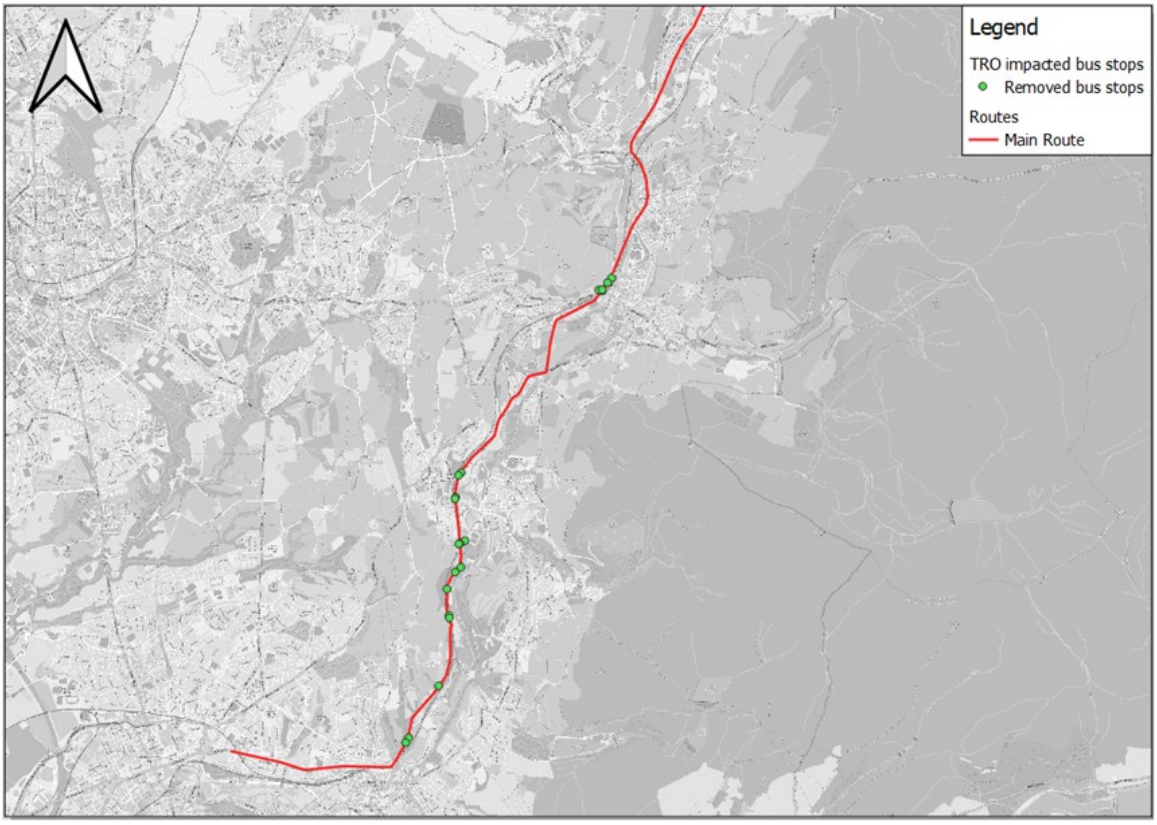


Figure 5-1 Potential Bus Stops to be suspended as identified by TROs

5.2.8 Table 5-2 lists the bus stop that may be temporarily suspended at periods during the construction phase.

Table 5-2 Potential List of Temporary Bus Stop Suspensions

TRO Area	Unique Bus Stop Ref	Road/ LOCATION	List of Services
Tameside, Greater Manchester	MANAWTDG	Wakefield Road (east side)	356
Tameside, Greater Manchester	MANAWTDA	Wakefield Road (north west side)	356
Tameside, Greater Manchester	MANAWTAW	Manchester Road (west side)	356
Tameside, Greater Manchester	MANAWTAD	Manchester Road (east side)	356

TRO Area	Unique Bus Stop Ref	Road/ LOCATION	List of Services
Tameside, Greater Manchester	MANAWPWT	Manchester Road (east side)	356
Tameside, Greater Manchester	MANAWAGP	Egmont Street (south east side)	350, 870, S350B
Tameside, Greater Manchester	MANAWPWM	Manchester Road (west side 2 no.)	356
Tameside, Greater Manchester	MANAWJAD	Manchester Road (east side 2 no.)	356
Tameside, Greater Manchester	MANAWPWJ	Manchester Road (east side 2 no.)	356
A635 Manchester Road	MANAWPWD	Egmont Street (East)	356
A635 Manchester Road	MANAWPWG	Egmont Street (West)	356
A635 Manchester Road	MANTPGJW	Queen Street (West)	343
A635 Manchester Road	MANAWJWT	Queen Street (East)	343, 822
A635 Manchester Road	MANAWJWP	Portman Street	343
Shawhall Bank Road, Oldham Road	MANTMTGT	Greenfield Station Stop G (North West)	180, 350, 352, 356, 357, 828, S350B
Shawhall Bank Road, Oldham Road	MANAMADJ	Greenfield Station Stop D (South East)	180, 350, 352, 356, 357, 828, S350B
Shawhall Bank Road, Oldham Road	MANAMWPM	Greenfield Station Stop A (North West)	84, 180, 184, 356, 357, 784, 828, S84
Oldham Road	MANAMWPT	Greenfield Station (Stop B)	84, 184, 350, 352, 356, 784, 829, S84, S350B
Oldham Road	MANAMPGP	Greenfield Station	84, 184, 350, 352, 356, 784, S84, S350B

5.2.9 Table 5-2 shows that 19 bus stops will be suspended for periods during the construction phase of the Order Scheme. This affects a total of 14 different services across the 19 bus stops. However, works will be phased and temporary and therefore not all of these bus stops will be suspended all at once/ occur at the same time. This will help to ensure

that suitable alternative bus stops/ services are available during the construction phase.

5.2.10 Figure 5-2 illustrates existing alternative bus stops within 400 m of the 19 bus stops which could be potentially affected during the construction phase.

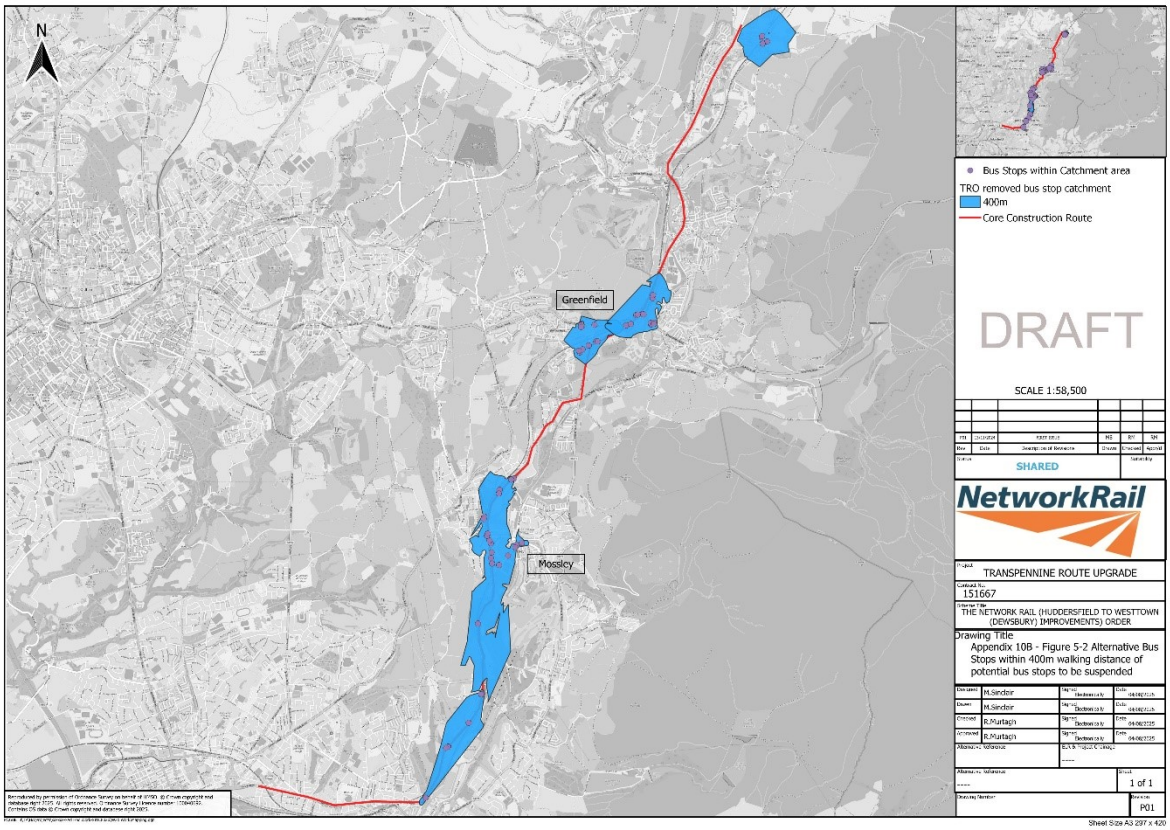


Figure 5-2 Alternative Bus Stops within 400m walking distance of potential bus stops to be suspended.

5.2.11 As part of the Order Scheme, Mossley Station will be relocated 400 m to the north. The proposed site's accessibility is illustrated in Figure 5-3.

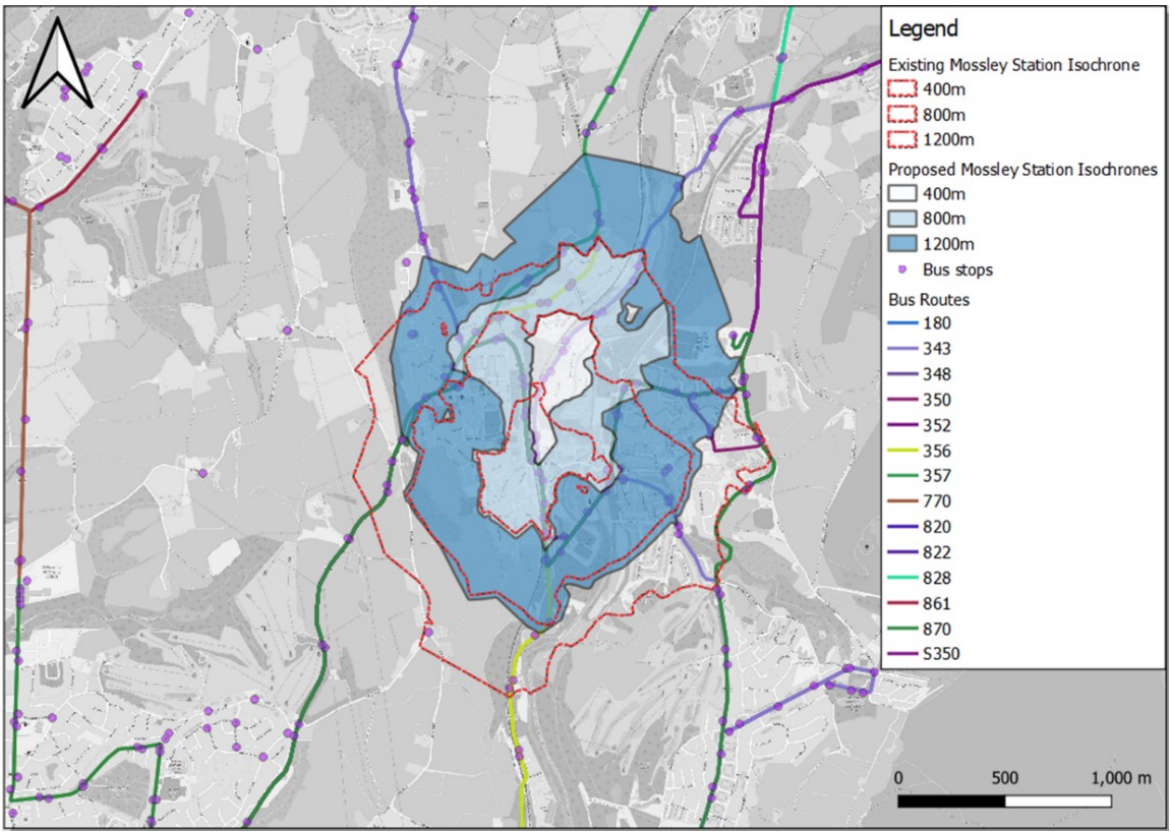


Figure 5-3 Proposed Mossley Station Accessibility Map

5.2.12 Figure 5-3 shows that although the station's catchments have moved slightly to the north of Mossley:

- The same number of bus stops are within 400 m walking distance of the site as well as the same level of service/ facilities provided.
- The majority of Mossley is still within 1200 m walking distance of the station.

5.2.13 During construction, the section of the railway will be closed either partially or fully for a period of time. This will necessitate the use of Rail Replacement Buses as required. For the purpose of this TS, it is assumed that these buses will operate with sufficient same pick-up and drop-off locations.

5.2.14 For the purpose of the construction phase assessments, it is not assumed that there will be a modal shift on to private cars whilst the railway is closed. Instead it is assumed that passengers who used the railway will utilise rail replacement buses which is in line with similar assumptions accepted as part of W3 works.

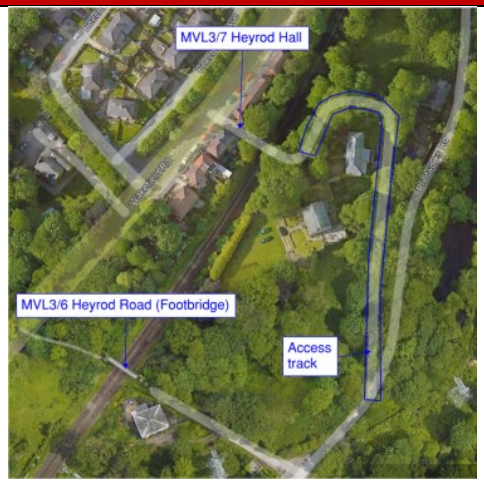
5.2.15 While rail replacement buses are not the preferred option, the evidence suggests that most passengers continue to use public transport alternatives (including buses) during rail closures.[14]

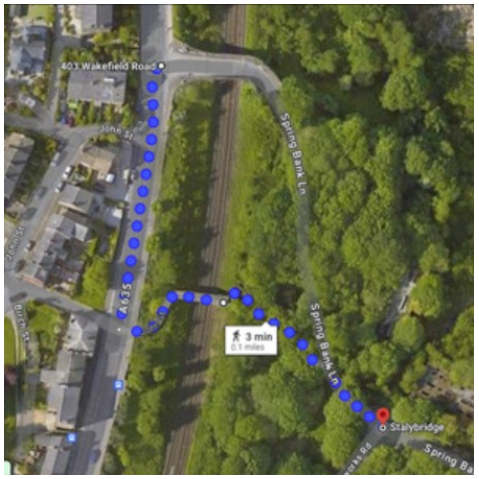
Public Right of Way (PRoW)

5.2.16 A desktop review of the impacted Public Rights of Way (PRoW) has been undertaken to develop a qualitative and quantitative review of the works being undertaken and the how this will impact the PRoW, and this is summarised in Table 5-3

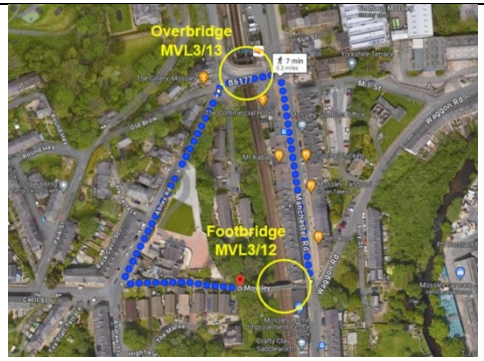
[14] Rail service alterations: Passenger perspectives

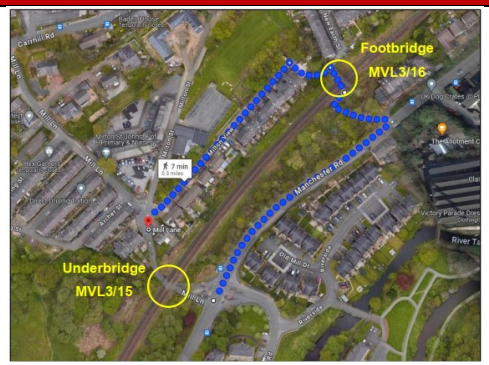
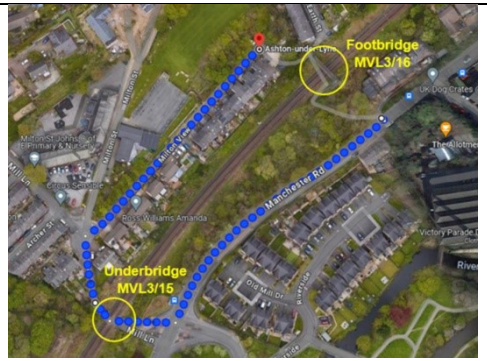
Table 5-3 Impacts on PRoW Summary Table

Relevant Works Component Ref	Summary	Diversion	Impact
Heyrod Hall Overbridge (MVL3/7)	During construction, public access from Wakefield Road to properties on the east side of the rail corridor will be cut off. A private access track which connects the properties to Printworks Road is present and it is proposed that this access track is used as the vehicular diversion during the works. The shortest pedestrian diversion route is via the Heyrod Road footbridge (MVL3/6).		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 3mins (0.1 mile). Access to be reinstated after construction.
Springbank Lane Footbridge (MVL3/8)	No public access during construction, diversion via Spring Bank Lane (MVL3/9) and therefore works will not be able to be undertaken concurrently with MVL3/9 works to ensure an alternative route during MVL3/8 works.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 3mins (0.1miles). Access to be reinstated after construction.

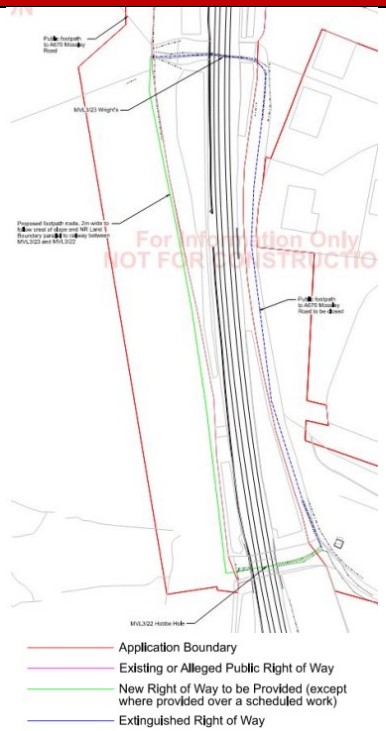
Relevant Works Component Ref	Summary	Diversion	Impact
Spring Bank Lane Overbridge (MVL3/9)	No public access during construction. The stepless diversion for pedestrians would be via A635 Wakefield Road and Printworks Road.	Stepless: 	Stepless Diversion Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 30mins (1.4miles). Access to be reinstated after construction.
Spring Bank Lane Overbridge (MVL3/9)	Stepped diversion for pedestrians using Spring Bank Lane footbridge (MVL3/8) and therefore works will not be able to be undertaken concurrently	Stepped. 	Stepped Diversion Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 3 mins (0.1 miles). Access to be reinstated after construction.

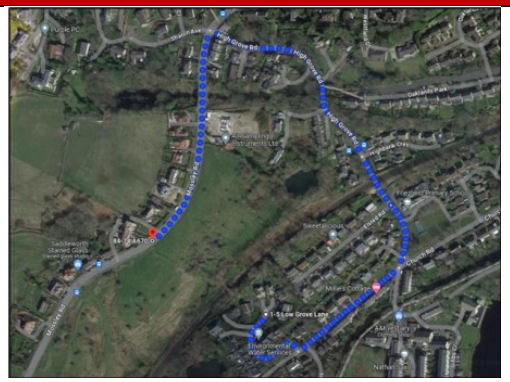
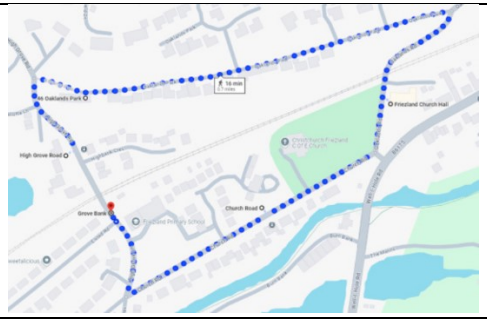
Relevant Works Component Ref	Summary	Diversion	Impact
Manchester Road Underbridge (MVL3/10)	Closed to the public during works, including the footway alongside the road. Diversion route is via the footbridge (MVL3/10a).		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works at weekend and at night. Diversions will increase pedestrian/ cycle journey times by 8 mins (0.3 miles). Access to be reinstated after construction.

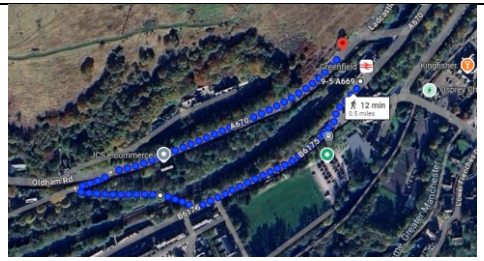
Relevant Works Component Ref	Summary	Diversion	Impact
Manchester Road Footbridge (MVL3/10a)	Manchester Road and the Footbridge will be closed to the public during the works Access will be required along the private road Lower Beestow during construction - access to the properties on the West side would need to be maintained.		During the weekend closures, access to the footbridge and along Manchester Road will be impacted temporarily. During the lane closure there will be no access via the footbridge, however access along Manchester Road will be available. Closure of the footbridge will result in an 8-minute pedestrian diversion (0.3 miles) to be in place via Manchester Road. Access to be reinstated after construction.
Abney Footbridge (MVL3/12)	Closed to the public during works. The proposed pedestrian diversion route is via Abney Road, Stamford Road, and Manchester Road. The site is to be accessed vis Mossley station.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7 mins (0.3 miles). Access to be reinstated after construction.

Relevant Works Component Ref	Summary	Diversion	Impact
Mill Lane Underbridge (MVL3/15)	Underbridge to be closed during works. The proposed pedestrian diversion route is via New Earth Footbridge (MVL3/16)		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7 mins (0.3 miles). Access to be reinstated after construction. Access to be reinstated after construction.
New Earth Footbridge (MVL3/16)	Footbridge will be closed to the public during construction. Access for construction vehicles will be via Earth Street. Diversion route via Milton View, Mill Lane underbridge and Manchester Road.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7 mins (0.3 miles). Access to be reinstated after construction. Access to be reinstated after construction.
Roughtown Road Overbridge (MVL3/17)	It is recommended that the one-way restriction from the end of the road closure to Manchester Road is removed for the duration of the works to allow access to properties along Roughtown Road from Manchester Road. Pedestrian diversion route for those able to use steps will be via	Stepless: 	Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times for those using steps will have no change. For those who cannot use steps the diversion will increase by 10 mins

Relevant Works Component Ref	Summary	Diversion	Impact
	Roughtown Footbridge (MVL3/18). The vehicular diversion, and for those unable to use stairs, will be via Mill Lane Underbridge (MVL3/15)	Stepped. 	(0.4 miles). Access to be reinstated after construction.
Stockport Road Level Crossing	A new section of public footpath is to be constructed from Midge Hall underbridge to the Stockport Road Level Crossing. The work will be undertaken while the existing path is open. Once this is completed the existing Stockport Road Level Crossing path will be closed.		There will be no impact during the construction of the new footpath. Once the new path is completed and the old path is closed, this will have a permanent impact. This will increase the pedestrian time of travelling to/from Heron Lane by 200 metres or adding 2 minutes to the journey

Relevant Works Component Ref	Summary	Diversion	Impact
Wrights Overbridge (MVL3/23)	This footpath will be closed to the public during construction works. A new section of PRoW will be provided. The footpath over the structure will be diverted via the adjacent MVL3/22 Hobble Hole underbridge. During construction, pedestrians will be rerouted via Mossley Road and High Grove Road.		The impact In the permanent scenario, the shortest diversion will be via MVL3/22, which is 175m long and will result in no additional time. During construction if the MVL3/22 has to be closed there will be a temporary impact and will affect a small proportion of the general public in the vicinity of the works. Pedestrians can take a 12-minute diversion via High Grove Road.

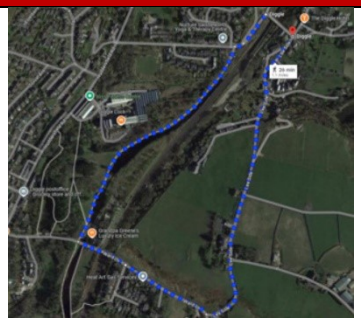
Relevant Works Component Ref	Summary	Diversion	Impact
			
Charlotte Street Underbridge (MVL3/24)	The underbridge will be closed to the public during construction. Diversion will be via Church Road and Oaklands Road		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 16 minutes. Access will be reinstated turned once works are completed.

Relevant Works Component Ref	Summary	Diversion	Impact
Shaw Hall Bank Road Footbridge (MVL3/26)	Closed to public during construction works. Diversion via MVL2/25		Impact will be temporary and affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian journey times by 14 minutes. Access will be returned once works are completed.
Oldham Road and Oldham Road Footbridge (MVL3/28/27b)	Pedestrian access over the railway is proposed to be maintained throughout the works. However, during certain construction activities of risk to the public, access may be closed. The pedestrian stepless diversion would be via MVL3/26		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 12 minutes. New improved access will be returned once works are completed.
Wickers Underbridge (MVL3/29)	Closed to the public during construction works. Diversion via Moorgate Street		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 13 minutes. Access will be returned once works are completed

Relevant Works Component Ref	Summary	Diversion	Impact
Moorgate Halt Level Crossing	An upgraded section of public footpath is to be constructed from Wickens underbridge connecting Ladcastle Road to Oldham Road. The work will be undertaken while the existing path is open. Once this is completed the existing Moorgate level crossing path will be closed.		There will be no impact during the construction of the new footpath. Once the new path is completed and the old path is closed, this will have a permanent impact. This will increase the pedestrian time of travelling to/from Ladcastle Road by 200 metres or adding 2 minutes to the journey
Butterhouse Lane Footbridge (MVL3/31A)	Closed footpath to the general public during construction. The pedestrian diversion will be via Brownhill Lane (under Uppermill Viaduct (MVL3/31)) or Huddersfield Canal Towpath and underbridge (MVL3/32)		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 13-minutes . Access will be returned once works are completed

Relevant Works Component Ref	Summary	Diversion	Impact
Subway (MVL 3/32)	Underbridge will be closed to the public during construction works. Pedestrian diversion route via Ward Lane or an unmarked footpath may be available next to the railway boundary fence, shortening the journey.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 29-minutes.
Ravenstone Drive Footbridge (MVL3/35)	Closed footbridge to the general public during construction. The pedestrian diversion route would be via Ward Lane Overbridge (MVL3/36). The route requires crossing under the bridge and crossing the canal and then back onto the road. This route would not be suitable for those unable to use steps.		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7-minutes

Relevant Works Component Ref	Summary	Diversion	Impact
Ward Lane Overbridge (MVL3/36)	Closed overbridge to the general public during construction. Pedestrian diversion route is via the canal and Ravenstone Drive Footbridge (MVL3/35).		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 7 minutes
Oldham Road Overbridge (MVL3/39)	Closed overbridge to the general public during construction. Shortest pedestrian diversion route is over Standedge Tunnel portal via Harrop Court Road, alternatively via the canal path and Ward Lane		Impact will be temporary and will affect a small proportion of the general public in the vicinity of the works. Diversion will increase pedestrian/ cycle journey times by 5 minutes over tunnel portal. The alternative route will increase pedestrian/ cycle journey times by 26-minutes via Ward Lane.

Relevant Works Component Ref	Summary	Diversion	Impact
			

5.2.17 As shown in Table 5-3 there are approximately 20 PRoW which will be impacted requiring temporary diversion. Only some of these existing PRoW are suitable for those with mobility impairments given that part of the routes includes steps. Whilst every effort will be made to provide alternative accessible routes for each of these temporary closures, only three will have stepless routes.

5.2.18 In addition, the vast majority of these PRoW diversions will result in minor increase in journey times, between 3 - 15mins (100 m and 1200 m), although there will be 4 temporary diversions which will result in diversions of more than 15 mins (more than 1200 metres), these include:

- Springbank Lane Overbridge (MVL3/9)
- Charlotte Street Underbridge (MVL3/24)
- Subway (MVL3/32)
- Oldham Road Overbridge (MVL3/39).

5.3 Mitigation Measures

Construction Phase Mitigation Measures

5.3.1 To help minimise disruption caused by construction traffic, temporary road works, restrictions or diversionary routes, the following measures will be utilised and agreed with OMBC / TMBC:

- A CoCP – to help reduce impacts of construction traffic.
- A separate Construction Traffic Management Plan – to help reduce impacts of temporary road works/restrictions. This will include consideration of phasing of construction works – to help reduce the overall impacts in the area. Phasing of the works will also help reduce associated impacts with the removal of car parking and bus stops.
- Construction Worker Travel Plans – to help reduce the impacts from construction staff and rail staff that will operate out of temporary construction compounds.

5.3.2 To help reduce the impacts associated with the removal of car parking, additional temporary car parking areas have been identified, which are described below and are shown in Figure 5-4.

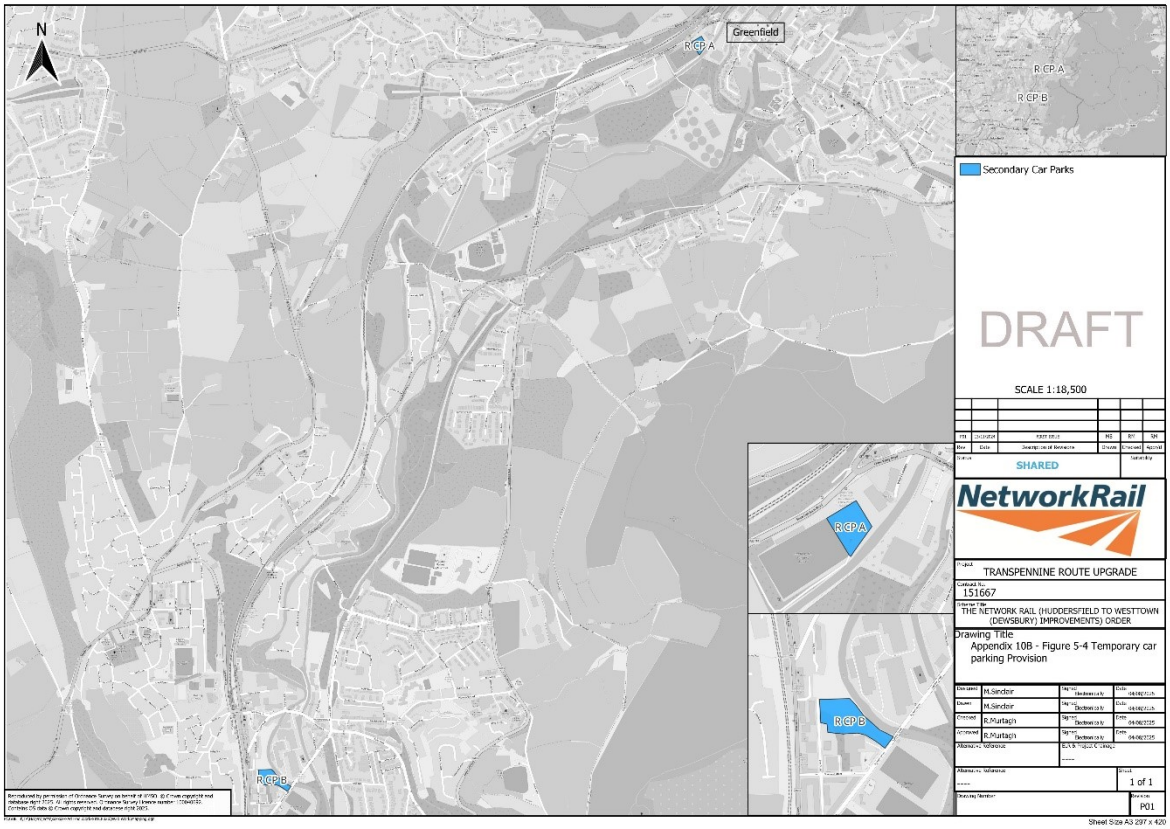


Figure 5-4 Temporary car parking Provision

5.3.3 Car Park A (Saddleworth Rangers Football Club) will provide approximately 91 temporary car parking spaces and Car Park B (Egmont Street) will provide approximately 200 temporary car parking spaces; this is a total of 291 spaces.

5.3.4 As noted in section 4, Table 4-16, at peak times, there is a maximum of 291 cars parked across the parking areas that could be potentially affected by the temporary TROs. Removal of these spaces will be phased to limit impacts/ Therefore, the maximum number of existing cars parked within these areas as surveyed is worst case – all of that parking would not be affected simultaneously due to phasing of the works.

5.3.5 Given that a total of 291 spaces will be provided within car parks A and B, the proposed parking provision is therefore considered sufficient to mitigate any potential displaced parking as a result of the temporary TROs.

5.3.6 Further details on mitigation measures to be implemented during the construction phase are provided within Volume 1: Chapter 14 of the Environmental Report [**NR14**].

Operational Phase Mitigation Measures

5.3.7 The assessment has not identified any substantial adverse impacts that require mitigation due to operation of the Order Scheme alone.

5.4 Residual Impacts

During Construction Phase

Traffic/ Road Users

5.4.1 The potential impact resulting from additional construction traffic onto the local highway network is not considered to be significant. It is acknowledged that when temporary diversionary routes are in place, there is the potential for significant temporary increase in traffic movements along certain routes.

5.4.2 Although nine accident clusters were identified within the study are, this showed that there was between three to six accidents at each location with the vast majority of accidents being classified as ‘slight’. Given the increase in construction traffic through these clusters, the Order Scheme impacts during construction is not considered to be significant/ severe. Any notable increase in traffic volumes through these clusters would be associated with diversionary routes which would be temporary and managed appropriately.

5.4.3 It is therefore anticipated that the proposed package of mitigation measures noted in section 6.2 will ensure that the residual impacts are not significant/ severe.

Public Transport

5.4.4 When temporary diversionary routes are in place, there is a potential for journey times on certain bus routes to be impacted/ delayed. In addition, there may be a need to temporarily suspend or relocate bus stops in a phase approached at certain times during the construction period.

5.4.5 In relation to rail operations, where possible, line closures will be limited to off peak periods to help limit impacts on the local transport network. However, when required, replacement bus services are expected to provide an effective temporary replacement by serving each station where possible. If replacement services are operating during peak periods, the journey times of these services are likely to be delayed.

5.4.6 Nevertheless, suitable alternative public transport provisions will be available, and it is anticipated that the proposed package of mitigation measures noted in section 6.2 will ensure that the residual impacts are not significant/ severe.

Car Parking

5.4.7 During the construction phase, there will be a requirement to suspend car parking at certain times/ locations. However, this will be temporary, phased and alternative car parking provided and therefore, the residual impacts are not considered to be significant/ severe.

Public Right of Way (PRoW)

5.4.8 There will be 3 permanent diversions to PRoW; these are Stockport Road Level Crossing and Wrights Overbridge (MVL3/23) and Moorgate Halt Level Crossing.

5.4.9 At Stockport Road Level Crossing (which is NMU only – no vehicular traffic), a section of the PRoW is proposed to be permanently closed, and a permanent PRoW diversion constructed to replace the existing route running north via the Heron Lane underbridge (MVL3/19) from Midge Hall underbridge to the Stockport Road Level Crossing.

5.4.10 Once the new path is completed, the existing path and associated level crossing will be closed. That replacement route will permanently increase the pedestrian time of travelling to/from Heron Lane by 200 metres or adding 2 minutes to each journey. The new route will provide improved surfacing and vegetation will be removed to help clear paths/ routes which will benefit future users of the route. Overall, the impacts are not considered to be significant.

5.4.11 Wrights Overbridge (MVL3/23) - which carries a PRoW between Low Grove Lane and Mossley Road - is to be demolished. This footpath will be closed to the public during works. A new section of PRoW will be provided. In the permanent scenario, the proposed PRoW diversionary route associated with this bridge will not result in additional journey time

and the route will be improved through de-vegetation, removal of existing obstacles as well as minor surfacing works. This will result in a permanent slight positive effect on non-mortised users along this route.

5.4.12 At Moorgate Halt Level Crossing (which is NMU only – no vehicular traffic), a section of the PRoW is proposed to be permanently closed, and a permanent PRoW diversion constructed to replace the existing route running north via the Wickens underbridge (MVL3/29) from Ladcastle Road to Oldham Road.

During Operational Phase

5.4.13 The assessment has not identified any substantial adverse impacts that require mitigation due to operation of the Order Scheme alone. New/ additional vehicular trips generated by the Order Scheme will be minimal and infrequent and all PRoW impacted are to be permanently reinstated on realigned routes.

5.4.14 Although a number of bridges will be modified/ reconstructed during the construction phase, these permanent changes are primarily to facilitate the modernisation of the rail line and achieve required height clearance for trains. Any modifications to road alignment, carriageway width and footway provisions will be marginal and overall adverse/ positive effects will be negligible.

Residual Impacts Conclusion

5.4.15 The NPPF states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

5.4.16 Table 5-4 provides a summary of the Order Schemes initial impacts and residual impacts during both the construction and operational phases.

Table 5-4 Residual Impacts

Consideration	Construction Phase			Operational Phase		
	Initial Impact	Mitigation	Residual Impact	Initial Impact	Mitigation	Residual Impact
Traffic	Construction Traffic - Not Severe/ significant. Diverted Traffic – Potentially temporary Severe/ significant	Yes to both	Not severe/ significant for both	Not Significant/ severe	No	Not Severe/ significant
Highway Safety	Temporary Not significant/ severe	Yes	Not severe/ significant	Not Significant/ severe	No	Not Severe/ significant

Consideration	Construction Phase			Operational Phase		
	Initial Impact	Mitigation	Residual Impact	Initial Impact	Mitigation	Residual Impact
Public Transport	Temporary severe/ significant	Yes	Not severe/ significant	Not Significant/ severe	No	Not severe/ significant
Car Parking	Temporary severe/ significant	Yes	Not severe/ significant	Not Significant/ severe	No	Not severe/ significant
PRoW	Temporary severe/ significant	Yes	Not severe/ significant	Not Significant/ severe	No	Not severe/ significant

5.4.17 Table 5-4 shows that the Order Scheme complies with NPPF[1] as it will not result in highway safety concerns and the residual impacts on the road network are not considered to be severe.

6. SUMMARY AND CONCLUSION

6.1 Summary

6.1.1 This document forms Appendix 10B Transport Statement of the Environmental Report [**NR14**]. The TS provides an independent, comprehensive and systematic review of the transport implications relating to the Order Scheme which require either temporary or permanent traffic management.

6.1.2 This TS has been prepared in support of the Order Scheme, which seeks to authorise a series of infrastructure improvements and associated works. The TS assesses the potential transport impacts arising from the Order Scheme, with particular focus on traffic movements during both the construction and operational phases.

6.1.3 A review of the planning policy, existing conditions and accessibility was undertaken through desktop research and through onsite surveys and observations to develop a baseline scenario.

6.1.4 The assessment of the potential impacts of the construction of the Order Scheme includes identifying the required compounds and work interventions and developing traffic generation assumptions for the work phases throughout the programme. The assessment has indicated that the Order Scheme is considered to be undertaken in accordance with relevant national guidance, including the National Planning Policy Framework (NPPF)[1], which emphasises the importance of promoting sustainable transport and ensuring that development proposals do not result in unacceptable impacts on highway safety or severe residual cumulative impacts on the road network.

6.2 Conclusion

6.2.1 The Order Scheme could potentially result in a number of temporary impacts on the Transport Network during the construction phase of the works. However, these are not considered significant:

- Highway Network:
    - The percentage increase in traffic flows along the highway network as a result of construction traffic is between 0% and 10% which is within typical daily traffic flow fluctuations/ variations (i.e. between 5% and 15%). Therefore, the impacts are not considered significant as road users would experience similar changes in traffic volumes on a typical daily basis.
    - The review of traffic data shows that even at peak times, the majority of the core construction route is classified ‘Green’ (no traffic delays).

  - Given the temporary level of daily traffic predicted along the core construction/ diversionary routes, it is unlikely that the increase in traffic volumes during peak times as a result of construction vehicles would worsen road safety at identified accident clusters within the Study Area.

- Car Parking:
  - The impact on the car parking is due to the potential temporary removal of 263 off-street car parking and 749 on-street car spaces during the construction phase of the Order Scheme.
  - A review of the car parking survey data showed that on average at any given time during a weekday, there are 302 cars parked across these locations (94 off-street and 208 on-street).
  - As mitigation the Order Scheme will be providing two alternative public car parks located at Saddleworth Rangers FC and Egmont Street which will accommodate approximately 291 parking spaces. Given the temporary nature of the works and that car parking will be reinstated once works are completed it is deemed that the temporary removal of the car parking spaces will not be severe.
- Public Transport:
  - Approximately 19 bus stops could be suspended or relocated for periods during the construction phase of the Order Scheme. This affects a total of 14 different services across the 19 bus stops. However, works will be phased and temporary and therefore not all of these bus stops will be suspended all at once/ occur at the same time to ensure suitable alternative bus stops/ services are available.
  - Given the temporary nature of the works and that the bus stops will be reinstated once works are completed it is deemed that the temporary suspension of the bus stops will not be significant.
  - During construction, the railway, or section of it, will be closed either partially or fully for a period of time. This will necessitate the use of Rail Replacement Buses. For the purpose of this TS, it is assumed that these buses will operate in the same fashion as would any other time for railway closures, typically with pick-up and drop-off locations at or close to existing stations.
- Public Rights of Way (PRoW):
  - There are approximately 20 PRoW which will be impacted requiring temporary diversion. Only some of these existing PRoW are suitable for those with mobility impairments

given that parts of those routes include steps. Whilst every effort will be made to provide alternative routes for each of these temporary closures, only three will have stepless routes.

- The vast majority of these PRoW diversions will result in minor increase in journey times, between 3 mins and 15 mins (100 m and 1200 m), although there will be 4 temporary diversions which will result in diversions of more than 15 mins (more than 1200 m), these include:
  - Springbank Lane Overbridge (MVL3/9)
  - Charlotte Street Underbridge (MVL3/24)
  - Subway (MVL3/32)
  - Oldham Road Overbridge (MVL3/39).
- Given the temporary nature of the works and that the majority of the PRoW will be reinstated once works are completed it is deemed that the temporary diversions will not be significant.

6.2.2 To help minimise disruption caused by construction traffic, temporary road works, restrictions or diversionary routes, a range of measures will be utilised and agreed with OMBC / TMBC:

- A CoCP – to help reduce impacts of construction traffic.
- Preparation and agreement of a Construction Traffic Management Plan – to help reduce impacts of temporary road works/restrictions.
- Construction Worker Travel Plans – to help reduce the impacts from construction staff and rail staff that will operate out of temporary construction compounds.
- Phasing of construction work – to help reduce the overall impacts across the entire Study Area, to further limit the length of the temporary works. Phasing of the works will also help reduce associated impacts with the removal of car parking and bus stops.

6.2.3 Further details on related mitigation measures are set out in Chapter 14 Summary of Mitigation of the Environmental Report document [NR14]

6.2.4 During the Operational Phase:

- The assessment has not identified any significant adverse impacts that require mitigation due to operation of the Proposed Scheme alone.
- Passenger usage may increase in the future, increased usage of the railway is considered a permitted intensification and is therefore excluded from this appraisal. Should passenger usage increase and result in an increase of highway movements to/from stations on the route, it would also result in forecast decreases in highway

movements on the wider network as users transferred from car to the improved rail service. New/ additional vehicular trips generated by the Order Scheme are expected to be minimal and infrequent

- All PRoW impacted are to be permanently reinstated on realigned routes.
- Any permanent changes to bridges/ structures are primarily to facilitate the modernisation of the rail line and achieve required height clearance for trains. Any modifications to road alignment, carriageway width and footway provisions will be marginal and overall adverse/ positive effects will be negligible.

6.2.5 When all of the information and mitigation measures are taken into account the Transport Assessment shows that the Order Scheme (both during the Construction and Operational Phases) complies with NPPF[1] as it will not result in highway safety concerns and the residual impacts on the road network are not considered to be significant.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT – VOLUME 3 APPENDIX 10C - FRAMEWORK CONSTRUCTION WORKER TRAVEL PLAN

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CONTENTS

1. INTRODUCTION 1
2. PROPOSED SCHEME 2
2.1 Scheme Context and Location 2
2.2 Construction Operation 3
2.3 Potential Trip Generations 6
2.4 Proposed Site Accessibility 11
3. AIMS, OBJECTIVES AND TARGET 15
3.1 Overview 15
3.2 Aims and objectives 15
3.3 Targets 16
4. TRAVEL PLAN MEASURES 17
4.2 Proposed Measures to Reduce Traffic Levels 17
4.3 Minimising Impact on the Local Road Network 18
5. ROLES AND RESPONSIBILITIES 20
5.1 Sponsor 20
5.2 The CWTP Coordinator 20
5.3 Principal Contractor(s) 21
6. MONITORING AND REVIEW 22
6.1 CWTP Strategy 22
6.2 Monitoring 22
6.3 Action Plan 22

1. INTRODUCTION

1.1.1 The Transpennine Route Upgrade (TRU) is a major, multi-billion pound programme of rail improvements to bring more frequent, faster, and greener trains across the Pennines between Manchester, Huddersfield, Leeds and York on a better, cleaner, more reliable railway.

1.1.2 Further information on the 'Order Scheme' is provided within Volume 1, Chapters 1-4 of this Report [**NR14**]. The Order Scheme's boundary is illustrated in Figures 1.1.1 and 1.1.6 Volume 2 of this Report [**NR14**].

1.1.3 This Framework Construction Worker Travel Plan (Framework CWTP) has been prepared to accompany the proposed Order Scheme.

1.1.4 The Framework CWTP is designed to promote and encourage the use of sustainable transport modes by construction workers/staff and reduce reliance on the private car during the construction of the Order Scheme. The CWTP sets out the aims, objectives and measures to promote sustainable travel to the construction sites (in this Framework CWTP 'Sites' refers to the various construction compounds and associated relevant works locations), with the key aim being to ensure an average car occupancy of more than one worker per car / per vehicle.

1.1.5 All contractors with staff proposed to be on site will be required to use this Framework CWTP as the starting point for their Final Construction Worker's Travel Plan (Final CWTP) and demonstrate how targets defined in this Framework CWTP can be achieved. The measures will be implemented by various Principal Contractor(s).

1.1.6 Network Rail staff and Principal Contractor(s) will be required to submit the Final CWTP(s) as an appendix to the Final Construction Traffic Management Plan (CTMP), for approval to Tameside Metropolitan Borough Council (TMBC) and Oldham Metropolitan Borough Councils (OMBC)_in accordance with the requirements of the relevant planning condition in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**].

1.1.7 This Framework CWTP forms part of the traffic appraisal documentation and should be read in conjunction with the following documents:

- Chapter 10 - Traffic and Transport, Volume 1 of this Report [**NR14**];
- Appendix 10A - Traffic and Transport, Volume 3 of this Report [**NR14**];
- Appendix 10B Transport Statement, Volume 3 of this Report [**NR14**];
- Part A Code of Construction Practice (CoCP) [**NR17**].

2. PROPOSED SCHEME

2.1 Scheme Context and Location

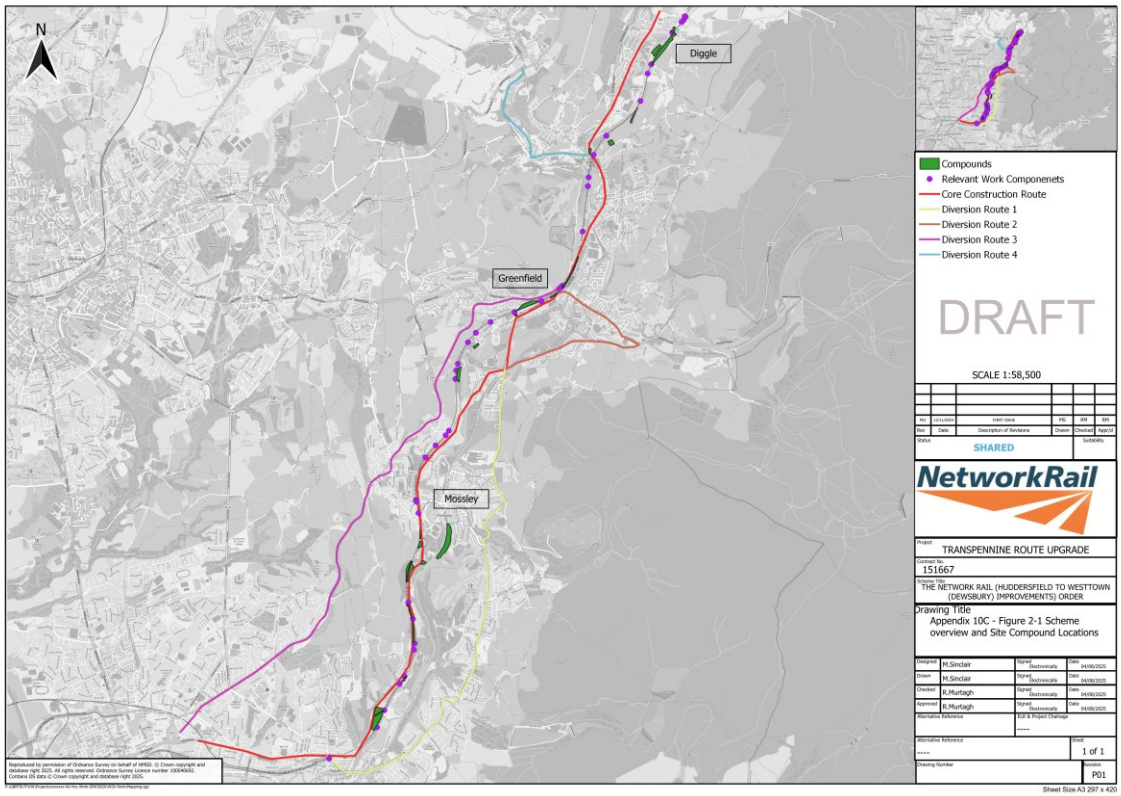
2.1.1 The Order Scheme is forecast to deliver modernisation and efficiencies to this section of the railway and therefore the level of passenger rail movements between various origins and destinations through the Order Scheme are expected to increase.

2.1.2 Although passenger usage may increase in the future, increased usage of the railway is considered permitted intensification. Should passenger usage increase and result in an increase of highway movements to/from stations on the route, it would also result in forecast decreases in highway movements on the wider network as users transferred from car to the improved rail service.

2.1.3 Figure 2-1 illustrates the extent of the Order Scheme upgrade works along with proposed sites (compounds and worksite locations).

Figure 2-1 – Scheme overview and Site Compound Locations

2.1.4



2.1.5 All sites (construction compounds and works locations) and the Order Scheme boundary are shown in Figures 1.1.1 and 1.1.6 Volume 2 of this Report [**NR14**].

2.2 Construction Operation

Construction Strategy

2.2.1 The CoCP Part B requires the Principal Contractor to develop and implement a series of reports and delivery plans (collectively referred to as 'the CoCP Environment Plans') comprising:

- An external communications programme;
- A pollution prevention and incident control plan (PPICP);
- A waste management and materials plan;
- A nuisance management plan (NMP) concerning dust, wheel wash measures, air pollution and temporary lighting;
- A noise and vibration management plan (NVMP) including a construction methodology assessment; and

2.2.2 Those reports and plans will include a series of targets including:

- to meet the requirements of all relevant legislation, codes of practice and latest standards. The contractor must also comply with all legislative provisions, including those specifically contained in the CoCP Part A [**NR17**] and whenever legislation or codes of practice are referred to, is the contractor's responsibility to comply with the current version;
- to challenge the existing standards where best practice or innovation offers the potential for the Order Scheme to be built with less impacts or more sustainably;
- having regard to latest standards to limit adverse impacts on the local community and the environment so far as reasonably practicable;
- to minimise (as far as reasonably practicable) impacts on local businesses;
- to minimise (as far as reasonably practical) impacts on the local resident population and maintain the area as a viable place to live and work throughout the construction period;
- to minimise (as far as reasonably practicable) impacts on the natural environment such as wildlife, watercourses or landscape.
- ensure project updates and information will continue to be provided via the Network Rail or Scheme website as appropriate;
- to provide a dedicated Principal Contractor Communications team and include the Network Rail Helpline facility to record and act on inquiries and complaints;

- to minimise (as far as reasonably practical) the disruption to the highway network;
- to minimise (as far as reasonably practical) the impacts on the existing rail network, rail passengers and the passenger Train Operating Companies (TOCs) and Freight Operating Companies (FOCs); and,
- to coordinate with outside relevant projects as far as is reasonably practicable to reduce the cumulative effects

Working Hours

2.2.3 Standard working hours are defined as 08:00 to 18:00 Monday to Friday; 08:00 to 13:00 on Saturdays with 30 minutes either side for setting up and organising / cleaning the site. Standard working hours refer to all activities where construction does not interfere with or require a closure of the operating railway.

2.2.4 Network Rail reserves the right to conduct non-rail works outside the standard working hours should an extension of work hours be required to meet an “entry into service” deadline. This is most normally required when works must be completed in advance of other planned works under extended “possession” of the railway (possessions are normally closure of the railway such as - at night-time, weekends or bank holidays). In these circumstances, Network Rail would inform the relevant local authority(s) and residents as applicable, a minimum of 14 days in advance of the start of the extension of working hours.

2.2.5 Non-standard working hours will also be utilised in connection with any construction works that would interfere with the operation of the railway. This means when the operating railway is closed so that construction works can progress (this is known as “possessions”).

2.2.6 In addition, Network Rail and contractors will need to access the track in brief possessions known as Rules of the Route (RotR) that occur at night during midweek, normally between 10pm and 4am whenever required.

Construction Compound Operation

2.2.7 Table 2-1 provides an overview of the various work packages during the construction phase of the Order Scheme, which compounds are within those work packages and the relevant works which are served by the various compounds.

Table 2-1 – Construction Compound Overview

Work Package	Compounds	Interventions/ Relevant Works at Structures
Alpha	Printworks Road Office	All
	Wakefield Road	MVL3/7, MVL3/8, MVL3/9, MVL3/10
	Bridge 10A/ Tunnel Laydown Area	MVL3/10a
Scout	Scout Spoil Point	MVL3/11
	Scout East Laydown	MVL3/11
Mossley	Manchester Road / Mossley New Compound	MVL3/12, MVL3/12a, MVL3/13, MVL3/14, MVL3/15
Bravo	Heron Lane	MVL3/16, MVL3/17, MVL3/18, MVL3/19, MVL3/20
	Armit Road	MVL3/22
	Oaklands Road/ Satellite	MVL3/23, MVL3/24, MVL3/25, MVL3/26, MVL3/27a, MVL3/27b,
	Shaw Hall Bank Road	MVL3/28
Charlie	Oaklands Road/ Satellite	MVL3/29, MVL3/31, MVL3/31a, MVL3/32
Diggle	Grandpa Green/ Grandpa Green 2	MVL3/35
	Diggle Rail Hub/ Welfare Office	MVL3/36
	Sam Road	MVL3/39, MVL3/39a, MVL3/39b

2.2.8 It is expected that the majority of construction workers will utilise the main compounds of Whitelands Road, Wakefield Road, Plevins, Oaklands Road and Diggle. In order to help reduce traffic movements on the local road network, it is also anticipated that shuttle buses will be provided to shuttle construction staff from these main construction compounds to other relevant work locations.

2.3 Potential Trip Generations

2.3.1 Table 2-2 provides an overview of the key activities and facilities at each of the sites / compounds and the likely number of staff expected daily and potential vehicle movements.

Table 2-2 – Construction Compound Trip Generation & Potential Operation

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Whitelands Road	The compound will be constructed on an existing brownfield site. The compound will be used as site offices with welfare facilities and parking.	**Access:** Existing access via Whitelands Road **Key Activity Routes:** Whitelands Road, Stamford Road Activity Routes: Printworks Road, Wakefield Road/ Manchester Road	**Typical Activity:**50 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 30 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 7
Printworks Compound	There will be an office/ welfare complex, staff parking and storage areas. There will be safe walking routes, all vehicles will be able to turn on-site, and access will be via a new access onto Printworks Road.	**Access:** New priority Controlled Junction via Printworks Road. **Key Activity Routes:** Printworks Road, Wakefield Road/ Manchester Road	**Typical Activity:** 23 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 46 Daily HGVs: 7 **Peak Activity** Daily Cars/ LGVs: 46 Daily HGVs: 7

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Wakefield Road Plant Access and Compound	To be utilised for storage of plant and materials. On-site welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Wakefield Road.	**Access:** New/improved access via Wakefield Road **Key Activity Routes:** Wakefield Road/ Manchester Road, Springbank Lane.	**Typical Activity:** 46 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs:28 Daily HGVs: 3 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 3
Scout Tunnel (includes Scout Spoil Point, Scout Laydown, and Manchester Road Compound)	Currently used as car parking and will be repurposed to allow for spoil to be removed from the tunnel and for stockpiling. Improvements to site access to be considered to limit impact on local highway network. Staff to be brought to site by minibus due to limited on-site parking. No welfare at this site.	**Access:** Improved access via Manchester Road **Key Activity Routes:** Manchester Road.	**Typical Activity:** 47 personnel **Peak Activity:** 47 personnel	**Typical Activity** Daily Cars/ LGVs: 24 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 24 Daily HGVs: 2
Scout Tunnel Eastern Portal (includes Scout East Laydown, Ramp and Access)	Existing car parking area to be replaced by compound which will facilitate workable area for tunnel works. Welfare to be provided and staff to be brought to site by minibus due to limited on-site parking.	**Access:** Improved access via Manchester Road **Key Activity Routes:** Manchester Road. Stamford Road.	**Typical Activity:** 36 personnel **Peak Activity:** 36 personnel	**Typical Activity** Daily Cars/ LGVs: 18 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 18 Daily HGVs: 0

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
Plevins Logistic Hub	This will be the main logistics hub supporting scheme wide interventions. Access via Manchester Road	**Access:** Cheshire Street/ Egmont Street. Improvements to Manchester Road/ Egmont Street Junction **Key Activity Routes:** Manchester Road. Egmont Street. Cheshire Street. Stamford Road.	**Typical Activity:** 235 personnel **Peak Activity:** 300 personnel	**Typical Activity** Daily Cars/ LGVs: 126 Daily HGVs: 8 **Peak Activity** Daily Cars/ LGVs: 158 Daily HGVs: 8
Mossley Station Compound	Required to support works at Mossley Station. To be utilised for storage of plant and materials. On-site welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Manchester Road.	**Access:** Existing access to be modified/ improved. **Key Activity Routes:** Manchester Road, Stamford Road.	**Typical Activity:** 36 personnel **Peak Activity:** 107 personnel	**Typical Activity** Daily Cars/ LGVs: 21 Daily HGVs: 4 **Peak Activity** Daily Cars/ LGVs: 57 Daily HGVs: 4
Heron Lane Compound	Greenfield site which will be constructed to contain site welfare, stores, material storage, security hub and parking.	**Access:** Existing access to be modified/ improved. Traffic management	**Typical Activity:** 20 personnel **Peak Activity:** 20 personnel	**Typical Activity** Daily Cars/ LGVs: 10 Daily HGVs: 2 **Peak Activity**

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
	Provides direct access to track.	maybe required. **Key Activity Routes:** Manchester Road, Heron Lane		Daily Cars/ LGVs: 10 Daily HGVs: 2
Armit Road Compound	Greenfield site that will be used for the surrounding interventions with access via Armit Road.	**Access:** Existing access to be modified/ improved. **Key Activity Routes:** Manchester Road, Church Road, Armit Road	**Typical Activity:** 15 personnel **Peak Activity:** 15 personnel	**Typical Activity** Daily Cars/ LGVs: 8 Daily HGVs: 2 **Peak Activity** Daily Cars/ LGVs: 8 Daily HGVs: 2
Oaklands Road Compound	To be utilised for storage of plant and materials. On-site offices, welfare and parking to be provided and it is expected that there will be sufficient space on-site for vehicles to turn. Access will be via a new/ modified access onto Oaklands Road.	**Access:** Modified access via Oaklands Road. **Key Activity Routes:** Manchester Road, Oaklands Road, Well-I-Hole Road/ Shaw Hall Bank Road, Church Road, Armit Road, High Grove Lane, Oldham Road.	**Typical Activity:** 30 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 20 Daily HGVs: 10 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 10
Greenfield Compound (Shaw Hall Bank Road)	This compound is to support construction at the Greenfield Station. Provide car parking for staff.	**Access:** existing access via Shaw Hall Bank Road.	**Typical Activity:** 10 personnel	**Typical Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
		Key Activity Routes: Manchester Road, Oaklands Road, Well-I-Hole Road/ Shaw Hall Bank Road	**Peak Activity:** 10 personnel	**Peak Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0
Grandpa Greens / Grandpa Greens 2 (as part of Ward Land Compound Works)	The site is currently informal car parking and a greenfield site. Small welfare area and parking provision to be provided.	**Access:** improved access via Ward Lane. **Key Activity Routes:** Ward Lane, Huddersfield Road, Dobcross New Road	**Typical Activity:** 20 personnel **Peak Activity:** 20 personnel	**Typical Activity** Daily Cars/ LGVs: 10 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 10 Daily HGVs: 0
Diggle Rail Hub / Welfare Office Compound	Access via Lee Side. New access already installed which is appropriate for HGVs. To be utilised for storage of plant and materials. Welfare and full office set up to be provided.	**Access:** Lee Side (new access already installed by W3). **Key Activity Routes:** Lee Side, Diggle Road, Sam Road, Ward Lane, Huddersfield Road.	**Typical Activity:** 50 personnel **Peak Activity:** 75 personnel	**Typical Activity** Daily Cars/ LGVs: 30 Daily HGVs: 7 **Peak Activity** Daily Cars/ LGVs: 43 Daily HGVs: 7
Sam Road Car Park (as part of Diggle Compound Works	The site is currently use as an off-street carpark. The site will be used for car parking and access to the track	**Access:** Use existing access **Key Activity Routes:** Sam Road, Ward Lane,	**Typical Activity:** 10 personnel **Peak Activity:** 10 personnel	**Typical Activity** Daily Cars/ LGVs: 5 Daily HGVs: 0 **Peak Activity** Daily Cars/ LGVs: 5

Compound/ Storage Area	Overview	Access and Routing	Personnel	Trip Generations
		Huddersfield Road.		Daily HGVs: 0

2.3.2 The typical daily car/ LGVs movements at the sites / compounds are based on achieving a car occupancy of 2 persons per vehicle.

2.3.3 It is acknowledged that that there will be occasions of increased activity over short time periods relating to possessions/ blockades, although the typical construction operation is expected to be in line with the numbers presented in Table 2-2.

2.3.4 Furthermore, compounds Whitelands Road, Wakefield Road, Plevins, Oaklands Road and Diggle Welfare & Office are proposed to include operation of shuttle buses to move construction staff from the compounds to the relevant works locations associated. This will help minimise vehicle movements, particularly sole occupant car movements.

2.4 Proposed Site Accessibility

2.4.1 The majority of the Order Scheme's compounds/ relevant works are located within or close to areas with existing facilities including footways, street lighting and public transport.

2.4.2 Table 2-2 highlights the facilities (welfare, parking) to be provided at the various compounds. Given that the majority of workers will be carrying Personal Protective Equipment (PPE) and work tools/ equipment, travel by car/ van is likely to be the preferred and most appropriate method of travel to compounds by construction workers. It is anticipated that travel to compounds by walking or cycling will be limited although travel to the key compounds (Whitelands Road, Wakefield Road, Plevins, Oaklands Road and Diggle Welfare & Office) by public transport may have some appeal to a small proportion of the workforce.

2.4.3 Figure 2-2 provides an overview of all bus stops in relation to the main compounds and those stops within a 400m walking distance of key compounds (Whitelands Road, Wakefield Road, Plevins, Oaklands Road and Diggle). Public transport information on bus routes/ stops within acceptable walking distances to all compounds can be provide in induction packs to workers. There are no bus stops within 400m of Whitelands Road and therefore it is excluded from Figure 2-2.

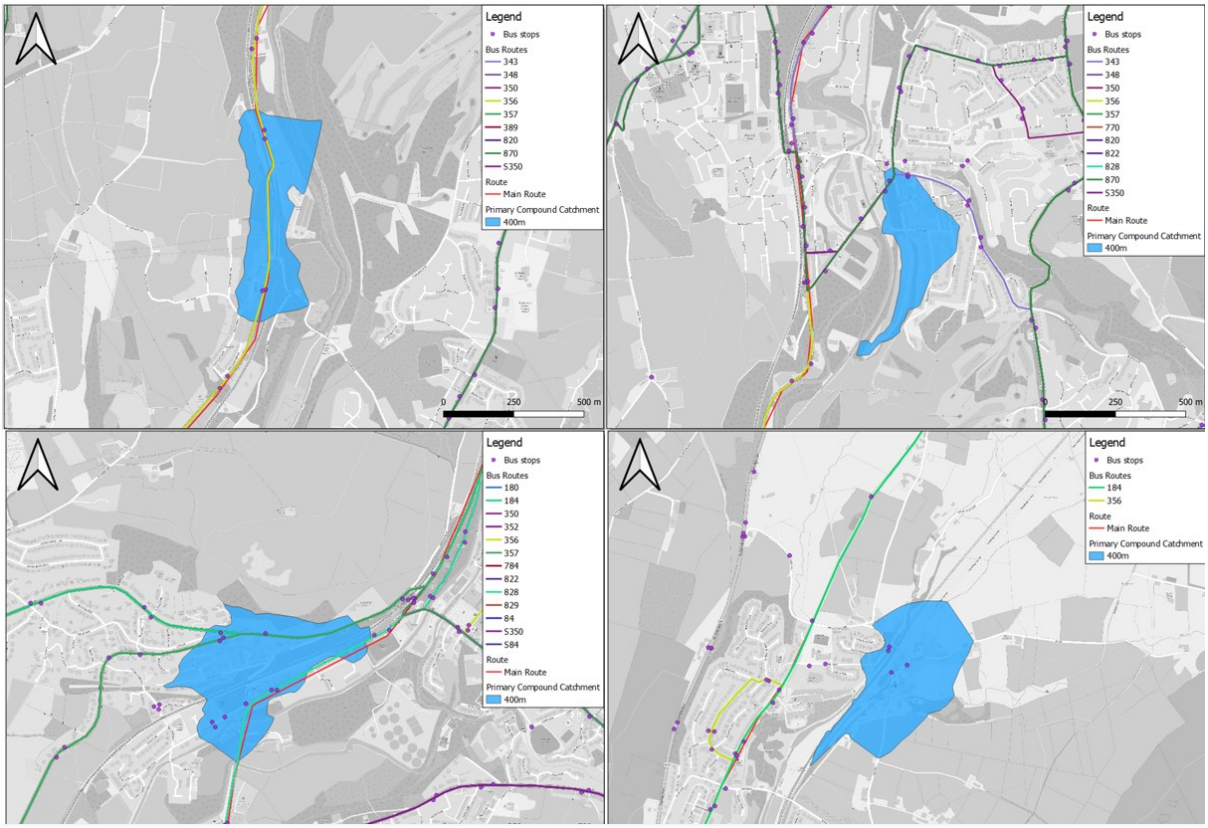


Figure 2-2: Key Compounds and Bus Stops within 400m Walking Distance

2.4.4 Table 2-3 provides an overview of the key compounds (Wakefield Road, Plevins, Oaklands Road and Diggle Welfare & Office), the bus stops within a 400m walking distance and services operating from these stops which construction staff could utilise as part of their commute.

Table 2-3: Key Compounds – Public Bus Services

Compound	Bus Stop Reference	Services	Bus Routes	Frequency
Wakefield Road	MANAWTDJ, MANAWTDG, MANAWTDA, MANAWTAW, MANAWTAT, MANAWTAP, MANAWTAM	356	Ashton-under-Lyne Interchange - Oldham Bus Station	hourly 07:00-20:00
Plevins	MANAWJWA, MANAWJWD, MANAWJWG, MANAWJWM, MANAWJWP, MANAWJWT, MANTPGJW,	343 822 350 356 820	Oldham - Lees - Mossley - Stalybridge - Dukinfield - Hyde Dobcross - Uppermill - Greenfield -	Hourly 06:00-17:00 N/A hourly hourly 07:00-20:00 N/A

Compound	Bus Stop Reference	Services	Bus Routes	Frequency
	MANAWMAG, MANAWMAD, MANAWMJA, MANAWJDA, MANAWMAJ, MANDGWJG, MANDGWJD, MANAWAGP MANAWPWG, MANAWPWD	870 S350B	Mossley - Oldham Mumps Oldham - Delph - Greenfield - Mossley - Ashton-under-Lyne Oldham - Diggle - Mossley - Stalybridge - Ashton-under-Lyne Oldham - Greenacres - Watersheddings - Moorside - Sholver Ashton Under Lyne - Stalybridge Dobcross - Oldham	Every 2 hours 2 per day
Oaklands Road	MANAMWPM, Chew Valley Road (Stop C), Chew Valley Road, MANAMADJ, MANAMWPT, MANAMPGP, MANAPAWG, MANAPAWD, MANTPTWD, MANTPTWG	828 180 350 352 356 357 S350B 822 84 184 784 829 s84	Rookbottom - Grasscroft - Greenfield - Uppermill - Diggle Greenfield - Grasscroft - Lees - Clarksfield - Oldham Oldham - Delph - Greenfield - Mossley - Ashton-under-Lyne Uppermill - Greenfield - Meltham - Upperthong - Holmfirth Ashton Under Lyne - Oldham olmfirth - Greenfield - Top Mossley - Ashton-under-Lyne Saddleworth School - Ashton-under-Lyne Interchange Dobcross - Uppermill - Greenfield - Mossley - Oldham Mumps Piccadilly Gardens	N/A Every 20 mins Every 30 mins 3 per day Every hour 3 per day 2 per day N/A Every 20 mins Every 10 mins N/A 3 per day N/A

Compound	Bus Stop Reference	Services	Bus Routes	Frequency
			- Hollinwood - Oldham - Lees - Uppermill Oldham - Greenacres - Diggle - Huddersfield Town Centre Diggle - Uppermill - Grasscroft - Clarksfield - Oldham Werneth - Chadderton - Clarksfield - Uppermill - Diggle Greenfield, Oldham Road / o/s Greenfield Station	
Diggle Welfare & Office	MANTJAPD MANAPAMG MANAPAMD	184 356	Oldham - Greenacres - Diggle - Huddersfield Town Centre Ashton Under Lyne - Oldham	Every 10 mins 1 per day

3. AIMS, OBJECTIVES AND TARGET

3.1 Overview

3.1.1 This Framework CWTP is a management tool designed to coordinate strategies and initiatives that support sustainable travel and reduce the need for single occupancy vehicle use among construction staff.

3.1.2 It is important to note that the Framework CWTP sets a headline target so that overall performance of the Final CWTP can be monitored and, if necessary, further measures can be introduced to the Final CWTP to encourage mode shift towards more sustainable modes.

3.1.3 The Aims, Objectives and Targets to which future Final CWTPs should build upon are set out within this section.

3.2 Aims and objectives

3.2.1 The aim of this Framework CWTP is to:

- Ensure that construction staff are informed about the sustainable travel options available for accessing the Order Scheme sites / compounds relevant work locations and the surrounding area. This includes access by public transport, minibus, coach, and car sharing schemes, with the goal of minimising reliance on private cars and reducing single occupancy vehicle trips.

3.2.2 The aim of this Framework CWTP will be achieved through the delivery of several key objectives, which the Final CWTP will build upon:

- **Raise Awareness:** Increase awareness of alternative sustainable travel options available for construction workers travelling to/ from locations associated with the Order Scheme.
- **Provide Information**: Ensure each construction staff member has access to travel information.
- **Promote the CWTP**: Actively promote the CWTP and its associated measures.
- **Maintain Communication**: Keep an open line of communication with construction staff to ensure they have access to relevant travel information.
- **Reduce Traffic Impact**: Minimise the traffic impact of construction staff movements.
- **Promote Sustainable Travel**: Encourage the use of public transport, car sharing, cycling, and walking to work.
- **Encourage Low Emission Vehicles**: Promote the use of low and zero-emission vehicles.

- **Discourage Single Occupancy Travel**: Deter the use of single occupancy car travel.
- **Provide Transport Services**: Offer collection and drop-off services to and from key transport hubs and off-site car parking locations.

3.3 Targets

3.3.1 Volume 3, Appendix 10B Transport Statement of this Report [**NR14**] suggest that there could be 726 daily light vehicle movements (light vehicles: cars or vans). These numbers are based on the assumption that car occupancy will be a minimum of 2 persons per car/ van.

3.3.2 The initial headline target proposed is:

- Achieve an average car occupancy rate of two workers per vehicle throughout the construction project. Up until the completion of the Order Scheme, no more than one car or van should be parked on-site for every two people registered on-site per day.

3.3.3 The CWTP Coordinator will monitor parking utilisation at each site, reviewing the distribution between cars, vans, and minibuses. Meeting this target relies on the contractor encouraging workers to use the sustainable travel options provided in the Final CWTP(s).

3.3.4 If monitoring indicates that the target is not being met, additional measures will be implemented to ensure the Final CWTP(s) remains on track to achieve its overall objectives.

4. TRAVEL PLAN MEASURES

4.1.1 To encourage sustainable travel behaviour among construction staff throughout the construction period, it is essential to introduce a comprehensive package of measures. These measures aim to minimise construction worker traffic and reduce the impact and disruption of remaining traffic on the local road network.

4.1.2 The package of measure that will be introduced to influence travel behaviour is set out in this section. It is expected that these measures will be reviewed and built upon as part of future Final CWTPs to be developed by the various Principal Contractor(s).

4.2 Proposed Measures to Reduce Traffic Levels

Car Parking

4.2.1 Influence on Travel Choices: The availability of car parking significantly influences the means of transport people choose for their journeys. It is a crucial travel plan measure for promoting sustainable travel to and from site. Car parking availability will vary from compound to compound and is likely to include restrictions on the number of spaces available. Where possible, the majority of parking facilities will be located at strategic locations/ key compounds and operate shuttle buses to satellite sites from there.

4.2.2 Monitoring and Access: Car parking at sites / compounds will be monitored by the Travel Plan Coordinator(s). The Site Manager(s) and Travel Plan Coordinators will set criteria for construction workers to receive pre-allocated parking spaces.

Minibus

4.2.3 Encouragement for Contractors: Principal Contractor(s) will be encouraged to provide minibuses to transport workers from key points of origin to sites/ compound, reducing vehicular trips on the local road network. Suitable pick-up locations for minibuses will be identified based on workers' accommodation choices. Minibus routes can also be set up to collect local workers from central pick-up points.

4.2.4 Shared Accommodation: Principal Contractor(s) will encourage workers from outside the local area to use common hotels and B&Bs to promote shared transport modes such as minibuses.

4.2.5 Organisation: Principal Contractor(s) will be responsible for providing minibuses and organising pick-up locations and times.

Car Sharing

4.2.6 Scheme Setup: Principal Contractor(s) will be encouraged to set up and manage a car share scheme for their workers. Car sharing is popular in construction projects due to its financial and social benefits. Workers away from home for extended periods may welcome the companionship of colleagues.

4.2.7 Emergency Provision: In emergencies, the CWTP Coordinator will provide a guaranteed lift home for car sharers, such as by taxi. This provision can also be extended to staff who cycle to site.

Cycling

4.2.8 Facilities: Although cycling to site may have limited appeal due to the need to carry personal protective equipment (PPE) and the distance from larger conurbations, secure bicycle parking will be provided. Construction staff who cycle to work will have access to shower and changing facilities and lockers for storing clothing and cycle helmets.

Public Transport Information

4.2.9 Information Packs: Information on public transport, including routes, destinations, service frequencies, and locations of the nearest bus stops, will be provided in an information pack sent to construction workers before they start work at the site. Public transport information will also be displayed on travel information boards. The CWTP Coordinator will ensure this information is kept up-to-date.

On-site Storage

4.2.10 Tool Storage: Principal Contractor(s) will provide an on-site storage facility to encourage construction workers to store their tools on-site. This will reduce the amount of equipment they need to carry daily and support those considering cycling or car sharing as travel options.

4.3 Minimising Impact on the Local Road Network

Staggered Working Hours

4.3.1 Flexible Hours: Working hours on major construction sites tend to be longer due to timescale pressures and available light. Consequently, the arrival and departure of some workers' vehicles are spread over peak periods, minimising the impact on any particular time period.

Travel Plan Communication

4.3.2 Information Dissemination: Details of sustainable transport options for accessing sites will be provided in an information pack sent to construction

workers before they start work. This will raise awareness of the initiatives being implemented and allow staff to register interest in the Order Schemes. Principal Contractor(s) will ensure all construction workers receive the information pack before starting work on-site.

4.3.3 Introductory Meetings: All construction workers will receive an introductory meeting on the Travel Plan when they commence work, incorporated into the site safety briefing. This will include information on sustainable transport measures available for accessing the site and parking arrangements, ensuring each worker is fully aware of the Travel Plan and its measures.

5. ROLES AND RESPONSIBILITIES

5.1 Sponsor

5.1.1 The Sponsor (Network Rail) ensuring a condition of contract between them and the Principal Contractor(s) to develop and comply with the provisions of a Final CWTP(s), prepared in accordance with this Framework CWTP.

5.2 The CWTP Coordinator

5.2.1 The CWTP Coordinator plays a crucial role in managing, monitoring, and implementing the various measures within the plan. Given the increased emphasis on the CWTP process, the role of the CWTP Coordinator is becoming increasingly significant. The Principal Contractor(s) will appoint the CWTP Coordinator to oversee and deliver the CWTP. The details of the CWTP Coordinator will be provided to Tameside and Oldham Councils.

5.2.2 The CWTP Coordinator will collaborate closely with the Principal Contractor(s) Site Manager, who holds overall responsibility for the site and has the authority to enforce measures for workers who do not adhere to the guidelines.

5.2.3 The responsibilities of the CWTP Coordinator may include:

- Ensuring that an introduction to the CWTP is included in the Site Safety Briefing and that information packs are provided to the workforce before they start on site.
- Encouraging adherence to the contractual obligations related to the CWTP by Principal Contractor(s) and sub-contractors.
- Ensuring the CWTP notice board is prominently located and that the information is kept up to date.
- Being based onsite.
- Acting as the key point of contact for issues related to construction traffic.
- Conducting a monthly snapshot parking survey to ensure car park occupancy targets are met.
- Reviewing cycle parking provision on a monthly basis.
- Engaging with local stakeholders.
- Monitoring performance against the targets of the Final CWTP(s).
- Implementing additional measures if the targets are not being met.

5.3 Principal Contractor(s)

5.3.1 The Principal Contractor(s) will be responsible for managing the travel arrangements of construction workers to and from the site. Given the limited number of parking spaces available, the primary responsibilities of the Principal Contractor(s) will include:

- **Providing a CWTP Coordinator**: Appointing a CWTP Coordinator to oversee the management and delivery of the Final CWTP(s). This role is expected to be undertaken by an existing employee as part of their broader responsibilities.
- **Promoting Sustainable Transport**: Encouraging and promoting the use of sustainable transport measures outlined in the Final CWTP(s).
- **Organising Construction Staff (Crew) Minibuses**: Arranging for crew minibuses to transport workers to and from the sites / compounds, including pickups at key locations within the local area. It should be noted that this has not been assumed within the Environment Report, thus providing a more robust assessment in line with the worst-case scenario approach.

5.3.2 Given the presence of other projects in the local area, the Principal Contractor(s) will liaise with other contractors to coordinate works and associated worker traffic movements as much as possible.

6. MONITORING AND REVIEW

6.1 CWTP Strategy

6.1.1 A well-defined CWTP strategy is crucial for setting out the measures and their implementation. Key elements of an adopted CWTP strategy typically include:

- **Securing Resources**: Ensuring the necessary resources, including time, are allocated to develop and implement the CWTP.
- **Consulting and Educating Staff**: Engaging with construction staff to inform and educate them about the CWTP.
- **Identifying and Engaging Partners**: Collaborating with relevant partners and stakeholders.

6.1.2 In the context of the construction phase of the Order Scheme, the Final CWTP(s) will focus on influencing the travel behaviour of construction staff. It will highlight the benefits of using sustainable transport modes and promote their use. The Construction Site Manager(s) or CWTP Coordinator(s) will be responsible for the overall implementation of the adopted CWTP.

6.2 Monitoring

6.2.1 The Construction Site Manager(s) or CWTP Coordinator(s) will serve as the central point for implementing CWTP initiatives and will oversee the ongoing monitoring of CWTP targets.

6.2.2 Successful CWTPs rely on partnerships, requiring organisations to collaborate with various partners and internal stakeholders during the implementation process. All partners are expected to actively contribute. The Construction Site Manager(s) or CWTP Coordinator(s) will play a key role in establishing partnerships and maintaining communication.

6.2.3 To ensure the CWTP's success, the Construction Site Manager(s) or CWTP Coordinator(s) will monitor the implementation of measures and make necessary adjustments. They will also conduct regular checks on car parking, considering mode share and headline targets, and maintain records of its usage.

6.3 Action Plan

6.3.1 The Final CWTP will be developed and implemented before the start of key construction works of the Order Scheme. It will build upon the actions outlined in Table 6-1 below for consideration and approval by Tameside and Oldham Councils. The Final CWTP will also allocate the necessary resources to carry out these actions effectively.

Table 6-1: Action Plan

Measure	Responsibility	Timescale
Appoint Construction Site Manager	Network Rail and Principal Contractor(s)	Prior to occupation of Compounds
Appoint CWTP Coordinator(s)	Network Rail and Principal Contractor(s)	Prior to occupation of Compounds
Prepare Induction/ Welcome packs for construction workers	Network Rail and Principal Contractor(s)	Prior to occupation of Compounds
Provide Shuttle Buses from Key Compounds	Network Rail and Principal Contractor(s)	Prior to occupation of Compounds
Submit and agree Final CWTP with OMBC / TMBC	Network Rail and Principal Contractor(s)	Prior to occupation of Compounds
Raise awareness of CWTP, its objectives and targes to all construction staff	Network Rail and Principal Contractor(s)	For the Duration of the Construction Period
Monitor Construction Staff travel behaviour/ choices	Network Rail and Principal Contractor(s)	For the Duration of the Construction Period
Record Construction Staff car parking on at compounds	Network Rail and Principal Contractor(s)	For the Duration of the Construction Period

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENTAL REPORT

VOLUME 3 APPENDIX 11A – GEOENVIRONMENT TECHNICAL APPENDIX

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CONTENTS

1. BASELINE FOR PRINTWORKS SITE COMPOUND 3
2. BASELINE FOR HEYROD HALL OVERBRIDGE WORKS (MVL3/7) AND SITE COMPOUND 30
3. BASELINE FOR MANCHESTER ROAD FOOTBRIDGE WORKS MVL3/10A 51
4. BASELINE FOR THE SCOUT WEST LAYDOWN AREA AND RAMP ACCESS 72
5. BASELINE FOR PLEVINS SITE COMPOUND 94
6. BASELINE FOR SCOUT EAST ACCESS WORK 120
7. BASELINE FOR SCOUT EAST LAYDOWN AREA AND RAMP ACCESS ... 147
8. BASELINE FOR ROUGHTOWN ROAD FOOTBRIDGE (MVL3/18) 174
9. BASELINE FOR RELOCATED MOSSLEY STATION WORKS..... 195
10. BASELINE FOR ROUGHTOWN ROAD OVERBRIDGE (MVL3/17) 222
11. BASELINE FOR HERON LANE SITE COMPOUND AND WRIGHTS MILL OVERBRIDGE (MVL3/20) RECONSTRUCTION 246
12. BASELINE FOR ARMIT ROAD SITE COMPOUND..... 277
13. BASELINE FOR OAKLANDS ROAD SITE COMPOUND AND GREENFIELD SITE COMPOUND, INCLUDING BRIDGE WORKS (MVL3/27B AND MVL3/28) . 300
14. BASELINE FOR OLDHAM ROAD ACCESS..... 331
15. BASELINE FOR WICKENS UNDERBRIDGE MVL3/29 PROW UPGRADES 347
16. BASELINE FOR UPPERMILL VIADUCT VEHICLE ACCESS..... 369
17. BASELINE FOR FORMER SADDLEWORTH STATION SITE COMPOUND 392
18. BASELINE FOR DIGGLE RAIL HUB COMPOUND WORKS 414
19. BASELINE FOR GRANDPA GREENE'S COMPOUNDS 442
20. BASELINE FOR SAM ROAD COMPOUND 464
21. BASELINE FOR DIGGLE ACCESS AND DIVERSION ROUTE 486

APPENDIX 11A – BASELINE REPORTS OF THE ORDER SCHEME

1. BASELINE FOR PRINTWORKS SITE COMPOUND

1.1 Site history

Table 1-1 provides a summary of the historical development at the Printworks site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250m area has been determined principally by reference to historical maps obtained from Groundsure[1].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 1-1 – Printworks site compound - Summary of historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Cuttings	1923	0 m	on-site
Tramway	1910-1933	1 m	west
Tank or Trough	1863	3 m	east
Railway building	1899-1938	21 m	south-east
Riverside Mills (cotton)	1893-1933	23 m	south-east
Box factory	1966-1995	23 m	south-east
Tank or Trough	1863	33 m	south-east
Unspecified heap	1906-1954	34 m	east
Tanks	1863-1985	44 m	south-east
Tunnel	1899-1995	78 m	south
River Meadow Mills (cotton)	1863-1933	80 m	east

[1] Groundsure 2024, Enviro + Geo Insight (GS-J63-YFR-PCH-GFU)

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified ground workings	1923	86 m	south-east
Unspecified heap	1906-1954	86 m	south-east
Unspecified ground workings	1954	96 m	north-east
Electricity works	1965-1966	98 m	north-east
Tanks	1993	114 m	east
Tank or Trough	1863	135 m	south-west
Scrap yard	1995	136 m	south-east
Cuttings	1906-1923	162 m	north-east
Unspecified tank	1965-1991	171 m	east
Tank or Trough	1863	172 m	north
Unspecified ground workings	1899-1995	179 m	south-west
North end mills (cotton)	1899-1938	179 m	east
Higher Glent Quarry	1845-1977	179 m	west
Railway sidings	1933-1954	194 m	west
Unspecified heap	1933	195 m	south-west
Refuse heap	1906-1981	198 m	south-east
Unspecified tank	1898	206 m	south
Unspecified tank	1898-1991	215 m	south-west
Electricity substation	1991-1993	216 m	south-east
Tank or Trough	1863	219 m	south
Unspecified quarry	1845-1977	219 m	south-west
Unspecified heap	1906-1954	222 m	north-east
Unspecified tank	1893	227 m	south-west
Unspecified quarry	1845-1977	240 m	west

1.2 Previous ground investigations

Description of the investigation

An intrusive ground investigation was undertaken by Bam Ritchies in December 20192 around the Stalybridge Tunnel, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Two of the locations are within 250 m of the site and have been summarised in Table 1-2 and the investigation locations are displayed in Figure 1-1.

Table 1-2 – Printworks site compound - Summary of investigations

Item	No. undertaken
Number of boreholes	Two
Number of trial pits	None
PID* testing undertaken	None
Number of soil samples tested	None
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None
* photo-ionisation detector	

[2] Bam Ritchies, 2020. TransPennine Route Upgrade GI - Ground investigation report - factual account (151667-TSA-W2A-MVL3-DM3-X-MF-701233)

Figure 1-1 – Printworks site compound - Previous investigations

Ground conditions

Table 1-3 summarises the ground conditions encountered during the ground investigation.

Table 1-3 – Printworks site compound - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Grey and pink angular gravel of granite (Clean ballast) Dark brown and grey gravel of granite and basalt (Dirty ballast) Brownish grey and pink gravel of granite (Clean ballast)	0.25 - 0.26 (boreholes begin below rail line).	0.45 – 0.60

	Brown clayey sandy gravel of granite and basalt (Very dirty ballast (non-cohesive)).		
Pennine Upper Coal Measures Formation	Weak grey sandstone Medium strong, locally weak thinly laminated locally cross bedded grey and dark grey mudstone with frequent sandstone laminae. Medium strong grey mudstone Strong thinly to thickly laminated light grey and grey fine-grained sandstone with frequent thin mudstone interlaminate. Partially weathered. Frequent convolute and cross bedding. Medium strong very thinly to thinly laminated dark grey and grey mudstone with occasional thinly to thickly interlaminated fine-grained sandstone. Partially to distinctly weathered.	0.45 – 0.60	5.00 - 5.50

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs.

1.3 Published geology

A summary of the published geology relevant to the Printworks Site Compound is provided below. The data has been sourced from Groundsure[1] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground may be present on-site. The Made Ground feature extends off-site to the east. There is also a potential Made Ground feature on the north-west boundary. The south-west of the site is not indicated to be underlain by Made Ground.

[3] BGS GeoIndex, 2020. https://mapapps2.bgs.ac.uk/geoindex/home.html?_ga=2.180598240.639117090.1725538202-1441530858.1725538201

Superficial deposits

The 1:10,000 scale published geology maps indicate Head deposits to be present across the majority of the site. Alluvium is located 24 m south-east, and Devensian Till is located 240 m south-east. The south-west of the site is not underlain by superficial deposits on BGS mapping.

Bedrock

The 1:10,000 scale published geology indicates there are four bedrock geology designations on the site. There are three other bedrock geology designations within 250 m of the site.

A summary of the bedrock geology encountered on-site and within 250 m of the site boundary is provided in Table 1-4. Figure 1-2 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 1-4 – Printworks site compound - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional Details
Huddersfield White Rock	0 m	on-site	Sandstone
Marsden Formation	0 m	on-site	Mudstone and siltstone
Rossendale Formation	0 m	on-site	Mudstone and siltstone
Rough Rock Flags	0 m	on-site	Sandstone
Rossendale Formation	5 m	north-west	Mudstone and siltstone
Marsden Formation	17 m 43 m	east south-east	Mudstone and siltstone
Rough Rock	67 m	west	Sandstone
Pennine Lower Coal Measures Formation	123 m	west	Mudstone, siltstone and sandstone
Woodhead Hill Rock	154 m	west	Sandstone

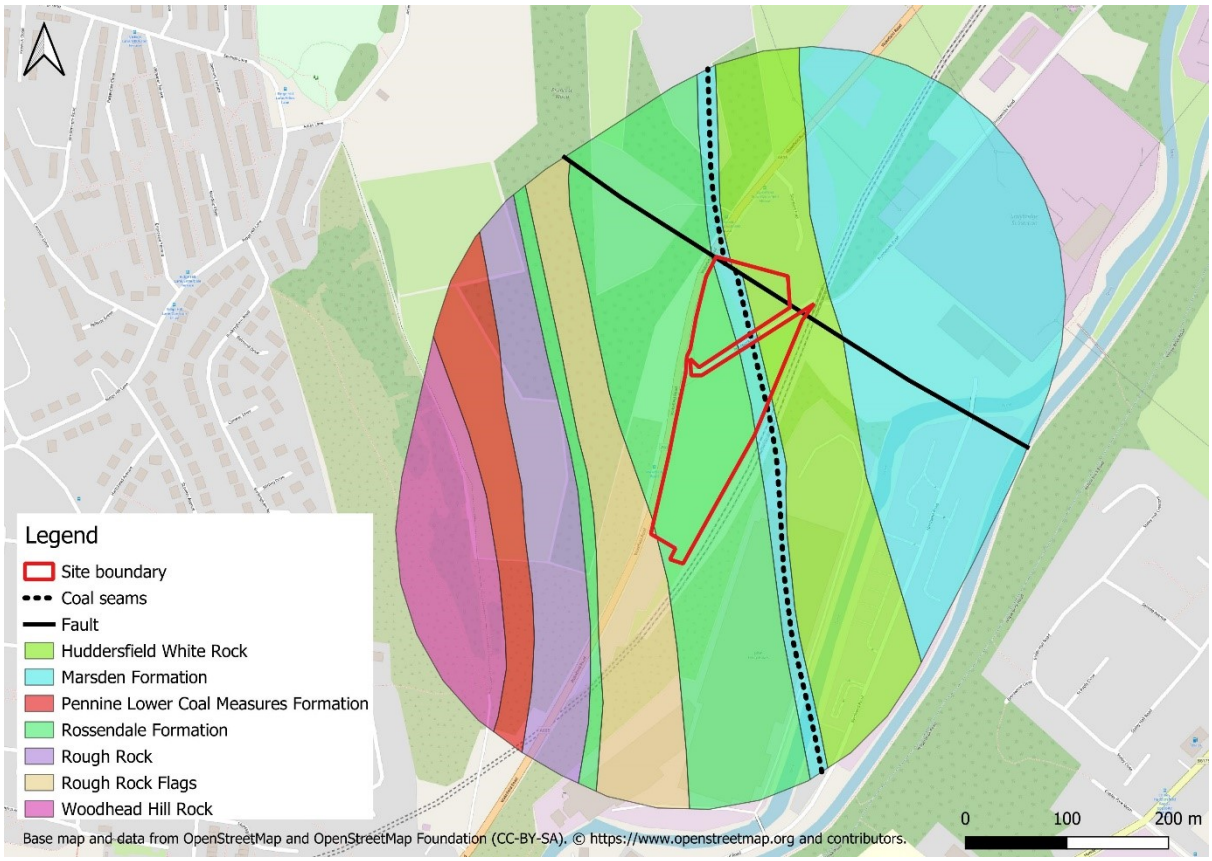

Figure 1-2 – Printworks site compound - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there is one bedrock fault on the site and one other linear feature within 250 m of the site. Details are provided in Table 1-5 and faults are visible in Figure 1-2.

Table 1-5 – Printworks site compound - Faults and linear features

Category	Description	Orientation	Distance from the site boundary	Direction from the site boundary
Rock	Coal seam	north to south	0 m	on-site
Fault	Normal fault	north-west to south-east	0 m	on-site
Fossil horizon	Fossil horizon, marine band coincident with	north to south	0 m	on-site

	bedrock geology boundary			
Fossil horizon	Fossil horizon, marine band coincident with bedrock geology boundary	north to south	91 m	north

1.4 Hydrogeology

Superficial aquifers

The data from Groundsure[1] indicates that there are no designated superficial aquifers on-site. A secondary A aquifer is located 20 m south of the site. A secondary (Undifferentiated) aquifer is recorded 211 m south-east of the site.

The Environment Agency describes a secondary A aquifer as “Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.”

A secondary (Undifferentiated) aquifer is described as “Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.”

Bedrock aquifers

The data from Groundsure[1] indicates that the site and surrounding area is underlain by a secondary A bedrock aquifer.

Groundwater vulnerability

Groundsure[1] data indicates that the groundwater vulnerability is medium for the bedrock aquifer on-site and off-site. Medium vulnerability indicates that the groundwater is an intermediate between high (areas easily able to transmit pollution to groundwater) and low (areas that provide the greatest protection from pollution).

Groundwater source protection zones

The data from Groundsure[1] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

[4] Defra. Multi-Agency Geographic Information for the Countryside (MAGIC) https://magic.defra.gov.uk/

Groundwater abstractions

The data from Groundsure[1] indicates that there is one groundwater abstraction licence within 250 m of the site. This active licence is located 202 m south of the site, extracting for boiler feed and process water, operated by John Hargreaves (Collyhurst & Stalybridge) Ltd.

Groundwater discharge consents

The date from Groundsure[1] indicates there are no licensed discharge consents to groundwater on-site or within 250 m of the site.

1.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[1] as an unnamed watercourse, which is located on-site. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site have been provided in Table 1-6.

Table 1-6 – Printworks site compound - Surface watercourses

Name of watercourse	Flow direction	Type	Distance from site	Direction from site	WFD overall classification
Unnamed watercourse	Unknown	On ground surface watercourse	0 m	on-site	-
River Tame (Chew Brook to Swineshaw Brook)	South	River	126 m	south-east	Moderate

Name of watercourse	Flow direction	Type	Distance from site	Direction from site	WFD overall classification
Huddersfield Narrow Canal west section	n/a	Canal	242 m	south-east	Moderate

Surface water discharge consents

The data from Groundsure[1] indicates there are no licensed discharge to surface water features on-site. There is one licensed discharge to surface water feature within 250 m of the site, details of which have been provided in Table 1-7. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 1-7 – Printworks site compound – Surface water discharge consents

Permit number	Address	Effluent type	Receiving water	Distance from site	Direction from site	Effective date
01TAM0125	Copley St, Stalybridge, Tameside, Greater Manchester	Sewage discharges – sewer storm overflow – water company	River Tame	215 m	east	01/01/1995, revoked 02/09/2010
						03/09/2010, revoked 12/04/2016

Surface water abstractions

The data from Groundsure[1] indicates there is one historical surface water abstraction within 250 m of the site. This was located 121 m east of the site and related to boiler feed and process water from 18/06/1996, with no expiry data available from Groundsure.

1.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[1] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

[5] UKHSA, UK Radon Map https://www.ukradon.org/information/ukmaps

1.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[1] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 1-8.

Table 1-8 – Printworks site compound - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	Published geology records two coal seams within 250 m of the site.
Coal mining areas	The site is located within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site, for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. There are no other non-coal mining areas within 250 m of the site.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There is one brit pit within 250 m of the site. This is located 221 m west. It is a surface mineral working, for sandstone, but at date of entry, has ceased to extract minerals.
Surface ground workings	There is one surface ground workings feature on-site. There are 10 other surface ground workings features within 250 m of the site. Details are provided in Table 1-9.
Underground workings	There are no underground workings on-site. There is one other underground workings within 250 m of the site. Details are provided in Table 1-9.
Historical mineral planning areas	There are no historical mineral planning areas on-site. There is one historical mineral planning area within 250 m of the site, located 222 m west. This is associated with the surface mining of sandstone.

Table 1-9 provides further detail on surface ground workings and the relative distance from the site boundary.

Table 1-9 – Printworks site compound - Mineral exploitation

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1923

Unspecified heap	34 m	east	1906-1954
Tunnel	78 m	south	1899-1995
Unspecified ground workings	86 m	south-east	1906-1954
Unspecified ground workings	96 m	north-east	1954
Cuttings	162 m	north-east	1906-1923
Unspecified ground workings	179 m	south-west	1899-1995
Unspecified quarry	188 m	west	1899-1977
Refuse heap	198 m	south-east	1906-1981
Higher Glent quarry	221 m	west	1845-1954
Unspecified heap	224 m	north-east	1906-1954
Canal	236 m	south-east	1899-1995

The Mining Remediation Authority viewer[6] indicates that the site is within a Coal Authority high risk development area. A Coal Authority Consultants Coal Mining Report has been obtained for the site and indicates:

- no records of past underground mining activity;
- no probably unrecorded shallow workings;
- no mine entries within 100 m of the site;
- no future coal mining plans; and
- one workable coal outcrop within the site boundary, however no information on depth is provided.

Historical and current landfills and waste management facilities

The data from Groundsure[1] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 1-10.

Table 1-10 – Printworks site compound - Landfill and waste summary

[6] The Mining Remediation Authority viewer 2023. https://datamine-cauk.hub.arcgis.com/

Category	Site name or address	Description of waste	Distance from site	Direction from site	Licence issue date	Licence status
Historical landfill	Glent Quarry	Inert, industrial, commercial, household, liquid sludge	172 m	west	01/01/1974	Last recorded: 31/03/1979
Historical waste sites	-	Scrap Yard	135 m	south-east	-	-
	-	Breaker's Yard	193 m	east	-	-
	69 Northend Road, Stalybridge, Greater Manchester, SK15 3AZ	Waste transfer station	199 m	south-east	-	-
	Former River Meadow Mill, North End Road, Stalybridge, Greater Manchester, SK15 3AZ	Waste transfer station.	208 m	south-east	-	-
Licensed waste sites	Former River Meadows Mills, Northend Road, Stalybridge, Cheshire, SK15 3AZ	Special waste transfer station	110 m	east	03/10/2005	Issued
	69, Northend Road, Stalybridge, Cheshire, SK15 3AZ	Physical treatment facility	180 m	south-east	26/08/2005	Issued and modified
		Metal recycling site (vehicle dismantler)	186 m			
		Metal recycling site (vehicle dismantler)	186 m			

Category	Site name or address	Description of waste	Distance from site	Direction from site	Licence issue date	Licence status
	Land/premises at, Northend Road, Mottram, Stalybridge, Cheshire, SK15 3AZ	Metal recycling site (vehicle dismantler)	203 m	south-east	28/05/2004	Revoked
	69, Northend Road, Stalybridge, Cheshire, SK15 3AZ	Physical treatment facility	210 m	south-east	08/05/2002	Expired
	69, Northend Road, Stalybridge, Cheshire, SK15 3AZ	Special waste transfer station	225 m	south-east	20/10/1997	Expired
Waste exemptions	Smurfit Kappa, Knowl St, Stalybridge, SK15 3AR	Use of waste for a specified purpose	155 m	south	-	-

1.8 Unexploded bombs (UXB)

According to freely available online risk maps[7], there is a low risk of UXB on the site.

1.9 Sensitive land use

The data from Groundsure[1] indicates that a site of special scientific interest (SSSI), associated with the Huddersfield Narrow Canal, is located 239 m south-east of the site. The site is located within a SSSI impact zone. There are no other sensitive land uses including Ramsar or areas of conservation within 250 m of the site.

[7] Zetica, Unexploded Bomb Risk Map and Pre-Desk Study, https://zeticauxo.com/downloads-and-resources/risk-maps/

1.10 Regulatory information

Regulated activities within 250 m of the Order Scheme boundary could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are five pollution incidents reported by Groundsure[1] within 250 m of the site and a summary has been provided in Table 1-11.

Table 1-11 – Printworks site compound - Pollution incidents

Pollutant	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Atmospheric Pollutants and Effects	181 m	south-east	Category 3 (minor)	Category 3 (minor)	Category 3 (minor)	08/12/2001
Atmospheric Pollutants and Effects: Contaminated Water						
Oils and fuel	187 m	south-east	Category 3 (minor)	Category 3 (minor)	Category 4 (no impact)	06/02/2003
Atmospheric pollutants and effects: contaminated water	191 m	south-east	Category 2 (significant)	Category 3 (minor)	Category 3 (minor)	17/11/2004
Specific waste materials	199 m	east	Category 4 (no impact)	Category 3 (minor)	Category 4 (no impact)	23/11/2001
Specific waste materials	235 m	south-east	Category 4 (no impact)	Category 3 (minor)	Category 4 (no impact)	14/02/2002

Pollution prevention and controls

The data from Groundsure[1] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications, including pollution prevention

substances, licensed pollutant release, historical and current licensed industrial activities, within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[1] indicates there are no Control of Major Accident Hazards (COMAH) sites or planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[1] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[1] indicates there are no recent industrial land uses on-site. There are 18 recent land uses within 250 m of the site. A summary has been provided in Table 1-12.

Table 1-12 – Printworks site compound - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site	Direction from site
Mast	Infrastructure and facilities	Telecommunications features	25 m	south-east
Electricity substation	Infrastructure and facilities	Electrical features	43 m	south-east
Factory	Industrial features	Unspecified works or factories	114 m	south-east
Tank	Industrial features	Tanks (generic)	119 m	east
Smurfit Kappa Stalybridge	Industrial products	Packaging	150 m	south-east
Electricity substation	Infrastructure and facilities	Electrical features	176 m	north-east
Electricity substation	Infrastructure and facilities	Electrical features	180 m	south-east
Electricity substation	Infrastructure and facilities	Electrical features	203 m	south
Recycling business	Infrastructure and facilities	Recycling centres	206 m	south-east
Electricity substation	Infrastructure and facilities	Electrical features	219 m	south-east

Site	Industrial land use category	Description	Distance from site	Direction from site
Sims Lifecycle Services	Recycling services	Recycling, reclamation and disposal	222 m	south-east
Tank	Industrial features	Tanks (generic)	225 m	south-west
John Hargreaves Collyhurst & Stalybridge Ltd	Industrial products	Wood products including charcoal, paper, card and board	228 m	south
Electricity substation	Infrastructure and facilities	Electrical features	229 m	south-east
Bridge Louvre Company Ltd	Industrial products	Cooling and refrigeration	231 m	south-east
Factory	Industrial features	Unspecified works or factories	237 m	south-east
Electricity substation	Infrastructure and facilities	Electrical features	238 m	south-east
Park Garage	Repair and servicing	Vehicle repair, testing and servicing	245 m	south-east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[1].

Contaminated land designations

According to Groundsure[1], there are no sites designated as contaminated land under Part 2A of the Environment Protection Act 1990 on-site or within 250 m of the site.

1.11 Site area reconnaissance

A site walkover was undertaken on 17 August 2024 by two AtkinsRéalis environmental consultants. The site walkover was completed prior to the alterations to the Order Scheme boundary; therefore, the northern parcel was not included. A summary of the observations made during the visit is provided in Table 1-13.

Table 1-13 – Printworks site compound - Site walkover record

Item	Description
Location	The site is located on Third Party land north of Stalybridge, Greater Manchester. The site is off-track with national grid reference SJ 96842 99216 and What3Words of hang.moods.switch. The site is accessed via a locked metal gate approximately 1.2 m tall by 3.5 m wide, off Printworks Road. The compound covers an area of 1.46 hectares (Ha) which slopes sharply towards the railway to the east. Printworks Road bounds the compound to the north, the railway to the east, a private residence and garden to the south and Wakefield Road to the west of the compound.
Description of current use/ activities	The site comprises a vegetated grazing field.
Fuel/chemical storage	No evidence of fuel storage was observed.
Evidence of land contamination	No evidence of land contamination was observed.
Invasive Species	Himalayan Balsam was observed in several areas adjacent to the railway.
Surface coverage	The site comprises entirely of vegetation cover (95% grass, 5% trees and shrubbery). Mature trees are sporadically present, often isolated, through the site. The whole site slopes from approximately west to east. Printworks Road slopes down relative to the site, from approximately level with the site at the junction with Wakefield Road to 2-3 m below the site level at the viaduct/underpass. The railway to the east of site is approximately level with the site in the north, and approximately 2 m above the site level in the south.
Boundary Types	The entrance to the field has an outer gate, a pen approximately 3.5 m by 3.5 m with tall grass, and another metal gate giving access to the main field. A heras panel is on the east side of the pen. A barbed wire fence, approximately 1 m tall with regularly spaced wood posts (occasionally metal posts on the railway boundary) surrounds the site on all sides. A stone wall is present outside of the fence on the north and west boundaries. Shrubbery/hedges have formed along the embankment on the southern half of the railway boundary.

Item	Description
	A residential property and associated garden are adjacent to the southern boundary of the site.
Surface Water Features	Evidence of a shallow stream/spring can be observed in the centre of the site, flowing approximately east downslope towards the railway. An area of water-logged ground is evident at the base of the slope in the centre of the site.

1.12 Initial conceptual site model

Through a review of historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of the existing land use and future use of the site as a construction compound. It is assumed the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground identified on published geological mapping; and
    - Coal seam identified underlying the site.

- Off-site:
    - Historical features surrounding the site including:
        - Cotton mills;

        - Tanks;
        - Unspecified factories, heaps, mills and ground workings;
        - Electricity works;
        - Scrap yard;
        - Riverside Mills; and
        - Higher Glent Quarry.
    - Current features surrounding the site including:
        - Electricity substations;
        - Factory;
        - Tanks; and
        - Recycling businesses.
    - Historical landfill:
        - Former River Meadows Mills;
        - Glent Quarry; and
        - Northend Road.

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate and ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi-volatile organic compounds (VOCs/SVOCs); and
- ground, landfill and mine gases.

Potential receptors

The following receptors have been identified at the site based on an open space end use:

Human Health

- On-site:
    - Construction workers associated with the construction of the site; and
    - Future site users.
- Off-site:
    - Resident and occupiers of commercial/industrial premises; and
    - Users of open space areas.

Controlled Waters

- Groundwater:
    - Secondary A bedrock aquifer
- Surface water:
    - Unnamed watercourse;
    - River Tame; and
    - Huddersfield Narrow Canal west section.

Property and Services

- On-site: construction compound buildings (offices, welfare, canteen, stores, etc.);
- Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

Human Health

- inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
- ingestion of contaminated soils, soil-derived dust and groundwater;
- dermal contact with soil, soil-derived dust and groundwater; and
- inhalation of organic vapours (e.g. from fuel spills) and ground, landfill and mine gas.

Controlled Waters

- leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
- lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
- migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
- surface water run-off.

Property and Services

- ground gas migration and build up within confined spaces; and
- potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[8] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective

[8] HSE, The Construction (Design and Management) Regulations 2015

equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 1-14 – Printworks site compound - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Made Ground identified from published geology maps Coal seams identified from published mapping Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future site users Property – Compound related facilities Off-site: Human Health – Residents and occupiers of commercial/ industrial premises, users of public open spaces.	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. During the site's use as a construction compound it is expected that the site surface will be predominately gravel cover or hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. Significant excavation plans have been noted in order to create the hardstanding for the compound. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. However, there are businesses in the north/northwest area of the site. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	Property and Services – Commercial businesses and residential properties	Low	Medium	**Moderate/low risk** Made Ground is present on the site, which may be a source of ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. Welfare cabins are likely to have a void between the floor and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
sulphide or carbon monoxide)	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** No previous developments on the site therefore likelihood of asbestos being present is low. The majority of the site, while in use as a compound, will be covered in hardstanding or gravel therefore it is unlikely that contact with the Made Ground or infilled ground will occur. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible. Once the construction of the temporary Order Scheme compound has been completed, hardstanding, stone and vegetation are likely to cover the site minimising the risk of wind entrainment of dust.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/low risk** Superficial deposits comprising of Head, are mapped across the majority of the site consisting of clay, silt, sand and gravel. The south-west of the site is indicated to not be underlain by any superficial deposits. The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					leachate by rainwater. Depending on the composition of the Head deposits encountered at the site (percentage of cohesive material), the superficial deposits may limit the vertical migration of contaminants. However, in the south-west of the site, Made Ground is likely to directly lie atop of bedrock. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section Unnamed watercourses	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is unlikely that leachable contaminants will migrate to surface waters. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame. As the majority of the off-site sources of contamination are located down hydraulic gradient they are unlikely to migrate to the site. There is a higher chance of an unacceptable risk being posed to the river from the off-site sources of contamination, than the site itself. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. As the site may include welfare cabins and therefore require services (i.e. drainage), there is potential for the works to create preferential pathways to the controlled waters.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Cotton mills; Tanks; Unspecified factories, heaps, mills and ground workings; Electricity works; Scrap yard;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property – Compound related facilities	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Riverside Mills; Higher Glent Quarry; Current features surrounding the site including: Electricity substations; Factory;	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
Tanks; Recycling businesses; and Industrial products including wood, charcoal, paper, card and board. Historical landfill:	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** Off-site sources of contamination are most likely down hydraulic gradient limiting their probability of migrating towards the site. Adjacent off-site sources to the west of the site, have the potential to migrate down hydraulic gradient to the site increasing the risk. It is unlikely that the works on-site will impact the groundwater regime off-site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Former River Meadows Mills; Glent Quarry; and Northend Road [180 m south-east].					Any cohesive deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site.
Possible contaminants include: *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Historical landfills are located around the site which could be a potential source of ground gas, however none are within 100 m, limiting the potential for migration on to site. One coal seam is present on-site, however the depths are unknown. It is also only present in the eastern edge of the site therefore there is limited potential for impact. Another coal seam is present 77 m north of the site, increasing the possibility of gas migration.

1.13 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

2. BASELINE FOR HEYROD HALL OVERBRIDGE WORKS (MVL3/7) AND SITE COMPOUND

2.1 Site history

Table 2-1 provides a summary of the historical development at the Heyrod Hall site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[9].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 2-1 - Heyrod hall overbridge (MVL3/7) and site compound - Summary of historical development

Feature	Date	Distance from the site boundary	Direction from the site boundary
Railway Line	1863–present	0 m	on-site
Heyrod Hall Farm	1893-1933	0 m	on-site
Cuttings	1923	0 m	on-site
Unspecified tank	1965-1985	0 m	on-site
Electricity works	1965-1966	3 m	east
Cooling ponds	1954	9 m	east
Print works	1845-1907	13 m	south-east
Bone works	1933-1954	14 m	south
Chemical works	1918-1923	18 m	south-east
Unspecified heap	1918	72 m	south-east
Electricity works	1965-1995	108 m	south
Refuse heap	1906-1954	118 m	south-west
Refuse heap	1977	124 m	north-east
Unspecified tank	1910-1954	135 m	south
Filters	1907	147 m	south

[9] Groundsure 2024, Enviro + Geo Insight (GS-QDD-QYJ-F7V-DK7)

Feature	Date	Distance from the site boundary	Direction from the site boundary
Unspecified pit	1918-1954	156 m	south
Refuse heap	1966-2003	170 m	south
Cuttings	1906-1923	183 m	south-west
Railway station	1899-1907	199 m	east
Tramway	1910	203 m	north
Unspecified tank	1964-1983	204 m	north-east
Electricity substation	1983-1992	217 m	north
Electricity substation	1992	241 m	north-east
Cuttings	1899-1923	242 m	north
Railway station	1899-1907	247 m	east
Unspecified commercial/industrial	1933	248 m	north-east

2.2 Published geology

A summary of the published geology relevant to the MVL3/7 Heyrod Hall Overbridge Works and Site Compound is provided below. The data has been sourced from Groundsure[10] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is recorded on-site and off-site to the east and south. Made Ground may be associated with historical development on-site or in proximity to the site including unspecified tanks, unspecified heaps, unspecified pits, cooling pits, and cuttings.

Superficial deposits

The 1:10,000 scale published geology maps indicate that Head deposits are recorded underlying the majority of the site. No superficial deposits are recorded below the north-west of the site. Alluvium (9 m east), Till (141 m south-east) and Glaciofluvial sheet deposits (238 m east) are also recorded within 250 m of the site.

Bedrock

The 1:10,000 scale published geology indicates there is one bedrock geology designation recorded on-site. There are two other bedrock geology designations recorded within 250 m of the site. A summary of the bedrock

geology recorded on-site and within 250 m of the site boundary is provided in Table 2-2. Figure 2-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer; no bedrock information is included in this report.

Table 2-2 - Heyrod hall overbridge (MVL3/7) and site compound - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional details
Fletcher Bank Grit	0 m	on-site	Sandstone
Marsden Formation	21 m 22 m 159 m	east west north	Mudstone and siltstone
Fletcher Bank Grit	154 m	north	Sandstone
Huddersfield White Rock	222 m	west	Sandstone

Figure 2-1 - Heyrod hall overbridge (MVL3/7) and site compound - Summary of bedrock and linear features

Faults and Linear Features

The 1:10,000 scale published geology indicates there are no bedrock faults on-site or within 250 m of the site. There are two other linear features within 250 m of the site; linear features are visible in Figure 2-1.

Table 2-3 - Heyrod hall overbridge (MVL3/7) and site compound - Summary of bedrock faults

Category	Description	Distance from the site boundary	Direction from the site boundary
Fossil horizon	Fossil horizon, marine band	192 m	north-west
Fossil horizon	Fossil horizon, marine band	202 m	north-west

2.3 Hydrogeology

Superficial aquifers

The data from Groundsure[10] indicates that there are no designated superficial aquifers on-site. There is a secondary A aquifer located 21 m south-east of the site (associated with the off-site Alluvium), a secondary A aquifer located 195 m north-east and a secondary undifferentiated aquifer located 133 m south-east (associated with the Devensian Till deposits). The Environment Agency provides the following aquifer designation descriptions:

Secondary A aquifer: Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers; and

Secondary undifferentiated aquifer: Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Bedrock aquifers

The data from Groundsure[10] indicates that the site and surrounding area is underlain by a secondary A bedrock aquifer.

Groundwater vulnerability

Groundsure[10] data indicates that the groundwater vulnerability is low for the bedrock aquifer. A low vulnerability classification is assigned to areas that provide the greatest protection from pollution.

Groundwater source protection zones

The data from Groundsure[10] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[10] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[10] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

2.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[10] as an unnamed watercourse and is located on-site. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 2-4.

Table 2-4 - Heyrod hall overbridge (MVL3/7) and site compound - Surface watercourses

Name of watercourse	Type	Distance from site	Direction from site	WFD overall classification
Unnamed watercourse	On ground surface watercourse	0 m	on-site	-
Unnamed watercourse	Reservoir	25 m	east	-
Tame (Chew Brook to Swineshaw Brook) (southern flow)	River	64 m	east	Moderate
Unnamed watercourse	On ground surface watercourse	84 m	west	-
Huddersfield Narrow Canal west section	Canal	153 m	south-east	Moderate
Unnamed watercourse	Manmade watercourse	165 m	north-east	-
Unnamed watercourse	On ground surface watercourse	222 m	south-east	-

Surface water discharge consents

The data from Groundsure[10] indicates there are no licensed discharges to surface water features on-site. There is one licensed discharge to surface water features within 250 m of the site. In addition, there are no pollutant releases to surface water features on-site or within 250 m of the site. A summary of all surface water discharge consents within 250 m of the site has been provided in Table 2-5.

Table 2-5 - Heyrod hall overbridge (MVL3/7) and site compound - Surface water discharge consents

Permit number	Address	Receiving water	Effluent Type	Distance from site	Direction from site	Effective date
016993648	Stalybridge Substation Outfalls, Printworks Road, Wakefield Road, Heyrod, Stalybridge, SK15 2PW	River Tame	Trade discharges – site drainage-(contam surface water)	159 m	south	12/11/2004 – 11/08/2010 (revoked)
016993678	Grove Road CSO, Springfield Bank Lane, Stalybridge, Cheshire, SK15 3RL	River Tame	Sewage discharges – sewer storm overflow – water company	248 m	north-east	22/02/2021 - present

Surface water abstractions

The data from Groundsure[10] indicates there are no surface water abstractions within 250 m of the site.

2.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[10] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

2.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[10] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 2-6.

Table 2-6 - Heyrod hall overbridge (MVL3/7) and site compound - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal mining areas	The site is located within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site. There is one other non-coal mining area within 250 m of the site, located 154 m north. Both are for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There is one brit pit within 250 m of the site, located 5 m south. It is a surface mineral working, for sandstone, but at date of entry, has ceased to extract minerals.
Surface ground workings	There is one surface ground workings feature on-site. There are 14 other surface ground workings features within 250 m of the site. Details are provided in Table 2-7.
Underground workings	There are no underground workings on-site or within 250 m of the site.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 2-7 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 2-7 - Heyrod hall overbridge (MVL3/7) and site compound - Surface ground workings

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1923
Pond/ Reservoir	6 m	east	1899-1995
Pond	22 m	south-east	1907-1954

Name	Distance from site	Direction from site	Date
Unspecified heap	72 m	south-east	1918
Reservoir	108 m	south-east	1899-1907
Refuse heap	118 m	south-west	1918-1954
Refuse heap	124 m	north-east	1977
Canal	125 m	south-east	1899-1954
Unspecified heap	128 m	south-west	1906-1938
Pond	146 m	south	1899-1938
Unspecified pit	159 m	south	1918-1938
Disused canal	172 m	south-east	1977-1995
Unspecified pit	180 m	south	1933-1954
Cuttings	183 m	south-west	1907-1954
Cuttings	242 m	north	1899-1923

The Mining Remediation Authority viewer[6] indicates that the site is not within a high-risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[10] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 2-8, however, no licence details have been provided by Groundsure.

Table 2-8 - Heyrod hall overbridge (MVL3/7) and site compound - Landfill and waste summary

Category	Site name or Address	Description of waste	Distance from site	Direction from site
Historical landfill (LA/mapping records)	Refuse tip (potential landfill)	-	44 m	south
Historical landfill (LA/mapping records)	Refuse tip (potential landfill)	-	121 m	north-east
Waste exemptions	Heyrod Hall Compound, Printworks Road, Stalybridge, SK15 3BD	Storage of waste in secure containers	14 m	south
		Storage of waste in a secure place		
		Use of waste in construction		

2.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

2.8 Sensitive land use

The data from Groundsure[10] indicates there is a site of special scientific interest (SSSI) within 250 m of the site. The site is located within a SSSI impact zone. There are no further sensitive land uses including, Ramsar sites or areas of conservation, within 250 m of the site. A summary of sensitive land use designations is provided in Table 2-9.

Table 2-9 - Heyrod hall overbridge (MVL3/7) and site compound - Sensitive land use summary

Designation type	Site name	Additional description	Distance from site	Direction from site
Sites of Special Scientific Interest (SSSI)	Huddersfield Narrow Canal	-	147 m	south-east

2.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There is one pollution incident reported by Groundsure[10] within 250 m of the site and a summary has been provided in Table 2-10.

Table 2-10 - Heyrod hall overbridge (MVL3/7) and site compound - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Sewage materials – crude sewage	40 m	south-east	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	05/12/2001

Pollution prevention and controls

The data from Groundsure[10] indicates there are not Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[10] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[10] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[10] indicates there are no recent industrial uses on-site. There are five recent industrial uses within 250 m of the site, all of which relate to electricity substations; the closest of which is located 67m south-west of the site.

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[10].

Contaminated land designations

According to Groundsure[10], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250 m of the site.

2.10 Site area reconnaissance

A site walkover was undertaken on 25 November 2024 by two AtkinsRéalis environmental scientists. A summary of the observations made during the visit is provided as follows.

Table 2-11 – Heyrod hall overbridge (MVL3/7) and site compound - Site walkover record

Item	Description
Location	The site is located on Third Party land. The site is located to west of Printworks Road, Heyrod. The site is off-track with national grid reference SJ 97239 99737 and What3Words of goes.silk.clouds. The site is accessed via a field gate on Printworks Road. The site covers an area of 0.538 Ha, providing a sloping pathway between the Heyrod Hall overbridge and residential properties and Printworks Road. The site bounds Wakefield Road to the north, residential properties to the east, Printworks Road to the south and the railway to the west.
Description of current use/ activities	The site comprises a sloped private pathway for access to residential properties.
Fuel/chemical storage	No evidence of fuel storage was observed.
Evidence of land contamination	No evidence of land contamination was observed.
Invasive Species	Himalayan Balsam was present on either side of the pathway.
Surface coverage	The site surface comprised of 40% vegetation and 60% gravelly compressed soil.
Boundary Types	Retaining walls were present along the entire east side of the site, with intermittent walls and temporary fencing along the western site boundary.
Surface Water Features	No surface water features were visible.

2.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of the current existing land use and future use of the site as a construction compound. It is assumed the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical on-site uses including:
        - Railway line; and
        - Unspecified tanks.
- Off-site:
    - Historical features surrounding the site including:
        - Electricity substations;
        - Print works, bone works, chemical works;
        - Refuse heaps;
        - Canals; and
        - Railway stations.
    - Current features surrounding the site including:
        - Electricity substations;
        - Residential buildings; and
        - Commercial buildings.
- Pollution Incident:
    - Sewage materials.

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), benzene, toluene, ethylbenzene, and xylenes (BTEX), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground gases.

Potential receptors

The following receptors have been identified at the site based on an open space end use as an overbridge and storage compound:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future site users.
  - Off-site:
    - Residents and occupiers of commercial/ industrial premises; and
    - Users of public space areas.
- Controlled Waters:
  - Groundwater: Bedrock secondary A aquifer (Fletcher Bank Grit); and
  - Surface Water:
    - River Tame; and
    - Huddersfield Narrow Canal.
- Property and Services:
  - On-site: construction compound buildings (offices, welfare, canteen, stores etc);
  - Off-site:

- Commercial businesses; and
- Residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground gas.
- Controlled Waters:
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.
- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate

risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 2-12 - Heyrod hall overbridge (MVL3/7) and site compound - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Railway line Unspecified tanks Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future site users Property – Compound related facilities Off-site: Human Health – Residents and occupiers of commercial/ industrial premises, use of public open spaces. Property and Services – Commercial businesses and residential properties.	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. However, there are businesses to the north/northwest area of the site. Dust suppression measures may be required to minimise the migration of dust off-site during construction. Members of the TRU workforce are likely to be present on the site frequently as the compound will provide parking on-site, storage areas and portacabins, increasing the likelihood of exposure to any contaminants present in made ground on-site. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks. The site is unlikely to be used after construction of the railway is complete, therefore it is unlikely anyone could come into contact with contaminants in areas of the site.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and		Unlikely	Severe	**Moderate/low risk** Made Ground and potentially infilled cuttings are anticipated to be present on the site, which may be a source of ground gas.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	accumulation (explosion). Inhalation of ground gas (asphyxiation).				Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. However, welfare cabins are likely to have a void between the floor and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** As there are no former buildings on-site, the likelihood of asbestos being present is unlikely. The majority of the site will be covered in hardstanding therefore it is unlikely that contact with the Made Ground or infilled ground will occur. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. There are superficial deposits of Head underlying the majority of the site. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	drainage, foul sewer, proposed service pipes/trenches, piled foundations.				If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – Huddersfield Narrow Canal west section River Tame	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to surface waters. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame. Therefore, new works could create new migration pathways towards the River. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources:	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property –	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Historical features surrounding the site including: Electricity substations; Print works, bone works, chemical works; Refuse heaps; Canals; and Railway stations. Current features surrounding the site including: Electricity substations; Residential buildings; and Commercial buildings. Pollution Incident:		Compound related facilities			off-site not covered with hardstanding, buildings or vegetation. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted. However it is unlikely that off-site sources of contamination will be considered in produced risk assessments.
	Inhalation of airborne asbestos fibres		Low	Medium	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. The majority of the off-site contaminative land uses are to the east of the site. Therefore, any possible contaminants are likely to travel down hydraulic gradient towards the River Tame rather than towards the site. Furthermore, there are no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Sewage materials [44 m south-east] *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** There are no landfills or coal seams present within 250 m of the site, therefore there are no significant sources of ground gas present. Portacabins built on the compound are likely to have a void between the floor and the ground which will prevent an ingress of ground has. However, installation of drainage could create preferential pathways for the migration of gas to the site.

2.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

3. BASELINE FOR MANCHESTER ROAD FOOTBRIDGE WORKS MVL3/10A

3.1 Site history

Table 3-1 provides a summary of the historical development of the Manchester Rd site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[10].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 3-1 – Manchester Road Footbridge Works MVL3/10A - Summary of historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Railway sidings	1899-1970	0 m	on-site
Corporation sewage works	1906-1938	0 m	on-site
Allotment gardens	1964-1965	0 m	on-site
Unspecified tanks	1906-1910	2 m	west
Railway line	1863-present	2 m	east
Unspecified pit	1899	3 m	south-west
Tramway	1909-1933	20 m	east
Unspecified tanks	1906-1923	22 m	east
Sewage works	1918-1992	37 m	south-east
Tanks	1909-1933	71 m	north-east
Unspecified heap	1956	74 m	north
Filter beds	1906-1923	86 m	north-east
Weir mill (cotton)	1845-1956	93 m	north
Unspecified works	1970-1992	114 m	north

[10] Groundsure 2024, Enviro + Geo Insight (GS-IEK-4UK-Z3U-RF1).

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified quarry	1899-1933	124 m	south
Unspecified pit	1906-1992	125 m	south-west
Unspecified old quarry	1918-1923	129 m	south
Filter beds	1918-1923	147 m	south-east
Unspecified pit	1899-1956	149 m	south
Unspecified tank	1872	152 m	east
Filter beds	1918-1923	166 m	south-east
Railway sidings	1970	191 m	east
Cuttings	1899-1923	201 m	east
Unspecified tank	1872	213 m	north-east
Unspecified heap	1970-1982	228 m	north-east
Cuttings	1907	230 m	east
Railway sidings	1906-1956	243 m	east

3.2 Published geology

A summary of the published geology relevant to the Manchester Road Footbridge works MVL3/10A is provided below. The data has been sourced from Groundsure[11] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicated there are no Made Ground features mapped on-site. Made Ground is recorded within 250 m of the site, located 52 m east at its closest point.

Superficial deposits

The 1:10,000 scale published geology maps indicate that Head deposits are recorded in the north-west of the site, with the remainder of the site not mapped as being underlain by superficial deposits. Alluvium (103 m east), Devensian Till (115 m east) and Glaciofluvial ice contact deposits (227 m north-east) are recorded within 250 m of the site.

Bedrock

The 1:10,000 scale published geology indicates there are two bedrock geology designations on-site and a further four other bedrock geology designations within 250 m of the site.

A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 3-2. Figure 3-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 3-2 - Manchester Road Footbridge Works MVL3/10A - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional details
Fletcher Bank Grit	0 m	on-site	Sandstone
Marsden Formation	0 m	on-site	Mudstone and siltstone
Huddersfield White Rock	58 m 101 m	west west	Sandstone
Marsden Formation	70 m 77 m 134 m 200 m 215 m 232 m	east south-west west south east south-west	Mudstone and siltstone
Rossendale Formation	94 m 139 m 202 m	west west west	Mudstone and siltstone
Fletcher Bank Grit	96 m 200 m	north-east south	Sandstone
Rough Rock Flags	180 m	west	Sandstone
Rough Rock	213 m	west	Sandstone

Figure 3-1 - Manchester Road Footbridge Works MVL3/10A - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there are two bedrock faults on-site. There are other linear features noted within 250 m of the site, a summary is provided in Table 3-3. Faults are visible in Figure 3-1.

Table 3-3 - Manchester Road Footbridge Works MVL3/10A – Summary of faults and linear features within 250 m of the site

Category	Description	Distance from the site boundary	Direction from the site boundary
Fault	Normal fault, inferred; orientated north-east to south-west	0 m	on-site
Fault	Normal fault, inferred; orientated north-east to south-west	0 m	on-site
Fossil horizon	Fossil horizon, marine band	0 m	on-site

Category	Description	Distance from the site boundary	Direction from the site boundary
Fossil horizon	Fossil horizon, marine band	0 m	on-site
Fossil horizon	Fossil horizon, marine band	0 m	on-site
Fossil horizon	Fossil horizon, marine band	13 m	west
Rock	Coal seam, inferred coincident with bedrock geology boundary	77 m	north-west
Fossil horizon	Fossil horizon, marine band coincident with bedrock geology boundary	88 m	north-west
Fossil horizon	Fossil horizon, marine band	90 m	south
Fossil horizon	Fossil horizon, marine band	109 m	south
Rock	Coal seam, inferred coincident with bedrock geology boundary	137 m	west
Fossil horizon	Fossil horizon, marine band coincident with bedrock geology boundary	142 m	west
Fault	Normal fault, inferred; orientated east to west	200 m	south
Fossil horizon	Fossil horizon, marine band	245 m	south

3.3 Hydrogeology

Superficial aquifers

The data from Groundsure[11] indicates that there are no designated superficial aquifers on-site. The Groundsure report indicates that a secondary Undifferentiated aquifer is located 97 m north-east of the site (associated with Devensian Till) and a secondary A aquifer is located 107 m south-east of the site (associated with Alluvium). The Environment Agency provides the following descriptions for the aquifers recorded:

Secondary Undifferentiated: Assigned where it is not possible to attribute either category A or B to a rock type. In general, these layers have

previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Secondary A: Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Bedrock aquifers

The data from Groundsure[11] indicates the bedrock underlying the site and surrounding 250 m area is classified as a secondary A aquifer (associated with Fletcher Bank Grit and Marsden Formation).

Groundwater vulnerability

According to the data within the Groundsure report[11] the groundwater vulnerability for the bedrock aquifer is considered to be low. This indicates that the site is located within an area that provides the greatest protection from pollution.

Groundwater source protection zones

The data from Groundsure[11] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[11] indicates there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[11] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

3.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[11] as the River Tame and is located 86 m north-east. There are four further surface water features within 250 m of the site. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 3-4.

Table 3-4 - Manchester Road Footbridge Works MVL3/10A - Surface water courses

Name of Watercourse	Type	Distance from site	Direction from site	WFD Overall Classification
Tame (Chew Brook to Swineshaw Brook)	River	86 m	north-east	Moderate
Unnamed watercourse	On ground surface watercourse – discharges to River Tame	135 m	north	-
Huddersfield Narrow Canal west section	Canal	135 m	east	Moderate
Unnamed watercourse	On ground surface watercourse – discharge to River Tame	165 m	south	-

Surface water discharge consents

The data from Groundsure[11] indicates there are no licensed discharges to surface water features on-site. There is a single licensed discharge permit (016940089), of which there are 20 variations within 250 m of the site, the closest of which is located 108 m east of the site. The permit is operated by a water company and is associated with sewage discharge or storm water overflow into the River Tame. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Surface water abstractions

The data from Groundsure[11] indicates there are no surface water abstractions within 250 m of the site.

3.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[11] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

3.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[11] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 3-5.

Table 3-5 - Manchester Road Footbridge Works MVL3/10A - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	Published geology records two coal seams within 250 m of the site, 83 m north-west and 134 m west.
Coal mining areas	The site is located within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site, for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There is one brit pit within 250 m of the site. This is located 136 m south. It is a surface mineral working, for sandstone, but at date of entry, has ceased to extract minerals.
Surface ground workings	There is one surface ground workings features on-site. There are 17 other surface ground workings features within 250 m of the site. Details are provided in Table 3-6.
Underground workings	There are no underground workings on-site or within 250 m of the site.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 3-6 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 3-6 - Manchester Road Footbridge Works MVL3/10A - Surface ground workings

Name	Distance from site	Direction from site	Date
Corporation sewage works	0 m	on-site	1907-1956
Unspecified Pit	3 m	south-west	1899
Sewage Works	17 m	east	1906-1938
Sewage Works	37 m	south-east	1918-1992
Unspecified Heap	74 m	north	1956
Filter Beds	79 m	east	1906-1923

Name	Distance from site	Direction from site	Date
Canal	117 m	east	1906-1938
Sewage Works	117 m	south-east	1923-1938
Unspecified Quarry	124 m	south	1899
Canal	125 m	east	1899-1907
Unspecified Pit	125 m	south-west	1956-1992
Disused Canal	126 m	east	1907-1992
Unspecified Pit	127 m	south-west	1938
Unspecified Ground Workings	129 m	south-west	1906
Unspecified Old Quarry	129 m	south	1918-1933
Filter Beds	147 m	south-east	1918-1923
Unspecified Pit	153 m	south	1899-1956
Cuttings	211 m	east	1899-1923
Unspecified Heap	228 m	north-east	1970-1982

The Mining Authority Remediation viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[11] records landfills and waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 3-7, however, licence details have not been provided by Groundsure.

Table 3-7 - Manchester Road Footbridge Works MVL3/10A - Landfill and waste summary

Category	Site name or Address	Description of waste	Distance from site	Direction from site
Historical landfill (LA/mapping records)	Refuse Tip (potential landfill)	-	184 m	north-east
Waste exemptions	-	Disposal by incineration (Ref. WEX290877)	142 m	south
	-	Disposal by incineration Ref. WEX273000	153 m	south

Category	Site name or Address	Description of waste	Distance from site	Direction from site
	Weir Mill, Manchester Road, Mossley, Ashton, OL5 9QA	Use of waste in construction Ref. WEX304151	239 m	north
		Use of waste in construction Ref. WEX170498	239 m	north

3.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

3.8 Sensitive land use

The data from Groundsure[11] indicates there is a site of special scientific interest (SSSI) within 250 m of the site. The SSSI is associated with Huddersfield Narrow Canal. The site is also located within a SSSI impact zone. There are no further sensitive land uses including, Ramsar or areas of conservation, within 250 m of the site.

3.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are no pollution incidents reported by Groundsure[11] within 250 m of the site.

Pollution prevention and controls

The data from Groundsure[11] indicates there are not Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[11] indicates there are no Control of Major Accident Hazards (COMAH) sites within 250 m of the site. However, a planning hazardous substance consent has been recorded within 250 m of the site. A summary has been provided in Table 3-8.

Table 3-8 - Manchester Road Footbridge Works MVL3/10A - Planning hazardous consents

Type	Site	Description	Receiving water	Distance from site	Direction from site	Status
List 1 dangerous substances	Mossley Electroplaters Ltd, Weir Mill, Mossley	Cadmium	River Tame, Manchester Ship Canal	210 m	north	Active

Radioactive substances

The data from Groundsure[11] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[11] indicates there are no recent industrial land uses on-site. There are six recent industrial land uses within 250 m of the site. A summary has been provided in Table 3-9.

Table 3-9 - Manchester Road Footbridge Works MVL3/10A - Contemporary trade directory

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Electricity substation	Infrastructure and facilities	Electrical features	99 m	south-east
Sewage works	Infrastructure and facilities	Waste storage, processing and disposal	134 m	north-east
Sewage works	Infrastructure and facilities	Waste storage, processing and disposal	157 m	south-east
Works	Industrial features	Unspecified works or factories	195 m	north
Chicago Coating Co	Industrial products	Industrial coatings and finishings	217 m	north
Electricity Poles	Infrastructure and facilities	Electrical features	249 m	south

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[11].

Contaminated land designations

According to Groundsure[11], there are no sites designated as contaminated land under part 2A of the Environmental Protection Act 1990 on-site or within 250 m of the site.

3.10 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and potential future use following proposed reconstruction of the existing footbridge.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground associated with former developments on-site:
        - Sewage works; and
        - Railway sidings.
    - Historical on-site uses including:
        - Unspecified pits; and
        - Unspecified tanks.
- Off-site:
    - Historical features surrounding the site including:
        - Tanks;

        - Filter beds;
        - Sewage works; and
        - Unspecified quarries.
    - Current features surrounding the site including:
        - Electricity substations; and
        - Sewage works.

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia, nitrates, phosphates:
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCBs), fuel oils, polyelectrolytes, volatile and semi volatile organic compounds (VOCs/SVOCs);
- pathogens; and
- ground gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health
    - On-site:
        - Construction workers associated with the construction of the site; and
        - Future site users.
    - Off-site:
        - Residents and occupiers of commercial/ industrial premises; and
        - Users of public open space areas.
- Controlled Waters:

- Groundwater: Bedrock secondary A aquifer;
- Surface Water:
  - River Tame; and
  - Huddersfield Narrow Canal west section.

- Property and Services:
  - On-site: structures (footbridge) and services.
  - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
  - inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground gas.

- Controlled Waters
  - leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipe services, shallow worked coal seams; and

- surface water run-off.

- Property and Services:
  - ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 3-10 - Manchester Road Footbridge Works MVL3/10A - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Made Ground associated with: Sewage works; and Railways sidings. Historical on-site uses including: Unspecified pits and tanks.	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	Human Health Construction workers Future users of the bridge	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is potential for contaminants to be present in soil and groundwater on-site. Future site users are unlikely to come into contact with soil as the site is made up of hardstanding. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs*	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** There is a possibility of Made Ground to be found on-site that is not currently known, which may be a source of ground gas. The site does not require any confined or indoor spaces therefore accumulation of ground gas is unlikely.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Asbestos could be present as a result of previous developments that have then been demolished. Based on the potential presence of asbestos in made ground, that is associated with potential

Volatile organic compounds (VOCs) *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*					former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The site is covered in hardstanding therefore it is unlikely that contact with any potential Made Ground will occur, and the site is unlikely to be altered following the construction works. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Direct contact of foundations/services with aggressive soils and or groundwater. Chemical attack to buried structures.	Property and Services – Footbridge Storage area	Unlikely	Medium	**Low Risk** Concrete piled foundations will be installed to improve the existing footbridge. The correct concrete classification will need to be decided and used to mitigate risks from aggressive soils and groundwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/low risk** The proposed development includes the use of piled foundations based on current design. As superficial deposits are not underlying the majority of the site, drilling will occur into bedrock from potential Made Ground creating potential preferential pathways. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer. If Made Ground is present, there is potential for leaching of contaminants into groundwater in the bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from

					precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. Superficial deposits found on-site are only located in the north-west of the site, therefore are not likely to be a continuous aquifer.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters River Tame Huddersfield Narrow Canal west section	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is likely that leachable contaminants will migrate to surface waters. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame. Therefore, on-site sources are likely to migrate to the river. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Tanks; Filter beds;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	Human Health Residents and occupiers of commercial/ industrial premises, Users of public open space Property and Services – Commercial businesses	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is possible for future site users to come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised.

Sewage works; Unspecified quarries; and Railway buildings. Current features surrounding the site including: Electricity substations; and Sewage works. Potential landfill: Refuse tip [184 m north]. *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*		and residential properties			It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Some off-site sources are located on the other side of the River Tame, which likely prevent any contaminants from these sources migrating to the site and impacting the groundwater beneath the site. Furthermore, no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site.
	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** A potential landfill is located 184 m off the site, which could be a potential source of ground gas. However, it is unlikely that any ground gas generated will be sufficient enough to travel the distance to the site and have an impact. There are no new confined spaces within the development, however piles may create a new pathway to the surface which may pose a risk during construction.

3.11 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through a compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required in order to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

The potential risks to human health and controlled waters associated with piling at the site would be considered within a piling risk assessment, as required, with the appropriate mitigation implemented through the CoCP.

4. BASELINE FOR THE SCOUT WEST LAYDOWN AREA AND RAMP ACCESS

4.1 Site history

Table 4-1 provides a summary of the historical development of the Scout West site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250 m has been determined principally by reference to historical maps obtained from Groundsure[11].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 4-1 - Scout west laydown area and ramp access - Summary of historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Scout Tunnel	1863-present	0 m	on-site
Railway line	1863-present	1 m	west
Electricity substation	1954-2003	1 m	east
Scout Mill (becomes New Scout Mill)	1845-2003	2 m	east
Weir mill (cotton)	1863-2003	8 m	east
Unspecified works	1970-1992	8 m	east
Unspecified old quarry	1898-1923	31 m	south-east
Weir mill (cotton)	1863-1922	40 m	south-east
Reservoir	1894-1992	50 m	north
Brick works	1892-1894	75 m	north-west
Tunnel	1898- 1992	77 m	east
Corporation sewage works	1906-1938	102 m	south
Tanks	1872-1933	111 m	south
Unspecified heap	1956	116 m	south
Filter beds	1906-1923	120 m	south-east

[11] Groundsure 2025, Enviro + Geo Insight (GS-7GY-VBF-9JS-IUR)

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified heap	1956-1982	135 m	east
Cuttings	1891-1992	152 m	north
Railway Sidings	1891-1938	152 m	north
Unspecified Tank	1872	175 m	south-east
Cuttings	1899-1992	184 m	south-east
Unspecified Tank	1954-1955	194 m	north-west
Railway Sidings	1892-1956	199 m	east
Goods Shed	1906-1938	202 m	north-east
Railway Building	1891	212 m	north-east
Cuttings	1907	240 m	south-east
Refuse Heap	1933-1956	245 m	north-east

4.2 Published geology

A summary of the published geology relevant to the Scout West Laydown Area and Ramp Access is provided below. The data has been sourced from Groundsure[12] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 10:000 scale published geology maps indicated that Made Ground is not mapped on-site. Made Ground is recorded within 250 m of the site, the closest of which is located 35 m south-east.

Superficial deposits

The 10:000 scale published geology maps indicate that there are no superficial deposits recorded on-site. There are superficial deposits recorded within 250 m of the site. A summary is provided in Table 4-2.

Table 4-2 - Scout west laydown area and ramp access - Summary of superficial deposits

Description	Distance from site boundary	Direction from site boundary	Additional details
Till, Devensian	39 m	south-east	Diamicton
Head	61 m	west	Clay, silt, sand and gravel
Glaciofluvial ice contact deposits, Devensian	79 m	south-east	Sand and gravel

Description	Distance from site boundary	Direction from site boundary	Additional details
Alluvium	96 m	east	Clay, silt, sand and gravel

Bedrock

The 10:000 scale published geology maps indicate there is one bedrock designation underlying the site. There are five other bedrock designations within 250 m of the site. A summary is provided in Table 4-3. Figure 4-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 4-3 - Scout west laydown area and ramp access - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional details
Marsden Formation	0 m 69 m	on-site west	Mudstone and siltstone
Fletcher Bank Grit	14 m 243 m	east south-east	Sandstone
Huddersfield White Rock	44 m	west	Sandstone
Rossendale Formation	79 m 238 m	west west	Mudstone and siltstone
Rough Rock Flags	224 m	west	Sandstone
Fletcher Bank Grit	243 m	south-east	Sandstone

Figure 4-1 - Scout west laydown area and ramp access - Summary of bedrock and other linear features

Faults and linear features

The 1:10,000 scale published geology maps indicate there is one linear feature on-site. There are two other linear features within 250 m of the site. There is a coal seam, and a fault also recorded within 250 m of the site. A summary is provided in Table 4-4. Faults are visible in Figure 4-1.

Table 4-4 - Scout west laydown area and ramp access - Summary of faults and linear features within 250 m of the site

Category	Description	Distance from site boundary	Direction from site boundary

	Fossil horizon	Fossil horizon, marine band	0 m	on-site
	Fossil horizon	Fossil horizon, marine band	1 m	north-east
	Rock	Coal seam, inferred coincident with bedrock geology boundary	70 m	north-west
	Fossil horizon	Fossil horizon, marine band coincident with bedrock geology boundary	80 m	north-west
	Fault	Normal fault, inferred; crossmarks on downthrow side	243 m	south-east

4.3 Hydrogeology

Superficial aquifers

The data from Groundsure[12] indicates there are no superficial aquifers recorded on-site. There are two superficial aquifers recorded within 250 m of the site. A secondary (Undifferentiated) aquifer located 51 m south-east, and a secondary A aquifer recorded 112 m east. The Environment Agency provides the following descriptions for the aquifers recorded:

Secondary Undifferentiated: Assigned where it is not possible to attribute either category A or B to a rock type. In general, these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.

Secondary A: Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Bedrock aquifers

The data from Groundsure[12] indicates a secondary A bedrock aquifer underlying the site, associated with the Marsden Formation.

Groundwater vulnerability

According to the data within the Groundsure report[12] the groundwater vulnerability for the bedrock aquifer is high for the majority of the site. The groundwater vulnerability in the south of the site is low for the bedrock aquifer. A high classification refers to “areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.” A low classification refers to “areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.”

Groundwater source protection zones

The data from Groundsure[12] and MAGIC website[4] indicates the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[12] indicates there are no groundwater abstractions on-site or within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[12] indicates there are no groundwater discharge consents on-site or within 250 m of the site.

4.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[12] as an unnamed watercourse and is located on-site. There are six further surface water features within 250 m of the site. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 4-5.

Table 4-5 - Scout west laydown area and ramp access - Surface watercourses

Name of watercourse	Type	Distance from site boundary	Direction from site boundary	WFD overall classification
Unnamed watercourse	On ground surface watercourse – discharges to River Tame	0 m	on-site	-
Tame (Chew Brook to Swineshaw Brook)	River	28 m	south-east	Moderate
Unnamed watercourse	On ground surface watercourse – discharges to River Tame	60 m	south	-
Huddersfield Narrow Canal west section	Canal	79 m	east	Moderate
Unnamed watercourse	On ground surface watercourse	108 m	north-west	-
Unnamed watercourse	On ground surface watercourse – discharges to River Tame	127 m	north-east	-
Unnamed watercourse	On ground surface watercourse – discharges to canal	161 m	east	-

Surface water discharge consents

The data from Groundsure[12] indicates there are no licensed discharge to surface water features on-site. There is a licensed discharge permit (016940089) of which there are 12 variations within 250 m of the site, the closest of which is located 101 m south-east of the site. The permit is operated by Mossley sewage treatment works and is associated with sewage discharge and sewer storm overflow into the River Tame. There is also a discharge permit (01TAM0088) located 191 m north-east of the site.

The permit is operated by a water company and is associated with sewage discharge.

Surface water abstractions

The data from Groundsure[12] indicates there are no surface water abstractions within 250 m of the site.

4.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[12] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicated that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m-3.

4.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[12] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 4-6.

Table 4-6 - Scout west laydown area and ramp access - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	Published geology maps record one coal seam within 250 m of the site, located 69 m west of the site.
Coal mining areas	The site is located within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site, for vein mineral. Underground min workings are uncommon, although the geology is similar to that worked elsewhere.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There are three other brit pits within 250 m of the site. Two of the brit pits are surface mineral working, for sandstone, but at date of entry have ceased to extract minerals (38 m west and 73 m east). One brit pit located 248 m north-east, is surface mineral working for sand, and has also ceased to extract minerals at date of entry.

Category	Summary
Surface ground workings	There are no surface ground workings features on-site. There are 70 other surface ground workings features within 250 m of the site. Details are provided in Table 4-7.
Underground workings	There is one underground working on-site. There is one other underground working within 250 m of the site. Details are provided in Table 4-7.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 4-7 provides further details on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 4-7 - Scout west laydown area and ramp access - Surface ground workings

Category	Name	Distance from site boundary	Direction from site boundary	Date
Underground workings	Tunnel	0 m	on-site	1892-present
Surface ground workings	Unspecified old quarry	35 m	south-east	1899-1933
Surface ground workings	Canal	63 m	east	1899-present
Surface ground workings	Reservoir	66 m	north	1906-1992
Surface ground workings	Brick works	75 m	north-west	1892
Underground workings	Tunnel	77 m	east	1899-present
Surface ground workings	Corporation sewage works	103 m	south	1906-1956
Surface ground workings	Unspecified heap	116 m	south	1956
Surface ground workings	Filter beds	120 m	south-east	1906-1923
Surface ground workings	Unspecified heap	135 m	east	1956-1982

Category	Name	Distance from site boundary	Direction from site boundary	Date
Surface ground workings	Cuttings	152 m	north	1891-1992
Surface ground workings	Cuttings	184 m	south-east	1923
Surface ground workings	Cuttings	184 m	east	1899-1992
Surface ground workings	Refuse heap	246 m	north-east	1933-1956

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[12] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 4-8. However, not all licence details have been provided by Groundsure.

Table 4-8 - Scout west laydown area and ramp access - Landfill and waste summary

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary	Licence issue date	Licence status
Waste Exemptions	Weir Mill, Manchester Road, Mossley, Ashton, OL5 9QA	Use of waste in construction	32 m	east	-	-
Waste Exemptions	Murphy Compound, Huddersfield Road, Mossley, Manchester, OL5 9QN	Use of waste in construction	39 m	east	-	-
Historical Landfill (1963 mapping)	Refuse Tip		70 m	south-east	-	-

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary	Licence issue date	Licence status
Historical Landfill	Land Off Egmont Street, Manchester Road	Inert, Commercial, Household	156 m	east	11/04/1985	Surrendered 28/04/1994

4.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

4.8 Sensitive land use

The data from Groundsure[12] indicates that a site of special scientific interest (SSSI) is located 69 m east of the site. The SSSI is associated with the Huddersfield Narrow Canal. The site is also located within a SSSI impact zone. There are no other sensitive land uses, including Ramsar or areas of conservation within 250 m of the site.

4.9 Regulatory land use

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are no pollution incidents reported by Groundsure[12] on-site or within 250 m of the site.

Pollution prevention and controls

The data from Groundsure[12] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. There is one historical licensed pollutant release (part B) located 38 m east of the site, associated with cleaning.

Planning hazardous substance consents

The data from Groundsure[12] indicates there are Control of Major Accident Hazards (COMAH) sites/planning hazardous consents within 250 m of the site. A List 1 Dangerous Substance (Cadmium) consent is located 11 m south and is currently active.

Radioactive substances

The data from Groundsure[12] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[12] indicates there are no recent industrial land uses on-site. There are seven recent industrial land uses within 250 m of the site. A summary has been provided in Table 4-9.

Table 4-9 - Scout west laydown area and ramp access - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Electricity substation	Infrastructure and facilities	Electrical features	1 m	south-east
Chicago coating co.	Industrial products	Industrial coatings and finishings	27 m	east
Manchester guns	Industrial products	Arms and ammunition	32 m	east
Works	Industrial features	Unspecified works or factories	37 m	south-east
Irwell motors	Motoring	Secondhand vehicles	39 m	east
Sewage works	Infrastructure and facilities	Waste storage, processing and disposal	109 m	south
Mast (telecommunication)	Infrastructure and facilities	Telecommunications features	229 m	north-east

Active and current petrol stations

There are no active or current petrol stations recorded within 250 m of the site indicated by Groundsure[12].

Contaminated land designations

According to Groundsure[12], there are no sites designated as contaminated land on-site or within 250 m of the site.

4.10 Site area reconnaissance

A site walkover was undertaken on 17 March 2025 by an AtkinsRéalis Environmental Scientist. A summary of the observations made during the visit is provided as follows.

Table 4-10 – Scout west laydown area and ramp access - Site walkover record

Item	Description
Location	The site is located on third party land in Mossley, Greater Manchester. The site is off-track with national grid reference SD 97264 01114 and What3Words of atom.open.appear. At the time of the walkover, permissions had not been granted for land access. Photos were therefore taken from the west on Manchester Road. The northern parcel of the site could not be observed. The compound covers an area of approximately 0.74 ha. The site slopes up from Manchester Road to the railway track, beginning behind existing industrial buildings on the north-eastern boundary and continuing south down Manchester Road. Residential properties are located along Manchester Road opposite the site.
Description of current use/ activities	The site appears unused and vegetated.
Fuel/chemical storage	No evidence of fuel storage was observed.
Evidence of land contamination	No evidence of land contamination was observed.
Invasive Species	None observed from viewpoint.
Surface coverage	A vegetated embankment forms 100% of the visible site.
Boundary Types	A low retaining stone wall is present along the eastern side of the boundary. Behind the industrial compound is separated by a palisade fence.

Item	Description
Surface Water Features	No surface water features were visible.

4.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

Historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and future use of the site as a construction works compound. It is assumed that the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground associated with historical on-site uses including the Scout Tunnel.
- Off-site:
    - Historical features surrounding the site including:
        - Scout Mill;
        - Weir Mill;
        - Electricity substations;
        - Old quarry;
        - Reservoir;

        - Brick works;
        - Corporation sewage works;
        - Filter beds;
        - Tanks; and
        - Made Ground associated with historical developments such as the railway line.
    - Current features surrounding the site including:
        - Electricity substation;
        - Telecommunication mast; and
        - Sewage works.
    - Historical landfill [156 m east].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future open space end use and during construction works:

- Human Health:
    - On-site:
        - Construction workers associated with the construction of the site; and
        - Future users of the site.
    - Off-site:

        - Resident and occupiers of commercial/ industrial premises; and
        - Users of public open space areas.
    - Controlled Waters:
        - Groundwater:
            - Secondary A bedrock aquifer;
            - Secondary (Undifferentiated) superficial aquifer [51 m south-east]; and
            - Secondary A superficial aquifer [112 m east].
        - Surface water:
            - River Tame [28 m south-east];
            - Huddersfield Narrow Canal west section [79 m east]; and
            - Unnamed watercourses [0 m, 60 m, 108 m, 127 m, 161 m].
    - Property and Services:
        - On-site: construction compound buildings (offices, welfare, canteen, stores, etc.); and
        - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - ingestion of contaminated soils, soil-derived dust and groundwater;
    - dermal contact with soil, soil-derived dust and groundwater; and

- inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.

- Controlled Waters
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment form contamination which may be present. Such risks must be adequately mitigated by the measures requires under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risk to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 4-11 - Scout west laydown area and ramp access - Initial Conceptual Site Model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Scout Tunnel Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: <u>Human Health</u> – Construction workers Future site users <u>Property</u> – Compound related facilities <u>Off-site:</u> <u>Human Health</u> – Residents and occupiers of commercial/ industrial premises, users of public open space areas. <u>Property and Services</u> – Commercial businesses and residential properties	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, there is limited potential for contaminants to be present in soil and groundwater on-site. Future site users could come into contact with contaminants in areas of the site not covered with hardstanding, buildings or vegetation. The site will be utilised as a compound resulting in the installation of parking on-site, storage areas and portacabins reducing the amount of possible contact with contaminants. The site is unlikely to be used after construction of the railway is complete and it is assumed that the site will be reinstated to its original condition. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion).		Low	Medium	**Moderate/low risk** Made Ground and infilled ground are anticipated to be present on the site, which may be a source of ground gas.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Inhalation of ground gas (asphyxiation).				Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. Welfare cabins associated with the construction compound are likely to have a void between the floor and ground therefore the ingress of gas is unlikely.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** As there are no previous developments on the site, the potential for asbestos to be present is unlikely. During the site's use as a construction compound it is likely to comprise hardstanding or gravel, therefore it is unlikely that contact with the Made Ground or infilled ground will occur. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service	Groundwater Controlled Waters – Secondary A bedrock aquifer Secondary (Undifferentiated) superficial aquifer Secondary (A) superficial aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. As there are no superficial deposits underlying the site, Made Ground will be in direct contact with the bedrock, increasing the risk of contaminants leaching into the bedrock. As the site is to be used as a storage compound, it is unlikely that new pathways will be created. However, if development plans include works that will require new drainage to be installed, the pathway created will need to be considered.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	pipes/trenches, piled foundations.				The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Unnamed watercourses Huddersfield Narrow Canal west section	Low	Medium	**Low Risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to surface waters located on-site. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame, therefore limited contaminants are likely to reach the site as the majority of potential sources are east of the site. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources:	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – On-site users Construction workers Property –	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Historical features surrounding the site including: Scout Mill; Weir Mill; Electricity substations; Old quarry; Reservoir;		Compound related facilities <u>Off-site:</u> <u>Human Health</u> – Residents and occupiers of commercial/ industrial premises, users of public open space areas. <u>Property and Services</u> – Commercial businesses and residential properties.			off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Brick works; Corporation sewage works; Filter beds; and Tanks.	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site.
Made Ground associated with historical developments such as the railway line. Current features surrounding the site including: Electricity substation; Telecommunication mast; and Sewage works. Historical landfill [156 m east]. *Possible contaminants include:* *Asbestos* *Metals*	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Any superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site.
	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Historical landfills are located more than 100 m away from the site, which limits the potential for ground gas migration. Also, the proposed use as a construction compound is not considered to be a sensitive land use in regard to gas risk. There is one coal seam located within 250 m of the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
PAHs *Petroleum hydrocarbons* *VOCs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*					

4.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for this site.

5. BASELINE FOR PLEVINS SITE COMPOUND

5.1 Site history

Table 5-1 provides a summary of the historical development at the Plevins site and the surrounding 250 m buffer area. The history of the site and surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[12].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 5-1 – Plevins site compound - Summary of historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Coal Depot	1906-1938	0 m	on-site
Electricity Substation	1992-1996	0 m	on-site
Micklehurst Goods Station	1891-1956	0 m	on-site
Railway Sidings	1891-1956	0 m	on-site
Cheshire Street chemical works	1938	1 m	east
Albert Mill (cotton)	1922-1933	1 m	east
Brunswick Mill (woolen)	1955	1 m	east
Mossley Iron works	1891-1907	2 m	east
Tramway	1909-1933	3 m	north-west
Gas Governor	1992-1996	4 m	north-west
Bricks Works	1891	14 m	west
Unspecified Mill	1938	14 m	north-east
Unspecified Ground Workings	1907	20 m	east
Refuse Heap	1906-1956	28 m	north-west
Unspecified Tanks	1938	39 m	north-west
Unspecified Ground Workings	1938	44 m	north-west

[12] Groundsure 2024, Enviro + Geo Insight (GS-8D9-VXZ-U2J-COV)

Feature	Date	Distance from site boundary	Direction from site boundary
Bankside Mill	1872	47 m	west
Unspecified Tank	1872-1955	46 m	east
Tanks	1922-1955	47 m	north-west
Sand Pit	1907	49 m	north-west
Electricity Substation	1975-1996	50 m	east
Unspecified Tanks	1918-1955	50 m	north-west
Cemetery	1872-1992	52 m	south-east
Iron Foundry	1892 – 1955	54 m	west
Electricity Substation	1955	56 m	east
Bronze Foundry	1955	60 m	west
Unspecified Tank	1954-1975	62 m	east
Electricity Substation	1954-1975	63 m	east
Tanks	1922	74 m	north-west
Unspecified Mills	1891-1938	74 m	west
Unspecified Tank	1954-1975	77 m	north-east
Unspecified Tanks	1918-1923	77 m	north-west
Refuse Heap	1906-1956	83 m	north-west
Unspecified Tank	1872	84 m	east
Unspecified Tank	1906-1992	85 m	west
Gasometer	1891-1922	92 m	west
Oil Tank	1933-1975	92 m	west
Refuse Heap	1907-1956	95 m	north-west
Southend Mill (cotton)	1863-1922	102 m	west
Wire Works	1938-1956	105 m	west
Gasometer	1872	120 m	east
Unspecified Tank	1872-1898	120 m	west
Unspecified Tank	1872	128 m	east
Engineering works	1955	129 m	north
Sand Pit	1906-1938	132 m	south-east
Tanks	1872-1922	132 m	south
Unspecified Works	1970-1992	137 m	west
Refuse Heap	1906-1923	139 m	west
Sand Pit	1907	145 m	west

Feature	Date	Distance from site boundary	Direction from site boundary
Electricity Substation	1992-1996	146 m	west
Unspecified Pit	1956	148 m	south-east
Unspecified Tank	1891	176 m	west
Unspecified Heap	1956-1992	178 m	west
Albert Mill (cotton	1863-1933	179 m	west
Garage	1975-1996	180 m	west
Unspecified Tank	1898-1975	180 m	west
Tunnel	1899-1992	182 m	south-west
Gasometer	1872-1894	183 m	west
Cuttings	1899-1992	188 m	south-west
Unspecified Tank	1894-1923	189 m	west
Victoria Mill (woolen)	1872-1955	200 m	north
Refuse Heap	1956	196 m	south-east
Unspecified Tank	1909-1933	200 m	west
Unspecified Old Quarry	1899-1933	206 m	south-west
Unspecified Mill	1906-1992	209 m	west
Tanks	1894-1909	213 m	south-west
Railway Sidings	1891-1938	215 m	north-west
Cotton Mill	1845	226 m	west
Unspecified Mills	1907-1938	230 m	east
Garage	1975-1992	237 m	west
Railway Building	1891	239 m	north-west
Goods Shed	1906-1938	240 m	north-west
Electricity Substation	1971-1992	241 m	east

5.2 Published geology

A summary of the published geology relevant to the Plevins Site Compound is provided below. The data has been sourced from Groundsure[13] and British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is recorded on-site. Made Ground is also recorded within 250 m of the site. Made Ground may be associated with the historical development of the site

including railway buildings, iron works, unspecified mills and electricity substations.

Superficial deposits

The 1:10,000 scale published geology maps indicate that Devensian Till is recorded underlying the site. Alluvium is recorded 26 m west, and Glaciofluvial deposits (Devensian) are also recorded 41 m east and 164 m south-east.

Bedrock

The 1:10,000 scale published geology indicates there is Marsden Formation underlying the site. Fletcher Bank Grit is recorded 53 m west, Upper Kinderscout Grit is recorded 65 m east. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 5-2. Figure 5-1 presents bedrock formations up to 250 m from the site; beyond the 250 m buffer no bedrock information is included in this report.

Table 5-2 - Plevins site compound - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional details
Marsden Formation	0 m	on-site	Mudstone and siltstone
Fletcher Bank Grit	53 m	west	Sandstone
Upper Kinderscout Grit	65 m	east	Sandstone

Figure 5-1 - Scout west laydown area and ramp access - Bedrock geology

Faults and linear features

The 1:10,000 scale published geology indicates there is one linear feature, fossil horizon, located 240 m south-west of the site.

5.3 Hydrogeology

Superficial aquifers

The data from Groundsure[13] indicates that there is a secondary (Undifferentiated) superficial aquifer underlying the site, associated with the Devensian Till.

Secondary (Undifferentiated) aquifers are defined by the Environment Agency as “where it is not possible to attribute either category A or B to a rock type. In general, these layers have previously been designed as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.”

Bedrock aquifers

The data from Groundsure[13] indicates the presence of a secondary A bedrock aquifer underlying the site, associated with the Marsden Formation.

Secondary A aquifers are defined as “permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.”

Groundwater vulnerability

Groundsure[13] data indicates that the groundwater vulnerability is high for the bedrock aquifer and medium for the superficial aquifer. A high classification is assigned to areas which are “able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.” A medium classification is assigned to areas which are an “intermediate between high and low vulnerability.”

Groundwater source protection zones

The data from Groundsure[13] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[13] indicates that there is one historical groundwater abstraction within 250 m of the site. A “spring fed catchpit at Kershaw Hey Farm, Mossley” located 199 m south, started 08/02/1966. No expiry date has been provided by Groundsure.

Groundwater discharge consents

The data from Groundsure[13] indicates there are no groundwater discharge consents within 250 m of the site.

5.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[13] as Huddersfield Narrow Canal west section. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 5-3.

Table 5-3 - Plevins site compound - Surface watercourses

Name of watercourse	Type	Distance from site boundary	Direction from site boundary	WFD overall classification
Huddersfield narrow canal west section	Canal	22 m	west	Moderate

Name of watercourse	Type	Distance from site boundary	Direction from site boundary	WFD overall classification
Tame (Chew Brook to Swineshaw Brook)	River	34 m	north	Moderate
Willow Lake	Lake	34 m	south-east	-
Unnamed watercourse	On ground surface watercourse	44 m	south-east	-
Unnamed watercourse	On ground surface watercourse	97 m	west	-
Unnamed watercourse	On ground surface watercourse	194 m	west	-

Surface water discharge consents

The data from Groundsure[13] indicates there are no licensed discharges to surface water on-site. There are two licensed discharges within 250 m of the site. In addition, there are no pollutant release to surface waters on-site or within 250 m of the site. A summary of surface water discharge consents within 250 m is provided in Table 5-4.

Table 5-4 - Plevins site compound - Surface water discharge consents

Permit number	Address	Receiving water	Distance from site boundary	Direction from site boundary	Effective date
01TAM0092	Crowhill, SSO, Stockport, Greater Manchester	Coastal Trib for DA 68/69	59 m	west	15/09/1993
01TAM0088	Manchester road CSO, Manchester Road, Mossley, Ashton-under-lyne, Greater Manchester, OL5 9LZ	River Tame	157 m	west	11/01/2017

Surface water abstractions

The data from Groundsure[13] indicates there are no surface water abstractions within 250 m of the site.

5.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[13] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

5.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[13] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 5-5.

Table 5-5 - Plevins site compound - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is located within a coal mining area.
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral. There are no other non-coal mining areas within 250 m of the site.
British Pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There is one other brit pit within 250 m of the site. This is located 156 m south-east, a surface mineral working for sandstone, which at date of entry has ceased to extract minerals.
Surface Ground Workings	There is one surface ground workings feature on-site. There are 23 other surface ground workings features within 250 m of the site. Details are provided in Table 5-6.

Category	Summary
Underground Workings	There are no underground workings on-site. There is one other underground workings within 250 m of the site, a tunnel located 182 m south-west.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 5-6 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 5-6 - Plevins site compound - Surface ground workings

Name	Distance from site boundary	Direction from site boundary	Date
Unspecified Heap	0 m	west	1992
Canal	13 m	west	1906-1992
Bricks Works	14 m	west	1891
Unspecified Ground Workings	20 m	east	1907
Lake	21 m	south-east	1892-1992
Refuse Heap	28 m	north-west	1906-1956
Unspecified Ground Workings	44 m	north-west	1938
Sand Pit	49 m	north-west	1907
Cemetery	52 m	south-east	1872-1992
Refuse Heap	83 m	north-west	1906-1923
Pond	124 m	east	1872-1970
Sand Pit	132 m	south-east	1907-1923
Refuse Heap	139 m	west	1906-1907
Unspecified Pit	148 m	south-east	1956
Canal	149 m	south-west	1899
Unspecified Ground Workings	152 m	south-west	1956
Sand Pit	154 m	south-east	1906-1938
Unspecified Ground Workings	167 m	east	1872
Refuse Heap	175 m	west	1923-1992
Tunnel	182 m	south-west	1899-1992

Name	Distance from site boundary	Direction from site boundary	Date
Unspecified Heap	188 m	west	1956
Cuttings	189 m	south-west	1899-1992
Refuse Heap	196 m	south-east	1956
Unspecified Old Quarry	206 m	south-west	1899-1933

The Mining Remediation Authority[5] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[13] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 5-7. However, not all licence details have not been provided by Groundsure.

Table 5-7 - Plevins site compound - Landfill and waste summary

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary	Licence issue date	Licence status
Historical Landfill	-	Inert, Commercial, Household	105 m	west	11/04/1985	Surrendered: 28/04/1994
Licensed Waste Sites	Cheshire Street, Mossley, Ashton Under Lyne, Lancashire, Ol5 9ng	Household, Commercial & Industrial Waste T Stn	0 m	on-site	16/07/2004	Issued
Waste Exemptions	Palletman & Sons Ltd, Land Off, Cheshire Street, Mossley, OL5 9NW	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising	8 m	north-east	-	-

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary	Licence issue date	Licence status
Waste Exemptions	Unit 6 Glover Estate Egmont Street, Mossley, Ashton Under Lyne, OL5 9PY	Burning waste in the open	162 m	west		

5.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

5.8 Sensitive land uses

The data from Groundsure[13] indicates there is one site of special scientific interest (SSSI) within 250 m, the Huddersfield Narrow Canal. There are no other sensitive land uses, including Ramsar or areas of conservation within 250 m of the site. The site is located within a SSSI impact zone.

5.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are three pollution incidents reported by Groundsure[13] within 250 m of the site and a summary has been provided in Table 5-8.

Table 5-8 - Plevins site compound - Pollution incidents

Type	Distance from site boundary	Direction from site boundary	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Other pollutant	78 m	east	Category 2 (significant)	Category 4 (no impact)	Category 4 (no impact)	28/04/2010

Type	Distance from site boundary	Direction from site boundary	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Atmospheric pollutants and effects	89 m	south-east	Category 3 (minor)	Category 4 (no impact)	Category 4 (no impact)	04/03/2003
Sewage materials	236 m	west	Category 4 (no impact)	Category 3 (minor)	Category 3 (minor)	04/04/2001

Pollution prevention and controls

The data from Groundsure[13] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. A summary of the number and location of these applications has been provided in Table 5-9.

Table 5-9 - Plevins site compound - Pollution controls overview

Pollution prevention and control category	Summary
Pollution inventory substances	There are no pollution inventory substances on-site or within 250 m of the site.
Licensed pollutant release (Part A(2)/B)	There are no licensed pollutant release part A2 and B features on-site. There are three licensed pollutant release part A2 and B features within 250 m of the site.
Historical licensed industrial activities	There are no historical licensed industrial activities on-site or within 250 m of the site.
Licensed industrial activities (Part A(1))	There are no licensed industrial activities on-site or within 250 m of the site.

Further detail of pollution prevention and controls on-site and within 250 m are given in Table 5-10.

Table 5-10 - Plevins site compound - Pollution prevention and controls detailed summary

Type	Site	Description	Distance from site boundary	Direction from site boundary	Status
Licensed pollutant release (part a(2)/b)	Metal Brite Anticorrosive Services, Audley Street	Historical Permit Part B	44 m	west	Historical permit

Licensed pollutant release (part a(2)/b)	Northern Electrical Connectors, Egmont Street	Historical Permit Part B	145 m	west	Historical permit
Licensed pollutant release (part a(2)/b)	R Etchells & Sons, Egmont Street	Historical Permit Part B	187 m	west	Historical permit

Planning hazardous substance consents

The data from Groundsure[13] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[13] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[13] indicates there are five recent industrial land uses on-site. There are 21 recent industrial land uses within 250 m of the site. A summary has been provided in Table 5-11.

Table 5-11 - Plevins site compound - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Electricity substation	Infrastructure and facilities	Electrical features	0 m	on-site
Plevin	Foodstuffs	Fish, Meat and Poultry Products	0 m	on-site
Tank	Industrial Features	Tanks (Generic)	0 m	on-site
Travelling crane	Industrial features	Travelling cranes and gantries	0 m	on-site
Works	Industrial Features	Unspecified Works Or Factories	0 m	on-site
Gas governor station	Infrastructure and facilities	Gas features	6 m	north-west
Palletman & Sons	Industrial products	Packaging	38 m	north-west

Electricity substation	Infrastructure and facilities	Electrical features	57 m	east
Works	Industrial Features	Unspecified Works Or Factories	82 m	north-west
Works	Industrial Features	Unspecified Works Or Factories	122 m	south-west
Electricity substation	Infrastructure and facilities	Electrical features	127 m	west
Airtec Air Systems Ltd.	Engineering services	Industrial engineers	145 m	west
Mobile Pallets Ltd.	Industrial products	Packaging	147 m	west
Electricity substation	Infrastructure and facilities	Electrical features	150 m	west
Benchmaster	Industrial Products	Tools Including Machine Shops	155 m	west
J A S Engineering	Industrial products	Tools including machine shops	161 m	west
N E C Engineering	Industrial products	Metals manufacturers, fabricators and stockholders	162 m	west
Gladiator Foam Ltd.	Consumer products	Bathroom fixtures, fittings and sanitary equipment	163 m	west
Greenbridge Engineering Ltd.	Engineering services	Precision engineers	163 m	west
UK Workbenches	Industrial products	Tools including machine shops	163 m	west
P S Contract Furniture	Consumer products	Carpets, flooring, rugs and soft furnishings	190 m	west
T J Dobson Ltd	Industrial products	Access equipment	209 m	south-west
Works	Industrial Features	Unspecified Works Or Factories	228 m	west
A U T	Industrial products	Special purpose machinery and equipment	232 m	west
Revolution Castors Ltd.	Industrial products	Special purpose machinery and equipment	232 m	west

Electricity substation	Infrastructure and facilities	Electrical features	245 m	east

Active and current petrol stations

There are no active or current petrol stations within 250 m of the site as indicated by Groundsure[13].

Contaminated land designations

According to Groundsure[13], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250 m of the site.

5.10 Site area reconnaissance

A site walkover was undertaken on 03 June 2025 by two AtkinsRéalis Environmental Scientists. A summary of the observations made during the visit is provided as follows.

Table 5-12 - Plevins site compound – Site walkover record

Item	Description
Location	The site is located on third party land off Crown Hill in Mossley, Ashton-under-Lyne. The site is off-track with national grid reference SD 97768 01683 and What3Words of durations.branded.skip. The site is accessed via a locked metal gate, accessible through prior arrangement with Bruton Knowles. The compound covers an area of 2.6 ha. The site is surrounded by residential and commercial properties, with Huddersfield Narrow Canal being adjacent to the west of the site.
Description of current use/ activities	The site is currently derelict and unused.
Fuel/chemical storage	There was no visible fuel or chemical storage. Chemical hazard signs suggest that fuel/chemicals were stored on-site at some point.
Evidence of land contamination	A slight oil sheen was observed near the entrance to the site, potentially in relation to damaged lorry used to block access gates. There were also “soap-like” bubbles surrounding one of the drains on-site. Buildings were not accessible during the visit, however asbestos warning signs and chemical hazard signs were noted around the site.

	A variety of piles of potential Made Ground, rubble, sawdust and unknown waste stockpiles were noted around the site.
Invasive Species	No invasive species were identified.
Surface coverage	Flat concrete slopes down to entrance in north. Cobbled road from entrance to main area. Gravelled area to west of access. Hardstanding cracked and missing along south-east boundary.
Boundary Types	Dense vegetation and palisade fencing around site.
Surface Water Features	There are no surface water features on-site.

5.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site and future use of the site as a construction compound. It is assumed that the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:

  - Coal depot;
  - Electricity substation; and
  - Micklehurst goods station.

- Off-site:
  - Historical land uses surrounding the site including:
    - Chemical works;
    - Cotton Mills;
    - Woolen Mills;
    - Gas Governors;
    - Tanks;
    - Cemetery;
    - Iron/Bronze Foundry;
    - Electricity substations;
    - Refuse heaps; and
    - Garages.
  - Current land uses surrounding the site including:
    - Electricity substations;
    - Tanks;
    - Engineering works; and
    - Factories.
- Historical landfill [105 m west].
- Pollution incidents [78 m east, 89 m south-east, 236 m west].

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future users of the site.
  - Off-site:
    - Resident and occupiers of commercial/industrial premises; and
    - Users of public open space areas.
- Controlled Waters:
  - Groundwater:
    - Bedrock secondary (A) aquifer; and
    - Superficial secondary (Undifferentiated) aquifer.
  - Surface water:
    - Huddersfield Narrow Canal west section [22 m west];
    - River Tame [34 m north];
    - Willow Lake [34 m south-east]; and

- Unnamed watercourses [44 m south-east, 97 m west, 194 m west].

- Property and Services:
  - On-site: construction compound buildings (offices, welfare, canteen, stores, etc.); and
  - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater;
  - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.
- Property and Services:

- Ground gas migration and build up within confined spaces; and
- potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 5-13 - Plevins site compound - Initial Conceptual Site Model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Made Ground associated with former developments on-site: Coal depot; Electricity substation; and Micklehurst goods station. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	<u>On-site:</u> <u>Human Health</u> – Construction workers Future users of the site. <u>Property</u> – Compound related facilities <u>Off-site:</u> <u>Human Health</u> – Residents and occupiers of commercial/ industrial premises, users of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. During the site's use as a construction compound it is expected that the site surface will be predominately gravel cover or hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. It is also unlikely that significant excavation will take place on-site as the area is already in use as a storage compound and additional use will include temporary welfare/ offices. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The site is unlikely to be used after construction of the railway is complete and it is assumed that the site will be reinstated to its original condition. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
Petroleum hydrocarbons *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen*	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Made Ground is present on the site, which may be a source of ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site.

sulphide or carbon monoxide)					Welfare cabins are likely to have a void between the floor and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Former buildings on-site increase the likelihood of asbestos being present from demolition of these structures. Based on the potential presence of asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The majority of the site, while in use as a compound, will be covered in hardstanding or gravel therefore it is unlikely that contact with the Made Ground or infilled ground will occur. Some of the site is already in use as a storage compound, underlain by gravel. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches.	Groundwater Controlled Waters – Bedrock secondary A aquifer Superficial secondary (Undifferentiated) aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. Made Ground and superficial deposits are recorded underling the entire site, decreasing the potential migration of contaminants to bedrock over the majority of the site. As the site is being used as a storage compound, it is possible that new services (i.e. drainage) being installed for potential welfare cabins will create new preferential pathways. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater

					vulnerability is classed as high for the bedrock aquifer and medium for the superficial aquifer. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section Unnamed watercourses	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to the surface waters located on-site. The Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the west, towards the River Tame. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. As the site may include welfare cabins and therefore require services (i.e. drainage), there is potential for the works to create preferential pathways to the controlled waters.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources:	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property –	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately

Historical land uses surrounding the site including: Chemical works; Cotton Mills; Woolen Mills; Gas Governors; Tanks; Cemetery;		Compound related facilities			off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Iron/Bronze Foundry; Electricity substations; Refuse heaps; and Garages. Current land uses surrounding the site including:	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
Electricity substations; Tanks; Engineering works; and Factories. Historical landfill: 105 m west Pollution incidents: 78 m east; 89 m south-east; 236 m west. *Possible contaminants include:* *Asbestos* *Metals*	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. There are numerous sources of contamination located on the western side of the River Tame and the canal and therefore are unlikely to reach the site. There are some sources located close to the site which have the potential to migrate to the site, via hydraulic gradient. Superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. One historical groundwater abstraction is recorded within 250 m of the site. Furthermore, no private water supplies are recorded within 250 m of the site.

PAHs *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	Low	Medium	**Moderate/low risk** A historical landfill located 105 m west of the site could be a potential source of ground gas. However, due to the proximity of the historical landfill, migration to the site is unlikely. It is also located on the western side of the River Tame, further mitigating the potential for migration. No coal seams are located within 250 m of the site.

5.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

6. BASELINE FOR SCOUT EAST ACCESS WORK

6.1 Site history

Table 6-1 provides a summary of the historical development at the Scout East site and the surrounding 250 m buffer area. The history of the site and surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[13].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 6-1 – Scout East Access work- Summary of historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Cuttings	1891-1992	0 m	on-site
Railway sidings	1891-1938	0 m	on-site
Allotment gardens	1954-1984	0 m	on-site
Reservoir (infilled)	1892-1909	1 m	east
Tunnel	1892-1992	7 m	east
Coal depot	1863	11 m	east
Goods shed	1906-1938	28 m	east
Railway building	1891	38 m	east
Goods shed	1907	53 m	east
Albert Mills	1863-1923	67 m	north-east
Garage	1954-1992	74 m	north-east
Scout Farm	1863-1992	100 m	south-west
Unspecified pit	1956	107 m	north-east
Unspecified pit	1891-1970	114 m	north-west
Garage	1975-1996	124 m	east
Refuse heap	1906-1992	126 m	east
Quarry	1863	139 m	north-west

[13] Groundsure 2024, Enviro + Geo Insight (GS-UNX-42W-14K-IF9).

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified mill	1892-1992	139 m	south
Unspecified ground workings	1938	153 m	east
Unspecified mills	1891-1938	153 m	north-east
Unspecified tank	1954-1955	154 m	west
Unspecified heap	1933	155 m	east
Unspecified mill	1907	156 m	south-east
Unspecified ground workings	1891-1956	157 m	north
Unspecified pit	1891-1938	160 m	north
Refuse heap	1918-1923	164 m	north
Gravel pit	1863	167 m	west
Refuse heap	1918-1938	168 m	north
Unspecified pit	1906-1970	171 m	north
Scout Mill	1845-1992	175 m	south
Unspecified ground workings	1956-1982	176 m	north-east
Unspecified tank	1906-1933	176 m	north-east
Refuse heap	1918-1938	180 m	north
Electricity substation	1984-1990	182 m	north
Unspecified tank	1894-1898	185 m	north-east
Ground workings and refuse heap	1907	186 m	north
Brick works	1892	188 m	south-west
Refuse heap	1907-1956	191 m	east
Unspecified mills	1891-1938	193 m	north-east
Unspecified tanks	1918-1923	196 m	east
Wire works	1970-1992	205 m	north-east
Refuse heap	1906-1956	209 m	east
Tanks	1918-1955	217 m	east
Tanks	1894-1938	236 m	north-east
Unspecified tank	1954-1955	236 m	south-east
Unspecified commercial/industrial	1863	238 m	north
Cotton mill	1863	247 m	north

6.2 Previous ground investigations

Description of the investigation

An intrusive ground investigation was undertaken by Structural Soils Ltd. In February 2018[14] around Mossley Station, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Two of the locations are within 250 m of the site and have been summarised in Table 6-2 and the investigation locations are displayed in Figure 6-1.

Table 6-2 - Scout East Access work - Summary of investigation

Item	No. undertaken
Number of boreholes	Two Automatic Ballast Sampler boreholes
Number of trial pits	None
PID* testing undertaken	None
Number of soil samples tested	Two
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None
* photo-ionisation detector	

[14] Structural Soils 2018, TransPennine Route Upgrade Factual Report on Ground Investigation (151667-TSA-05-MVL3-DM3-X-MF-700013).

Figure 6-1 – Scout East Access work - Previous ground investigations

Chemical analysis of environmental samples collected during investigations was scheduled by Structural Soils Ltd. and tested by EnviroLab. Table 6-3 summaries the soil samples analysed for selected determinants from within 250 m of the site.

Table 6-3 - Scout East Access work - Testing suite

Determinand/suite	Number of samples tested
Metals/Metalloids (antimony, arsenic, beryllium, boron (water soluble), cadmium, chromium (total) copper, lead, mercury, nickel, selenium, vanadium and zinc).	2
Speciated polycyclic aromatic hydrocarbons (USEPA 16) (PAH)**, total PAHs-16MS.	2
BTEX (benzene, toluene, ethylbenzene, m and p xylene and o xylene) and Methyl Tert Butyl Ether (MTBE).	0
Speciated total petroleum hydrocarbons (TPH) criteria working group (CWG) with aliphatic/aromatic separation and carbon banding,	2
Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs).	0

Determinand/suite	Number of samples tested
Asbestos screen.	2
Soil Organic Matter (SOM).	0
Speciated PCB-EC7	2

Ground conditions

Table 6-4 summarises the ground conditions encountered during the ground investigation.

Table 6-4 - Scout East Access work - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Light grey gravel of course grained igneous rock (diorite) (Clean ballast) Light to dark grey sandy gravel of course igneous rock (diorite). Sand. (Dirty ballast) Dark grey to black very sandy gravel of dolomitic limestone and diorite. Sand of ash and coal. (Very dirty ballast). Light to dark grey and pink slightly sandy grained gravel of fine-grained igneous rock and medium grained igneous rock (granite) (Clean ballast) Some sand of ash and coal (Dirty ballast)	0.20 (start of borehole below rail line).	0.75 - 0.90
Sand	Light and dark brown slightly gravelly slightly clayey sand with coast gravel sized pockets of clay.	0.75	1.20

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs. However, a summary of the observed anthropogenic materials is displayed in Table 6-5.

Table 6-5 - Scout East Access work - Summary of anthropogenic material observed

Exploratory Hole	Depth (m)	Comment	Strata
AB2011	0.65 – 0.90	Ash inclusions	Made Ground
AB2012	0.70 – 0.75	Ash inclusions	

6.3 Published geology

A summary of the published geology relevant to the Scout East Access site is provided below. The data has been sourced from Groundsure[14] and the British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicated that Made Ground is not recorded over the majority of the site. Made Ground is recorded along the eastern boundary. Made Ground is mapped within 250 m of the site, 198 m north, and 215 m north-east.

Superficial deposits

The 1:10,000 scale published geology maps indicate there are no superficial geology designations recorded on-site. There are three superficial geology designations recorded within 250 m of the site. Glaciofluvial sheet deposits (Devensian) are found 58 m north-west, Alluvium is found 94 m east and Head deposits are found 120 m west.

Bedrock

The 1:10,000 scale published geology dataset indicates there are two bedrock geology designations on-site. There are two other bedrock geology designations within 250 m of the site. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 6-6. Figure 6-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is including in this report.

Table 6-6 - Scout East Access work - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional Details
Fletcher Bank Grit	0 m	on-site	Sandstone
Marsden Formation	0 m	on-site	Mudstone And Siltstone
Marsden Formation	100 m 130 m	east west	Mudstone And Siltstone
Huddersfield White Rock	105 m	west	Sandstone
Rossendale Formation	138 m	west	Mudstone And Siltstone

Figure 6-2 - Scout East Access work - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there is one linear feature on-site. There are three other linear features within 250 m of the site. Details are provided in Table 6-7 and can be seen in Figure 6-2.

Table 6-7 – Scout East Access work - Summary of bedrock faults

Data source	Description	Distance from the site boundary	Direction from the site boundary
Fossil horizon	Fossil horizon, marine band	0 m	on-site
Fossil horizon	Fossil horizon, marine band	6 m	west
Rock	Coal seam	131 m	west
Fossil horizon	Fossil horizon, marine band inferred coincident with bedrock geology boundary	139 m	west

6.4 Hydrogeology

Superficial aquifers

The data from Groundsure[14] indicates that there are no superficial aquifers on-site. Secondary A superficial aquifers are located 85 m north-west and 123 m south-east. The Environment Agency describes a secondary A aquifer as:

“Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.”

Bedrock aquifers

The data from Groundsure[14] indicates that the site and surrounding area is underlain by a secondary A bedrock aquifer.

Groundwater vulnerability

Groundsure[14] data indicates that the groundwater vulnerability is high for the bedrock aquifer vulnerability. A high vulnerability classification is assigned to “*areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.”*

Groundwater source protection zones

The data from Groundsure[14] and MAGIC website[4] both indicate that the site is not within 250 m of the site.

Groundwater abstractions

The data from Groundsure[14] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[14] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

6.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[14] as an unnamed watercourse located 79 m south-east of the site. A summary of all surface watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 6-8.

Table 6-8 - Scout East Access work - Surface watercourses

Name of Watercourse	Type	Distance from Site	Direction from Site	WFD Overall Classification
Unnamed watercourse	On ground surface	79 m	south-east	-
Unnamed watercourse	On ground surface	126 m	west	-
Tame (Chew Brook to Swineshaw Brook)	River	135 m	east	Moderate
Unnamed watercourse	On ground surface	191 m	north-east	-

Surface water discharge consents

The data from Groundsure[14] indicates there are no licensed discharges to surface water features on-site. There are three licensed discharges to surface water features within 250 m of the site. In addition, there are no pollutant releases to surface water features on-site or within 250 m of the site. A summary of all surface water discharge consents within 250 m of the site has been provided in Table 6-9.

Table 6-9 - Scout East Access work - Surface water discharge consents

Permit number	Effluent Type	Address	Receiving water	Distance from site	Direction from site	Effective date
01TAM0088	Sewage discharges – sewer storm overflow – water company	Manchester Road CSO, Manchester Road, Mossley, Ashton-Under-Lyne, Greater Manchester, OL5 9LZ	Culvert to River	47 m	north	01/01/1995, revoked 02/09/2010
			Unnamed watercourse via Culvert	47 m	north	03/09/2010, revoked 10/01/207
			River Tame	128 m	south-east	11/01/2017, present

Surface water abstractions

The data from Groundsure[14] indicates there are no surface water abstractions within 250 m of the site.

6.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[14]indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

6.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[14] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 6-10.

Table 6-10 - Scout East Access work - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and1:50,000 scale maps)	Published geology recorded one coal seam within 250 m of the site. This is located 130 m west.
Coal mining areas	The site is within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site, for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered. There are no other non-coal mining areas within 250 m of the site.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There are two brit pits within 250 m of the site. One is for the surface extraction of sand [45 m east] and the other for sandstone [189 m north-west]. Both at date of entry, have ceased to extract minerals.
Surface ground workings	There are two surface ground workings feature on-site. There are 20 other surface ground workings features within 250 m of the site. Details are provided in Table 6-11.
Underground workings	There are no underground workings on-site. There is one underground working within 250 m of the site. The working is for the construction of Scout Tunnel and is located 7 m east of the site.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 6-11 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 6-11 - Scout East Access work - Surface ground workings

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1923-1992
Disused Reservoirs	0 m	on-site	1907
Tunnel	7 m	east	1907-1992
Cuttings	8 m	east	1891
Disused Reservoirs	8 m	west	1906-1918
Reservoir	78 m	south-west	1906-1992

Name	Distance from site	Direction from site	Date
Unspecified Pit	114 m	north-west	1891-1970
Refuse Heap	126 m	east	1906-1992
Sand Pit	133 m	east	1907
Unspecified Pit	134 m	north-west	1907
Unspecified Heap	155 m	east	1933-1938
Refuse heap	157 m	north	1891-1956
Gravel Pit	167 m	west	1863
Unspecified Pit	171 m	north	1923-1938
Unspecified Ground Workings	176 m	north-east	1906-1982
Refuse Heap	180 m	north	1907-1970
Brick Works	188 m	south-west	1892
Refuse Heap	191 m	east	1923
Unspecified Ground Workings	191 m	south-east	1956
Refuse Heap	209 m	east	1906-1923
Canal	231 m	south-east	1907
Pond	247 m	north	1863

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[14] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 6-12. There are currently no active or licensed waste sites within 250 m of the site.

Table 6-12 - Scout East Access work - Landfill and waste summary

Category	Site name or Address	Description of waste	Distance from site	Direction from site	Licence issue date	Licence status
Historical landfill	Land Off Egmont Street / Manchester Road	Inert, commercial, household	64 m	east	11/04/1985	Surrendered 28/04/1994
Waste exemptions	Murphy Compound, Huddersfield Road, Mossley, Manchester, OL5 9QN	Use of waste in construction	219 m	south	-	-

6.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

6.9 Sensitive land uses

The data from Groundsure[14] indicates there are no sensitive land uses, including sites of special scientific interest (SSSI), Ramsar sites, or areas of conservation, within 250 m of the site. The site is located within a SSSI impact zone.

6.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There is one pollution incident reported by Groundsure[14] within 250 m of the site and a summary has been provided in Table 6-13.

Table 6-13 - Scout East Access work - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Sewage materials – crude sewage	245 m	north-east	Category 4 (no impact)	Category 3 (minor)	Category 3 (minor)	04/04/2001

Pollution prevention and controls

The data from Groundsure[14] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. A summary of the number and location of these applications has been provided in Table 6-14.

Table 6-14 - Scout East Access work - Pollution controls overview

Pollution prevention and control category	Summary
Pollution inventory substances	There are no pollution inventory substances on-site or within 250 m of the site.
Licensed pollutant release (part 2A/B)	There are no licensed pollutant release part 2A and B features on-site. There are two licensed pollutant release part 2A and B features within 250 m of the site, details of which are provided in Table 6-15 below.
Historical licensed industrial activities	There are no historical licensed industrial activities on-site or within 250 m of the site.
Licensed industrial activities (part A(1))	There are no licensed industrial activities on-site or within 250 m of the site.

Further detail of pollution prevention and controls on-site and within 250 m are given in Table 6-15.

Table 6-15 - Scout East Access work - Pollution prevention and controls detailed summary

Site	Description	Distance from site	Direction from site	Status
Chicago Coating Company Limited, Weir Mill, Manchester Road, Mossley,	Coating Processes	182 m	north	Historical permit (Part B)

Site	Description	Distance from site	Direction from site	Status
Tameside, OL5 9QA				
Express Metal Finishers (Oldham) Limited, New Scout Mill, Manchester Road, Mossley, Ashton-Under-Lyne, Tameside, OL5 5QW	Surface Cleaning	243 m	south	Historical permit (Part B)

Planning hazardous substance consents

The data from Groundsure[14] indicates there are no Control of Major Accident Hazards (COMAH) sites or planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[14] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[14] indicates there are no recent industrial land uses on-site. There are 10 recent industrial land uses within 250 m of the site. A summary is provided in Table 6-16.

Table 6-16 - Scout East Access work - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site	Direction from site
Mast (Telecommunication)	Infrastructure and facilities	Telecommunications features	39 m	east
Telephone Exchange	Infrastructure and facilities	Telecommunications features	90 m	north-east
Hancock Plastics Ltd	Industrial products	Rubber, silicones and plastics	116 m	north
A U T	Industrial products	Special purpose machinery and equipment	142 m	north-east
Revolution Castors Ltd	Industrial products	Special purpose machinery and equipment	142 m	north-east

Site	Industrial land use category	Description	Distance from site	Direction from site
Electricity Substation	Infrastructure and facilities	Electrical features	181 m	north
Victory Parade Dresses	Consumer products	Clothing, components and accessories	191 m	north
Irwell Motors	Motoring	Secondhand vehicles	219 m	south
Works	Industrial features	Unspecified works or factories	242 m	north-east
T J Dobson Ltd	Industrial products	Access equipment	246 m	north-east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[14].

Contaminated land designations

According to Groundsure[14], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990, on-site or within 250 m of the site.

6.11 Site area reconnaissance

A site walkover was undertaken on 23 October 2024 by two AtkinsRéalis environmental scientists. A summary of the observations made during the visit is provided as follows.

Table 6-17 – Scout East Access work - Site walkover record

Item	Description
Current use and status of the site	Vacant land with access track – part of site used by general public to access other fields
General condition of site and surrounding land use	Immediately adjacent to track in west of site are horse paddocks and private garden with pond Residential housing to north and west of the site Railway line to the east

Item	Description
	Farm buildings/barn to south (potentially vacant)
Presence of visual contamination, Made Ground, surface staining and odours	No olfactory/visual evidence of contamination
Topography and surface condition – open ground, hardstanding and other geotechnical or surface features	Steep gradient down from west to railway in east. 95% vegetation cover. Access track – mud/gravel
Local surface water features	Pond adjacent to west of site
Presence and type of vegetation	Very heavily vegetated – grass, weeds, trees, bushes etc.
Signs of any vegetation dieback	No
Presence and extent of any non-native invasive plants such as Himalayan Balsam, New Zealand Pigmy weed or Giant Hogweed	No
Buildings and below or above ground structures such as fuel tanks	No buildings on-site
Above and likely below ground services	No above or below ground services
Access to and security of the site	Access not granted at time of walkover so used public right of way (PROW). Pedestrian access is available to west of site. Gate with padlock preventing vehicle access at west of site. Further internal fencing and gates are present across site to enter fields further east and south
Presence of any potential off-site receptors	Residential, ecology in pond
Potential presence of any asbestos cement material within buildings or throughout the site	No asbestos cement material present
Communications or discussions with site personnel	No communications or discussions with site personnel

6.12 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources

of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of the existing site use and future uses of the site as a construction access point and storage area. It is assumed the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of the available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site
    - Historical on-site uses including:
        - Allotment gardens.
- Off-site
    - Historical features surrounding the site including:
        - Infilled reservoir;
        - Coal depot;
        - Tunnel;
        - Railway building;
        - Garages;
        - Albert Mills;
        - Cotton Mills;
        - Refuse heaps;
        - Scout Mill;
        - Unspecified tanks; and

        - Electricity substations.
    - Current features surrounding the site including:
        - Industrial products;
        - Electricity substations;
        - Motor products; and
        - Consumer products.
    - Historical landfill:
        - Inert, commercial and household [64 m east].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space use and during construction works:

- Human Health
    - On-site:
        - Construction workers associated with the construction of the site; and
        - Future users of the site.
    - Off-site:
        - Resident and occupiers of commercial/ industrial premises; and
        - Users of public open space areas.

- Controlled Waters
    - Groundwater:
        - Bedrock secondary A aquifer; and
        - Secondary A superficial aquifer
    - Surface water:
        - Unnamed watercourses; and
        - River Tame.
- Property and Services
    - On-site: construction compound buildings (offices, welfare, canteen, stores, etc); and
    - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - ingestion of contaminated soils, soil-derived dust and groundwater;
    - dermal contact with soil, soil-derived dust and groundwater; and
    - inhalation of organic vapours (e.g. from fuel spills) and ground and landfill gas.
- Controlled Waters
    - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
    - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);

  - migration of groundwater to the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and Services
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 6-18 - Scout East Access work - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Historical on-site uses including: Allotment gardens; Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future users of the site Property – Compound related facilities Off-site: Human Health – Resident and occupiers of commercial/ industrial premises, use of public open space areas.	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, there is a potential for contaminants to be present in soil and groundwater on-site. The site will be utilised as a compound for construction access and storage, so it is assumed that the area will be hardstanding or gravel cover, reducing the amount of possible contact with contaminants. It is unlikely that there will be a need to break ground on-site when utilised as the compound. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	Property and Services – Commercial businesses and residential properties.	Low	Medium	**Moderate/low risk** Made Ground and infilled ground are anticipated to be present on the site, which may be a source of ground gas. There is no Made Ground indicated on BGS mapping, however the presence of an infilled reservoir suggests some may be present. The degree of risk of ground gas being present is dependent on the composition and thickness of the Made Ground found.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. Welfare cabins, if present as part of the compound set-up, are likely to have a void between the floor and ground therefore the ingress of gas is unlikely.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** There are no previous buildings on-site which may have been subject to demolition that could be a source of asbestos. There is potential for users of the site to come into contact with soil due to the site's temporary use as an access point. The access route is likely to be gravelled or tarmac therefore would reduce the potential for exposure to Made Ground as well as, hardstanding may be present within the compound area. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock.	Groundwater Controlled Waters Bedrock secondary A Superficial secondary A aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.				If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the bedrock aquifer. As there are no superficial deposits found on-site to limit potential migration, leachable contaminants will be able to migrate from Made Ground directly into bedrock. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. There are no foundations proposed however new drainage may be installed if cabins are proposed on the compound area set up, therefore there is potential for new migration pathways to be created, increasing the risk to the site for migration.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame (Source to Chew Brook). Unnamed watercourses	Low	Medium	**Low Risk** Due to the distance between the site and the surface water bodies, it is unlikely that leachable contaminants will migrate to surface waters. The hydraulic gradient is assumed to be towards the south-east, towards the River Tame. The majority of the potential off-site source of contamination are located down gradient from the site, therefore potential contaminants are unlikely to migrate towards the site.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources:	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers	Low	Medium	**Moderate/low risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. Once construction is complete, the site will become public open space, therefore it is possible that

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Historical features surrounding the site including: Infilled reservoir; Coal depot; Tunnel; Railway buildings; Garages; Albert Mills; Cotton Mills; Refuse heaps; Scout Mill; Unspecified tanks; and Electricity substations. Current features surrounding the site including: Industrial products; Electricity substations; Motor products; and Consumer products. Historical landfill: Inert, commercial and household [64 m east]. *Possible contaminants include:*		Future users of the site <u>Property –</u> Compound related facilities			people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. The surrounding area is most likely covered in vegetation or soil therefore there is a potential exposure to Made Ground whereby contaminants could migrate to the site through windblown dust.
	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Any superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
	Migration of gases into confined spaces/buildings and accumulation (explosion).		Low	Medium	**Moderate/low risk** A historical landfill is located within 100 m of the site, which could be a potential source of gas. Due to the age of the landfill it is unlikely that the site would still be generating gas at a significant rate that could have a negative impact on the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Asbestos *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation of ground gas (asphyxiation).				One coal seam is located 131 m west of the site. Due to the distance from the site, any potential ground gas is unlikely to migrate to the site.

6.13 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

7. BASELINE FOR SCOUT EAST LAYDOWN AREA AND RAMP ACCESS

7.1 Site history

Table 7-1 provides a summary of the historical development at the Scout East site and the surrounding 250 m buffer area. The history of the site and surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[14].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 7-1 - Scout east laydown area and ramp access - Summary of historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Coal depot	1863-1894	0 m	on-site
Cuttings	1891-1992	0 m	on-site
Railways sidings	1891-1938	0 m	on-site
Goods shed	1906- 1938	0 m	on-site
Tunnel	1892-1992	3 m	west
Goods shed	1907	9 m	east
Albert Mill (cotton)	1863	40 m	east
Garage	1954-1990	45 m	north
Unspecified mills	1906-1923	53 m	east
Garage	1975-1992	64 m	north-east
Refuse heap	1906- 1956	82 m	east
Garage	1975-1996	101 m	east
Refuse heap	1906-1992	102 m	east
Sand pit	1907	111 m	east
Unspecified ground workings	1891-1970	117 m	north-west
Scout mill (cotton)	1845-1992	122 m	south
Refuse heap	1907-1956	123 m	east
Unspecified pit	1891-1907	123 m	north-west
Unspecified mills	1891-1938	124 m	north-east

Feature	Date	Distance from site boundary	Direction from site boundary
Refuse heap	1918-1938	135 m	north
Unspecified mill	1907	136 m	south-east
Tanks	1918-1923	141 m	south-east
Sand pit	1907	142 m	east
Quarry	1863	144 m	north-west
Refuse heap	1906-1956	144 m	east
Unspecified tank	1909-1933	146 m	north-east
Unspecified ground workings	1891-1982	147 m	north
Refuse heap	1918-1938	151 m	north
Unspecified tank	1894-1923	153 m	north-east
Unspecified tanks	1918-1933	155 m	south-east
Tanks	1922-1955	159 m	south-east
Unspecified mills	1891-1938	166 m	north-east
Unspecified ground workings	1956	171 m	south-east
Unspecified tanks	1938	172 m	south-east
Unspecified mill	1918	175 m	east
Wire works	1956	175 m	north-east
Unspecified tank	1954-1992	178 m	west
Unspecified tank	1938-1955	186 m	south-east
Electricity substation	1984-1990	190 m	north-west
Brick works	1892	201 m	south-west
Ground Workings and Refuse Heap	1906-1970	202 m	north-west
Refuse heap	1918-1923	205 m	east
Tanks	1909	205 m	north-east
Tanks	1894-1909	209 m	north-east
Unspecified commercial/industrial buildings	1863	213 m	north
Cotton mill	1863	220 m	north

7.2 Previous ground investigations

Description of investigation

An intrusive ground investigation was undertaken by Structural Soils Ltd. in February 2018[15] around Mossley Station, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Three of the locations are within 250 m of the site and have been summarised in Table 7-2 and the investigation locations are displayed in Figure 7-1.

Table 7-2 - Scout east laydown area and ramp access - Summary of investigation

Item	No. undertaken
Number of boreholes	Three Automatic Ballast Sampler boreholes
Number of trial pits	None
PID* testing undertaken	None
Number of soil samples tested	Two
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None

* photo-ionisation detector

Figure 7-1 - Previous investigations

Chemical analysis of environmental samples collected during investigations was scheduled by Structural Soils Ltd. and tested by EnviroLab. Table 7-3 summarises the soil samples analysed for selected determinants from within 250 m of the site.

Table 7-3 - Scout east laydown area and ramp access - Testing suite

Determinand/suite	Number of samples tested
Metals/Metalloids (antimony, arsenic, beryllium, boron (water soluble), cadmium, chromium (total) copper, lead, mercury, nickel, selenium, vanadium and zinc).	2
Speciated polycyclic aromatic hydrocarbons (USEPA 16) (PAH)**, total PAHs-16MS.	2
BTEX (benzene, toluene, ethylbenzene, m and p xylene and o xylene) and Methyl Tert Butyl Ether (MTBE).	0
Speciated total petroleum hydrocarbons (TPH) criteria working group (CWG) with aliphatic/aromatic separation and carbon banding,	2

Determinand/suite	Number of samples tested
Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs).	0
Asbestos screen.	2
Soil Organic Matter (SOM).	0
Speciated PCB-EC7	2

Ground conditions

Table 7-4 summarises the ground conditions encountered during the ground investigation.

Table 7-4 - Scout east laydown area and ramp access - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Light grey gravel of course grained igneous rock (diorite) (Clean ballast) Light to dark grey sandy gravel of course igneous rock (diorite). Sand. (Dirty ballast) Dark grey to black very sandy gravel of dolomitic limestone and diorite. Sand of ash and coal. (Very dirty ballast). Light to dark grey and pink slightly sandy grained gravel of fine grained igneous rock and medium grained igneous rock (granite) (Clean ballast) Some sand of ash and coal (Dirty ballast) Light to dark grey slightly sandy angular to subangular fine to	0.20 (start of borehole below rail line).	0.75 - 0.90

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
	coarse gravel of coarse grained igneous rock (diorite). (Clean ballast) Dark brown to black sandy slightly clayey angular to subangular fine to coarse gravel of igneous rock, limestone including ash and coal (Dirty ballast).		
Sand	Light and dark brown slightly gravelly slightly clayey sand with coast gravel sized pockets of clay.	0.75	1.20

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs. However, a summary of the observed anthropogenic materials is displayed in Table 7-5.

Table 7-5 - Scout east laydown area and ramp access - Summary of anthropogenic materials observed within the logs

Exploratory Hole	Depth (m)	Comment	Strata
AB2011	0.65 – 0.90	Ash inclusions	Made Ground
AB2012	0.70 – 0.75	Ash inclusions	

7.3 Published geology

A summary of the published geology relevant to the Scout East Laydown Area and Ramp Access site is provided below. The data has been sourced from Groundsure[14] and the British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is not recorded across the majority of the site, however is mapped as

encroaching on the western boundary. Made Ground is mapped within 250 m of the site. Made Ground may be associated with the railway track and previous historical developments surrounding the site.

Superficial deposits

The 1:10,000 scale published geology maps indicate there are no superficial deposits on-site. There are three superficial designations within 250 m of the site. Alluvium is recorded 31 m east, Glaciofluvial sheet deposits (Devensian) are recorded 156 m west ad Head deposits are recorded 187 m west.

Bedrock

The 1:10,000 scale published geology maps indicate there is one bedrock geology designation on-site. There are five other bedrock designations within 250 m of the site. A summary is provided in Table 7-6. Figure 7-2 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 7-6 - Scout east laydown area and ramp access - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional Details
Fletcher Bank Grit	0 m	on-site	Sandstone
Marsden Formation	27 m 78 m 201 m	west east west	Mudstone And Siltstone
Huddersfield White Rock	165 m	west	Sandstone
Rossendale Formation	208 m	west	Mudstone And Siltstone

Figure 7-2 – Scout east laydown area and ramp access - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there are no linear features recorded on-site. There are four other linear features within 250 m of the site. Details are provided in Table 7-7 and can be seen in Figure 7-2.

Table 7-7 - Scout east laydown area and ramp access - Summary of bedrock faults

Data source	Description	Distance from the site boundary	Direction from the site boundary
Fossil horizon	Fossil horizon, marine band	97 m	west
Fossil horizon	Fossil horizon, marine band	110 m	west
Rock	Coal seam	201 m	west
Fossil horizon	Fossil horizon, marine band inferred coincident	214 m	west

Data source	Description	Distance from the site boundary	Direction from the site boundary
	with bedrock geology boundary		

7.4 Hydrogeology

Superficial aquifers

The data from Groundsure[14] indicates there are no superficial aquifers on-site. Secondary A superficial aquifers are located 28 m east and 158 m north-west. The Environment Agency describes a secondary A aquifer as:

“Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.”.

Bedrock aquifers

The data from Groundsure[14] indicates that the site and surrounding area is underlain by a secondary A bedrock aquifer.

Groundwater vulnerability

Groundsure[14] data indicates that the groundwater vulnerability is high for the bedrock aquifer. A high vulnerability classification is assigned to “Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits”.

Groundwater source protection zones

The data from Groundsure[14] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[14] indicates there are no groundwater abstractions within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[14] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

7.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[14] as an unnamed watercourse and is located 59 m south-east of the site. A summary of all surface water courses (rivers, lakes, canals and coastal and transitional waters) within 250 m of the site has been provided in Table 7-8.

Table 7-8 - Scout east laydown area and ramp access - Surface water courses

Name of Watercourse	Type	Distance from Site	Direction from Site	WFD Overall Classification
Unnamed watercourse	On ground surface watercourse	59 m	south	-
Tame (Chew brook to Swineshaw brook)	River	77 m	south-east	Moderate
Unnamed watercourse	On ground surface watercourse	146 m	west	-
Unnamed watercourse	On ground surface watercourse	162 m	north-east	-
Huddersfield Narrow Canal west section	Canal	200 m	east	-

Surface water discharge consents

The data from Groundsure[14] indicates there are no licensed discharge to surface water features on-site. There are three licensed discharge to surface water features within 250 m of the site. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site. A summary of all surface water discharge consents within 250 m have been provided in Table 7-9.

Table 7-9 - Scout east laydown area and ramp access - Surface water discharge consents

Permit number	Effluent Type	Address	Receiving water	Distance from site	Direction from site	Effective date
01TAM0088	Sewage discharges – sewer	Manchester Road CSO, Manchester	Culvert to River	19 m	north	01/01/1995, revoked 02/09/2010

Permit number	Effluent Type	Address	Receiving water	Distance from site	Direction from site	Effective date
	storm overflow – water company	Road, Mossley, Ashton-Under-Lyne, Greater Manchester, OL5 9LZ	Unnamed watercourse via Culvert	19 m	north	03/09/2010, revoked 10/01/207
			River Tame	86 m	south-east	11/01/2017, present

Surface water abstractions

The data from Groundsure[14] indicates there are no surface water abstractions within 250 m of the site.

7.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[14] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m-3.

7.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[14] records coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 7-10.

Table 7-10 - Scout east laydown area and ramp access - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	Published geology maps record one coal seam within 250 m of the site. This is located 201 m west.
Coal mining areas	The site is within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site, for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult

Category	Summary
	ground conditions are unlikely and are at a level where they need not be considered. There are no other non-coal mining areas within 250 m of the site.
British pits (active or closed surface and underground mineral workings)	There is one brit pit on-site. There is one other brit pit within 250 m of the site. This is located 187 m north-west. Both at date of entry, have ceased to extract minerals.
Surface ground workings	There is one surface ground workings features on-site. There are 20 other surface ground workings features within 250 m of the site. Details are provided in Table 7-11.
Underground workings	There are no underground workings on-site. There is one underground working within 250 m of the site, associated with Scout Tunnel and is located Table 7-11.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 7-11 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 7-11 - Scout east laydown area and ramp access - Surface ground workings

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1891-1992
Tunnel	3 m	west	1892-present
Disused reservoirs	65 m	west	1907
Refuse heap	82 m	east	1933-1956
Disused reservoirs	84 m	west	1906-1918
Reservoir	98 m	south-west	1906-1992
Refuse heap	102 m	east	1906-1956
Sand pit	111 m	east	1907
Unspecified ground workings	117 m	north-west	1891-1970
Refuse heap	123 m	east	1923-1992
Refuse heap	138 m	north	1918-1923

Name	Distance from site	Direction from site	Date
Refuse heap	144 m	east	1906-1907
Refuse heap	149 m	north-west	1891-1982
Unspecified ground workings	171 m	south-east	1956
Unspecified pit	171 m	north-west	1923-1938
Canal	184 m	south-east	1907
Unspecified pit	195 m	north-west	1906-1938
Brick works	201 m	south-west	1892
Unspecified pit	204 m	north-west	1907-1970
Refuse heap	205 m	east	1923
Pond	220 m	north	1863

The Mining Remediation Authority viewer[6] indicates that the site is not within a high development risk area.

Historical and current landfills and waste management facilities

The data from Groundsure[14] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites have been provided in Table 7-12. There are currently no active or licensed waste sites within 250 m of the site.

Table 7-12 - Scout east laydown area and ramp access - Landfill and waste summary

Category	Site Name or Address	Description of Waste	Distance from site	Direction from site	Licence Issue Date	Licence Status
Historical Landfill	Land Off Egmont Street, Manchester Road	Inert, Commercial, Household	15 m	east	11/04/1985	Surrendered Active: 05/10/1986 – 31/12/1988
Waste Exemptions	Murphy Compound, Huddersfield Road, Mossley, Manchester, OL5 9QN	Use of waste in construction	207 m	south	-	-

7.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

7.9 Sensitive land uses

The data from Groundsure[14] there is a Site of Special Scientific Interest (SSSI), the Huddersfield Narrow Canal located 200 m east of the site. There are no Ramsar sites, areas of conservation or special protection areas within 250 m of the site. The site is located within a SSSI impact zone.

7.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There is one pollution incident reported by Groundsure[14] within 250 m of the site and a summary has been provided in Table 7-13.

Table 7-13 - Scout east laydown area and ramp access - Pollution incidents

Type	Distance from site	Direction from site	Category of Incident: Air	Category of Incident: Land	Category of Incident: Water	Date of Incident
Sewage materials	214 m	north-east	Category 4 (no impact)	Category 3 (minor)	Category 3 (minor)	04/04/2001

Pollution prevention and controls

The data from Groundsure[14] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. There are two licensed pollutant release part 2(A) features within 250 m of the site. A summary is provided in Table 7-14.

Table 7-14 - Scout east laydown area and ramp access - Pollution prevention and controls summary

Type	Site	Description	Distance from site	Direction from site	Status
Licensed pollutant release (part a(2)/b)	Chicago Coating Company Ltd.	Part B (historical permit)	155 m	north	Historical permit
Licensed pollutant release (part a(2)/b)	Express Metal Finishers (Oldham)	Part B (historical permit)	208 m	south	Historical permit

Planning hazardous substance consents

The data from Groundsure[14] indicates there are no hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[14] indicates there are no radioactive substance authorisation features within 250 m of the site.

Recent industrial land uses

The data from Groundsure[14] indicates there is one recent industrial use on-site. There are nine recent industrial land uses within 250 m of the site. A summary has been provided in Table 7-15.

Table 7-15 - Scout east laydown area and ramp access - Contemporary trade directory

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Mast (telecommunication)	Infrastructure and facilities	Telecommunications features	0 m	on-site
Telephone exchange	Infrastructure and facilities	Telecommunications features	63 m	east
Hancock plastics ltd	Industrial products	Rubber, silicones and plastics	87 m	north
A U T	Industrial products	Special purpose machinery and equipment	115 m	east

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Revolution castors ltd	Industrial products	Special purpose machinery and equipment	115 m	east
Victory parade dresses	Consumer products	Clothing, components and accessories	167 m	north
Electricity substation	Infrastructure and facilities	Electrical features	198 m	north-west
Irwell motors	Motoring	Secondhand vehicles	207 m	south
Works	Industrial features	Unspecified works or factories	212 m	north-east
T j dobson ltd	Industrial products	Access equipment	216 m	north-east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site as indicated by Groundsure[14].

Contaminated land designations

According to Groundsure[14], there are no sites designated as contaminated land on-site or within 250 m of the site under Part 2A of the Environmental Protection Act 1990.

7.11 Site area reconnaissance

A site walkover was undertaken on 17 March 2025 by an AtkinsRéalis environmental scientist. A summary of the observations made during the visit is provided as follows.

Table 7-16 – Scout east laydown area and ramp access - Site walkover record

Item	Description
Location	The site is located on third-party land in Mossley, Greater Manchester. The site is off-track with national grid reference SD 97400 01565 and What3Words miracle.harmony.redeeming (northern parcel) and SD 97405 01469 and What3Words gazes.mediate.whiplash (southern parcel). Access was not granted at time of survey, so observations were made from PRoW.

Item	Description
Description of current use/ activities	The site appears unused and vegetated. Small private car park currently located within the southern parcel.
Fuel/chemical storage	No evidence of fuel storage was observed.
Evidence of land contamination	No evidence of land contamination was observed.
Invasive Species	None observed from viewpoint.
Surface coverage	The site is predominantly made up of vegetated land. There is a hardstanding area within the southern parcel. The land is sloped away from the track, down towards the road.
Boundary Types	A retaining wall separates the site from Manchester Road. Some metal fencing is located surrounding the private car park. Trees line the wall along the boundary. Western boundary areas are not visible from viewpoint.
Surface Water Features	No surface water features were visible.

7.12 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and future use of the site as an access area and storage compound. It is assumed that the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical on-site uses and Made Ground associated with the former developments including:
        - Goods shed; and
        - Coal depot.
- Off-site:
    - Historical features surrounding the site including:
        - Tunnel;
        - Railway track;
        - Albert Mill;
        - Goods shed;
        - Garages;
        - Unspecified mills;
        - Refuse heaps;
        - Scout Mill;
        - Tanks;
        - Quarries;
        - Wire works;
        - Brick works; and
        - Electricity substations.
    - Current features surrounding the site including:
        - Industrial product suppliers; and

        - Vehicle sales.

    - Historical landfills [15 m east].
    - Pollution incident [214 m north-east].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health
    - On-site
        - Construction workers associated with the construction of the site; and
        - Future users of the site.
    - Off-site
        - Residents and occupiers of commercial/industrial premises; and
        - Users of public open spaces.
- Controlled Waters
    - Groundwater
        - Secondary A bedrock aquifer; and
        - Secondary A superficial aquifers [28 m east, 158 m north-west].

- Surface water
  - Unnamed watercourses [59 m south, 146 m west, 162 m north-east];
  - River Tame [77 m south-east]; and
  - Huddersfield Narrow Canal west section [200 m west].

- Property and Services:
  - On-site
    - Construction compound buildings (offices, welfare, canteen, stores, etc.)
  - Off-site
    - Commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.

- Controlled Waters
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);

  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and Services
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires the potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 7-17 - Scout east laydown area and ramp access - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Historical on-site uses and Made Ground associated with the former developments including: Goods shed; and Coal depot. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	<u>On-site: Human Health</u> – Construction workers <u>Property</u> – Compound related facilities <u>Off-site: Human Health</u> – Residents and occupiers of commercial/ industrial premises, users of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. During the site's use as a construction compound it is expected that the site surface will be predominately gravel cover or hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. It is also unlikely that significant excavation will take place on-site as it will be used for temporary welfare/offices and access. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The site is unlikely to be used after construction of the railway is complete and it is assumed that the site will be reinstated to its original condition. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Made Ground is not recorded on the site, however may still be present. which may be a source of ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
sulphide or carbon monoxide)					Welfare cabins are likely to have a void between the floor and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Former buildings on-site increase the likelihood of asbestos being present from demolition of these structures. Based on the potential presence of asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The majority of the site, while in use as a compound, will be covered in hardstanding or gravel therefore it is unlikely that contact with the Made Ground or infilled ground will occur. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer,	Groundwater Controlled Waters – Bedrock secondary A aquifer Superficial secondary A aquifers	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. Made Ground is recorded on the western boundary of the site, resulting in Made Ground directly overlaying bedrock, as superficial deposits are not found on-site, increasing the potential migration of contaminants to bedrock over the majority of the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	proposed service pipes/trenches, piled foundations.				As the site is being used as a storage compound, it is possible that new services (i.e. drainage) being installed for potential welfare cabins will create new preferential pathways. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – Unnamed watercourses, River Tame and Huddersfield Narrow Canal west section	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to the surface waters located on-site. The Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame. The majority of contaminative sources are to the east of the site, reducing the potential for contaminants to migrate towards the site. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. As the site may include welfare cabins and therefore require services (i.e. drainage), there is potential for

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					the works to create preferential pathways to the controlled waters.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Tunnel; Railway track; Albert Mill; Goods shed; Garages; Unspecified mills; Refuse heaps; Scout Mill;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property – Compound related facilities	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Tanks; Quarries; Wire works; Brick works; and Electricity substations. Current features surrounding the site including:	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
Industrial product suppliers; Vehicle suppliers. Historical landfill [15 m east]. Pollution incidents:	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Sewage materials [214 m north-east]. *Possible contaminants include:* *Asbestos* *Metals* *PAHs*					As there are numerous sources of contamination close to the site, there is potential for contaminants to migrate to the site, however limited due to the assumed direction of the hydraulic gradient. There are no superficial deposits present between the Made Ground and bedrock to limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
Petroleum hydrocarbons *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Historical landfills are located within 100 m of the site, which could be a potential source of ground gas. Due to the proximity of the historical landfill, migration to the site is possible. However, the eastern area of the landfill is underlain by cohesive superficial deposits and is upgradient from the River Tame, which will limit migration. There is one coal seam located 201 m west of the site.

7.13 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

8. BASELINE FOR ROUGHTOWN ROAD FOOTBRIDGE (MVL3/18)

8.1 Site history

Table 8-1 provides a summary of the historical development at the Roughtown Rd site and the surrounding 250 m buffer area. The history of the site and surrounding 250 m area has been determined principally by reference to historical maps obtained within Groundsure[15].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages; were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 8-1 - Roughtown road footbridge (MVL3/18) - Summary of historical development

Feature	Date	Distance from the site boundary	Direction from the site boundary
Cuttings	1854-1992	0 m	on-site
Allotment gardens	1954-1990	0 m	on-site
Unspecified pit	1891-1982	7 m	south
Unspecified old quarry	1891-1938	15 m	south
Tramway	1909-1933	41 m	south-east
Unspecified tank	1891 - 1922	44 m	south
Sandstone quarry	1854	65 m	north-west
Unspecified old quarry	1891-1906	65 m	north
Refuse heap	1918-1938	81 m	north
Garage	1996	83 m	south-east
Unspecified pit	1956-1982	86 m	north
Electricity substation	1991-1996	97 m	north-west
Unspecified commercial/industrial	1891-1992	99 m	south-east
Unspecified pit	1956	101 m	north-west
Stanford Cotton Mill	1904-1982	114 m	south-east
Unspecific old quarry	1904-1982	116 m	north-east
Roughtown Cotton Mill	1904-1956	119 m	north-east
Mill Race (backfilled)	1904-1956	121 m	north-east
Dye works	1891-1938	121 m	north-west
Woodend Cotton Mills	1904-1982	121 m	south

[15] Groundsure 2024, Enviro + Geo Insight (GS-5CT-L33-QZ4-RM7).

Feature	Date	Distance from the site boundary	Direction from the site boundary
Mill Race	1904-1982	121 m	south
Electricity substation	1954-1955	128 m	north-east
Carr Hill Cotton Mills	1891-1982	131 m	south
Unspecified old quarries	1904	131 m	south
Refuse heap	1956	134 m	south
Unspecified tank	1918-1923	139 m	north-east
Unspecified tank	1894	150 m	east
Unspecified commercial/industrial	1891-1992	153 m	south
Cuttings	1854-1918	155 m	south-west
Railway sidings	1923-1938	156 m	south-west
Tanks	1909-1933	161 m	north-west
Allotment gardens	1933-1992	164 m	west
Unspecified tank	1909-1922	175 m	south
Unspecified works	1982-1992	178 m	north-east
Tanks	1954-1955	179 m	north-west
Unspecified tank	1909-1933	186 m	west
Unspecified foundry	1906-1970	190 m	north-east
Carr Hill Quarry	1891-1982	202 m	west
Electricity substation	1954-1996	207 m	south
Bricks works	1891	211 m	east
Unspecified pit	1956	225 m	west
Bricks works	1891	245 m	south

8.2 Published geology

A summary of the published geology relevant to the Roughtown Road Footbridge (MVL3/18) site is provided below. The data has been sourced from Groundsure[16] and the British Geological Society (BGS) GeoIndex [3].

Artificial geology

The 1:10,000 scale published geology maps indicate there are no Made Ground features mapped on-site. Made Ground is recorded within 250 m of the site, the closest of which is located 85 m south-east. Made Ground may be associated with historical development including garages, cotton mills, quarries and unspecified tanks.

Superficial deposits

The 1:10,000 scale published geology maps indicate there are no superficial geology designations recorded on-site. Alluvium (clay, silt, sand and gravel) is recorded 83 m south-east of the site. Devensian Till is recorded 206 m east of the site.

Bedrock

The 1:10,000 scale published geology indicates there is one bedrock geology designation on-site. There are three other bedrock geology designations within 250 m of the site.

A summary of the bedrock geology mapped on-site and within 250 m of the site boundary is provided in Table 8-2. Figure 8-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer; no bedrock information is included in this report.

Table 8-2 - Roughtown road footbridge (MVL3/18) - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional details
Upper Kinderscout Grit	0 m	on-site	Sandstone
Hebden Formation	60 m	west	Mudstone and siltstone
Kinderscout Grit	137 m	south-east	Sandstone
Hebden Formation	160 m	south	Mudstone and siltstone

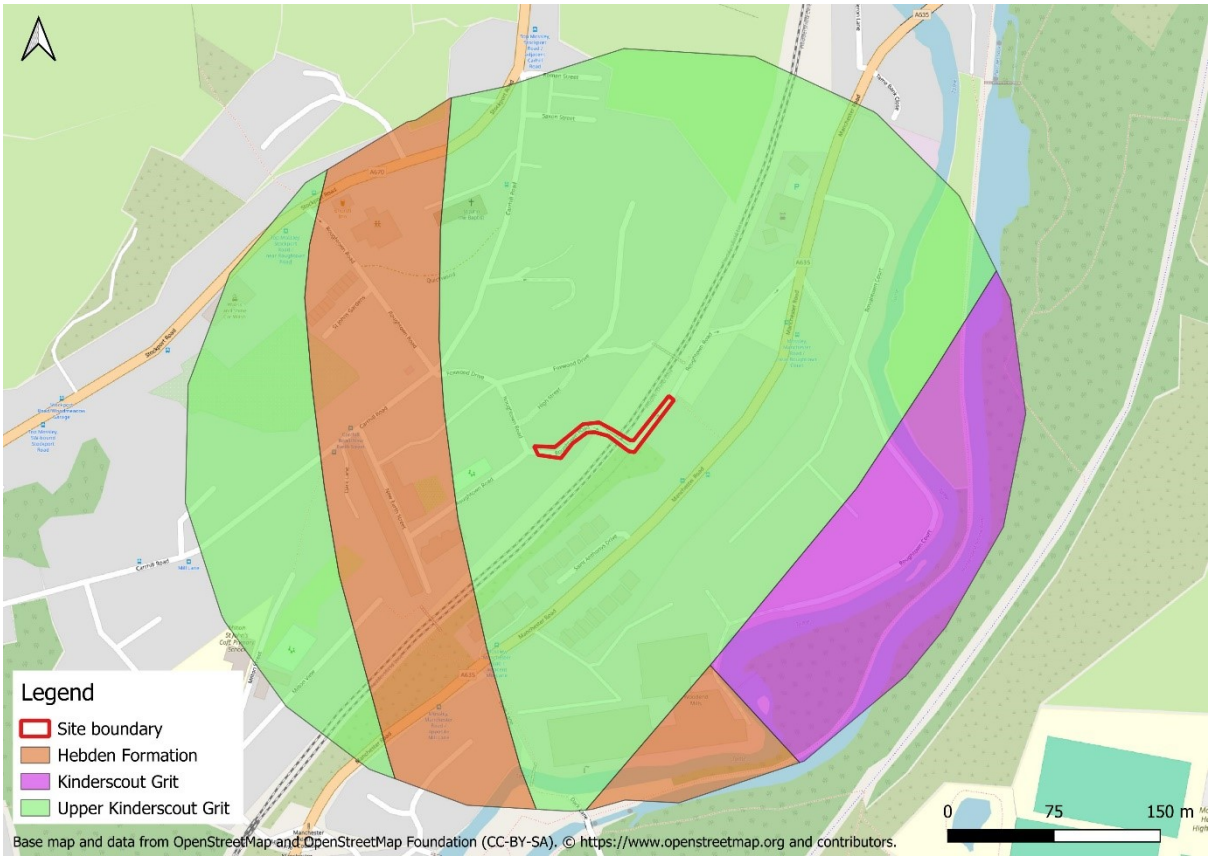

Figure 8-1 - Roughtown Road footbridge (MVL3/18) - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there are no bedrock faults on-site. There are two other bedrock faults within 250 m of the site. A summary is provided in Table 8-3. Faults are visible in Figure 8-1.

Table 8-3 - Roughtown road footbridge (MVL3/18) - Summary of bedrock faults

Category	Description	Orientation	Distance from the site boundary	Direction from the site boundary
Fault	Normal fault, inferred	north-east to south-west	139 m	south-east
Fault	Normal fault, inferred	north-west to south-east	161 m	south-east

8.3 Hydrogeology

Superficial aquifers

The data from Groundsure[16] indicates that there are no designated superficial aquifers on-site. A secondary A aquifer is located 70 m east of the site, associated with the off-site Alluvium. The Environment Agency describes a secondary A aquifer as "*Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers."*

There is also a secondary A aquifer located 182 m south-west of the site. A secondary (Undifferentiated) aquifer is located 217 m south of the site associated with the Till deposits. This classification is assigned by the Environmental Agency when "*it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type."*

Bedrock aquifers

The data from Groundsure[16] indicates that the site and surrounding area is underlain by a secondary A aquifer, associated with Lower Kinderscout Grit.

Groundwater vulnerability

Groundsure[16] data indicates that the groundwater vulnerability is high for the bedrock aquifer. This indicates that the site is located in an area easily able to transmit pollution to groundwater.

Groundwater source protection zones

The data from Groundsure[16] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[16] indicates that there are no groundwater abstraction licenses on or within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[16] indicates there are no licensed discharges to groundwater features on-site or within 250 m of the site.

8.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[16] as the River Tame and is located 145 m east of the site. A summary of all surface

watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 8-4. There are a further two surface water features within 250 m of the site. There are a number of small tributaries to the River Tame located within 250 m of the site, all of which are located to the south-west of the river.

Table 8-4 - Roughtown road footbridge (MVL3/18) - Surface watercourses

Name of watercourse	Type	Distance from site	Direction from site	WFD overall classification
Tame (Chew Brook to Swineshaw Brook)	River	145 m	east	Moderate
Huddersfield Narrow Canal west section	Canal	210 m	east	Moderate

Surface water discharge consents

The data from Groundsure[16] indicates there are no licensed discharges to surface water features on-site. There is one licensed discharge to surface water feature within 250 m of the site. A summary of which has been provided in Table 8-5. In addition, there are no pollutant releases to surface water features on-site or within 250 m of the site.

Table 8-5 - Roughtown road footbridge (MVL3/18) - Surface water discharge consents

Permit number	Address	Effluent Type	Receiving water	Distance from site	Direction from site	Effective date
01TAM0089 (Version 4)	Dark Lane CSO 441sh, Dark Lane, Mossley, Ashton Under Lyne, Greater Manchester, OL5 9AT	Sewer storm overflow – water company	River Tame	215 m	south	01/01/1995, revoked 02/09/2010
						03/09/2010, revoked 04/02/2016
						05/02/2016, revoked 31/03/2018
						01/04/2018 to present

Surface water abstractions

The data from Groundsure[16] indicates there are no surface water abstractions on or within 250 m of the site.

8.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[16] indicates that the maximum radon potential on the site is between 1-3%. The UK Radon Map[5] indicated that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

8.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[16] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 8-6.

Table 8-6 - Roughtown road footbridge (MVL3/18) - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal mining areas	The site is located within a coal mining area as defined by the Coal Authority.
Non-coal mining features	There is one non-coal mining area identified on-site, for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There are two other brit pits within 250 m of the site. Both are surface mineral working, used for sandstone, however at date of entry, have ceased to extract minerals. They are located 53 m north and 244 m west.
Surface ground workings	There is one surface ground working feature on-site. There are 19 other surface ground workings features within 250 m of the site. Details are provided in Table 8-7.
Underground workings	There are no underground workings on-site or within 250 m of the site.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 8-7 provides further detail on the surface ground workings and the relative distance and direction from the site boundary.

Table 8-7 - Roughtown road footbridge (MVL3/18) - Surface ground workings

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1854-1992
Cuttings	1 m	north-west	1982-1992
Unspecified pit	7 m	south	1982-1970
Unspecified old quarries	15 m	south	1891-1938
Sandstone quarry	65 m	north-west	1891-1904
Refuse heap	81 m	north	1918-1938
Unspecified pit	86 m	north	1956-1982
Unspecified quarry	94 m	north-west	1930-1938
Unspecified pit	101 m	north-west	1930-1982
Unspecified old quarries	131 m	south	1904
Refuse heap	134 m	south	1956
Cuttings	155 m	south-west	1906-1918
Canal	201 m	east	1891-1992
Carr Hill Quarry	202 m	west	1891-1982
Bricks works	211 m	east	1891
Unspecified quarry	214 m	west	1904-1938
Pond	221 m	south	1938
Unspecified pit	225 m	west	1956
Unspecified quarry	228 m	west	1891
Unspecified old quarry	241 m	north	1930

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[16] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 8-8, however not all licence details have been provided by Groundsure.

Table 8-8 - Roughtown road footbridge (MVL3/18) - Landfill and waste summary

Category	Site name or Address	Description of waste	Distance from site	Direction from site	Licence issue date	Licence status
Historical landfill	Woodend Mills	Inert	151 m	east	24/01/1992	Surrendered (11/03/1993)
	Unit E310, Warmco	Storage of waste in a	56 m	east	-	-

Category	Site name or Address	Description of waste	Distance from site	Direction from site	Licence issue date	Licence status
Waste exemptions	Industrial Park, Manchester Road, Mossley, OL5 9AY	secure place				
		Storage of waste in a secure place	104 m	south	-	-
		Recovery of scrap metal	166 m	south	-	-

8.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

8.8 Sensitive land uses

The data from Groundsure[16] indicates that a site of special scientific interest (SSSI) is located 202 m east of the site. The SSSI is associated with the Huddersfield Narrow Canal. The site is also located within a SSSI impact zone. There are no other sensitive land uses, including Ramsar or areas of conservation within 250 m of the site.

8.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are three pollution incidents reported by Groundsure[16] within 250 m of the site and a summary has been provided in Table 8-9.

Table 8-9 - Roughtown road footbridge (MVL3/18) - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Contaminated water	217 m	south	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	28/03/2002

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Contaminated water	220 m	south-east	Category 3 (minor)	Category 4 (no impact)	Category 1 (major)	12/06/2012
Pollutant not identified	223 m	south	Category 4 (no impact)	Category 4 (no impact)	Category 2 (significant)	17/10/2009

Pollution prevention and controls

The data from Groundsure[16] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. A summary of the number and location of these applications has been provided in Table 8-10.

Table 8-10 - Roughtown road footbridge (MVL3/18) - Pollution controls overview

Pollution prevention and control category	Summary
Pollution inventory substances	There are no pollution inventory substances on-site or within 250 m of the site.
Licensed pollutant release (part 2A/B)	There are no licensed pollutant release part 2A and B features on-site. There is one licensed pollutant release part 2A and B features within 250 m of the site. This is located 240 m north-west, and details are provided in Table 8-11 below.
Historical licensed industrial activities	There are no historical licensed industrial activities on-site or within 250 m of the site.
Licensed industrial activities (part A(1))	There are no licensed industrial activities on-site or within 250 m of the site.

Further detail of pollution prevention and controls on-site and within 250 m are given in

Table 8-11.

Table 8-11 - Roughtown road footbridge (MVL3/18) - Pollution prevention and controls detailed summary

Site	Description	Distance from site	Direction from site	Status	Permit Type
Guide Bridge Service Station, Stockport Rd, OL5 0RS	Petrol vapour recovery	240 m	north-west	Historical permit	Part B

Planning hazardous substance consents

That data from Groundsure[16] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[16] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[16] indicates there are no recent industrial land uses on-site. There are 19 recent industrial land uses within 250 m of the site. A summary has been provided in Table 8-12.

Table 8-12 - Roughtown road footbridge (MVL3/18) - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site	Direction from site
George Sixsmith & Son Ltd	Consumer products	Musical instruments	72 m	north-west

Site	Industrial land use category	Description	Distance from site	Direction from site
Electricity substation	Infrastructure and facilities	Electrical features	104 m	south-east
Broadbent Car & Commercials	Repair and servicing	Vehicle repair, testing and servicing	114 m	south-east
Notorious	Consumer products	Clothing, components and accessories	114 m	south-east
Electricity substation	Infrastructure and facilities	Electrical features	118 m	north-west
Industrial park	Industrial features	Business parks and industrial estates	120 m	south-east
D S Window Doors & Conservatories Ltd	Industrial products	General construction supplies	123 m	south-east
Geotron UK Ltd	Construction services	Cutting, drilling and welding services	123 m	south-east
K Broadbent Carpet Contractors	Construction services	Construction completion services	132 m	east
M D R Autos	Repair and servicing	Vehicle repair, testing and servicing	153 m	north-east
Myatt's of Mossley	Repair and servicing	Vehicle repair, testing and servicing	169 m	south
P N P	Engineering services	Electrical and electronic engineers	174 m	south-east
Hive Entertainment Ltd	Transport, storage and delivery	Distribution and haulage	184 m	south
Vertical Access Ltd	Engineering services	Civil engineers	186 m	south-east
Autofix	Repair and servicing	Vehicle repair, testing and servicing	195 m	south

Site	Industrial land use category	Description	Distance from site	Direction from site
Crescent Sheet Metal Company	Construction services	Metalworkers including blacksmiths	196 m	south
Victory Parade Dresses	Consumer products	Clothing, components and accessories	196 m	south
Electricity substation	Infrastructure and facilities	Electrical features	213 m	south
Chimney	Industrial features	Chimneys	221 m	south

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[16].

Contaminated land designations

According to Groundsure[16], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250 m of the site.

8.10 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationships.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and potential future uses following proposed reconstruction of the existing overbridge.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground relating to previous site use such as:
        - Allotment Gardens
- Off-site:
    - Historical features surrounding the site including:
        - Sandstone quarries, unspecified old quarries, Carr Hill Quarry (potentially infilled);
        - Refuse heaps, electricity substations, unspecified tanks, unspecified pits, unspecified foundry;
        - Stanford Cotton Mill, Roughtown Cotton Mill, Woodend Cotton Mills, Carr Hill Cotton Mill; and
        - Dye works.
    - Current features surrounding the site including:
        - Electrical features;
        - Vehicle repairs, testing and servicing;
        - Business parks and industrial estates;
        - Cutting, drilling and welding services;
        - Metal workers including blacksmiths; and
        - Chimneys.
    - Historical landfill: Woodend mills, inert [151 m east], licence surrendered 24/01/1992.

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and

- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future users of the site.
  - Off-site:
    - Residents and occupiers of commercial/industrial premises; and
    - Users of public open space areas.
- Controlled Waters:
  - Groundwater: Bedrock secondary A aquifer.
  - Surface Water:
    - River Tame; and
    - Huddersfield Narrow Canal west section.
- Property and Services:
  - On-site: Structures (overbridge) and services; and
  - Off-site: Commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;

  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground and landfill gas.
- Controlled Waters
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the River Tame and the Huddersfield narrow canal west section;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.
- Property and Services
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 8-13 - Roughtown road footbridge (MVL3/18) - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Allotment gardens Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *Volatile organic compounds (VOCs)* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future users of the bridge Property and Services – Overbridge Off-site: Human Health – Residents and occupiers of commercial/industrial premises, Users of public open spaces. Property and Services – Commercial businesses and residential properties.	Unlikely	Medium	**Low Risk** Based on the limited development on-site historically, there is little potential for contaminants to be present in soil and groundwater on-site, although Made Ground may be present from development of the surrounding area. Future site users are unlikely to come into contact with soil as the site will be predominately covered by hardstanding. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** There are no viable ground gas sources identified on-site to date. There is the potential for limited Made Ground although this is not expected to be a significant gas source. The site does not require any confined or indoor spaces therefore accumulation of ground gas is unlikely. Future users of the site are likely to be present for short periods of time (use of the site as an overbridge) and are unlikely to be exposed to any potential ground gas for long periods of time.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** As there are no former buildings on-site, the likelihood of asbestos being present is unlikely. The site is covered in hardstanding therefore it is unlikely that contact with any potential Made Ground will occur. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a

					safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/low risk** The proposed development does not include the use of piled foundations, and any necessary excavations are unlikely to be deep enough to create new preferential pathways. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer. If Made Ground is present, there is potential for leaching of contaminants into groundwater in the bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. There are no superficial deposits found on-site that could limit migration of potential contaminants.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is unlikely that leachable contaminants will migrate to surface waters. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in	Inhalation, ingestion and dermal contact with	Human Health –	Unlikely	Medium	**Low Risk**

soil/groundwater on-site, originating from the following <u>off-site</u> sources: Sandstone quarries, unspecified old quarries, Carr Hill Quarry; Refuse heaps, electricity substations, unspecified tanks, unspecified pits, unspecified foundry; Stanford Cotton Mill, Roughtown Cotton Mill, Woodend Cotton Mills, Carr Hill Cotton Mill; and Dye works. Current features surrounding the site including: Electrical features; Vehicle repairs, testing and servicing; Business parks and industrial estates; Cutting, drilling and welding services;	contaminants in soil derived dust.	Residents and occupiers of commercial/industrial premises, Users of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties.			Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is possible for future site users to come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE, and a safety risk assessment will be conducted.
	Inhalation of airborne asbestos fibres.		Low	Medium	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings that have now been demolished. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. The majority of the off-site contaminative land uses are to the east of the site. Therefore, any possible contaminants are likely to travel down hydraulic gradient towards the River Tame rather than towards the site. Off-site sources located to the west of the site, include the Dye Works, refuse heaps and unspecified quarries, will result in possible contaminants travelling under the site towards the river which could impact the secondary A bedrock aquifer.

Metal workers including blacksmiths; and Chimneys Historical landfill: Woodend Mills, inert [151 m east], licence surrendered 24/01/1992. *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*			Low	Medium	Furthermore, no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site. **Moderate/low risk** A historical landfill is located 150 m off the site, which could be a potential source of ground gas. However, the licence was surrendered in 1992, therefore it is unlikely that the site would still be producing gas at a high rate, or to a significant level that it would reach the site. The landfill is located to the east on the opposite side of the River Tame, further reducing the probability that gas would travel to the site. No coal seams are found around the site. There are no new service installations as part of the proposed development.

8.11 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plane, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

9. BASELINE FOR RELOCATED MOSSLEY STATION WORKS

9.1 Site history

Table 9-1 provides a summary of the historical development at the new Mossley Station site and the surrounding 250 m buffer area. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[16].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 9-1 – Relocated Mossley Station works - Summary of the historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Cuttings	1854-1918	0 m	on-site
Railway Building	1863-1923	0 m	on-site
Railway Sidings	1891-1970	0 m	on-site
Carr Harr Mills	1891-1992	0 m	on-site
Unspecified Tank	1954-1955	0 m	on-site
Railway Station	1863-1992	1 m	west
Cotton Mills	1863	3 m	east
Railway Building	1891-1956	8 m	east
Garage	1954-1992	10 m	east
Electricity Substation	1954-1990	12 m	east
Unspecified Tank	1894-1933	19 m	west
Cotton Mill	1891-1970	21 m	east
Unspecified Ground Workings	1906-1982	24 m	north-west
Unspecified Mills	1891-1992	26 m	east
Electricity Substation	1954-1992	27 m	east
Refuse Heap	1906-1923	27 m	east

[16] Groundsure 2024, Enviro + Geo Insight (GS-6UE-WWH-SLE-2AP)

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified Mills	1891-1992	33 m	east
Unspecified Heap	1956	40 m	east
Unspecified Mills	1891-1992	42 m	east
Refuse Heap	1938	45 m	east
Cotton Mills	1854	47 m	east
Railway Sidings	1938	49 m	south-east
Quarry	1863	56 m	west
Unspecified Tank	1966	64 m	west
Unspecified Ground Workings	1956	66 m	east
Cotton Mill	1863	69 m	east
Unspecified Tank	1894-1955	72 m	north-east
Unspecified Ground Workings	1863-1992	73 m	west
Chimney	1970-1992	84 m	east
Refuse Heap	1956	95 m	east
Unspecified Mill	1891-1992	95 m	north-east
Unspecified Pit	1992	95 m	east
Unspecified Commercial/Industrial	1906-1992	102 m	east
Unspecified Tank	1923-1972	115 m	south-east
Unspecified Mills	1891-1982	129 m	east
Unspecified Commercial/Industrial	1992	132 m	east
Refuse Heap	1891-1938	136 m	west
Electricity Substation	1996	141 m	north-east
Refuse Heap	1906-1907	141 m	south-east
Refuse Heap	1906-1938	152 m	west
Unspecified Ground Workings	1906-1982	169 m	north-west
Unspecified Pit	1956	179 m	west
Electricity Substation	1909-1990	180 m	west

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified Mill	1904-1992	180 m	west
Bricks Works	1891	182 m	east
Unspecified old quarries	1854-1904	183 m	north
Cotton Mill	1863-1992	184 m	east
Railway Sidings	1904-1938	192 m	west
Unspecified Mills	1904-1982	192 m	north-east
Unspecified Quarry	1891-1982	203 m	north
Electricity Substation	1909-1955	207 m	west
Refuse Heap	1956	207 m	north-east
Unspecified Heap	1863	210 m	west
Unspecified Tank	1872	212 m	east
Police Station	1863-1992	218 m	west
Garage	1954-1962	225 m	east
Electricity Substation	1909-1990	227 m	west
Unspecified Pit	1956	241 m	north
Electricity Substation	1990	243 m	west
Unspecified Tank	1909-1922	246 m	east
Quarry	1863	247 m	west

9.2 Previous ground investigations

Description of investigation

An intrusive ground investigation was undertaken by Structural Soils Ltd. in February 2018[15] around Mossley Station, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. 11 of the locations are within 250 m of the site and have been summarised in Table 9-2 and the investigation locations are displayed in Figure 9-1.

Table 9-2 - Relocated Mossley Station works - Summary of 2018 investigation

Item	No. undertaken
Number of boreholes	11 Automatic Ballast Sampler boreholes

Number of trial pits	None
PID* testing undertaken	None
Number of soil samples tested	Five
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None

* photo-ionisation detector

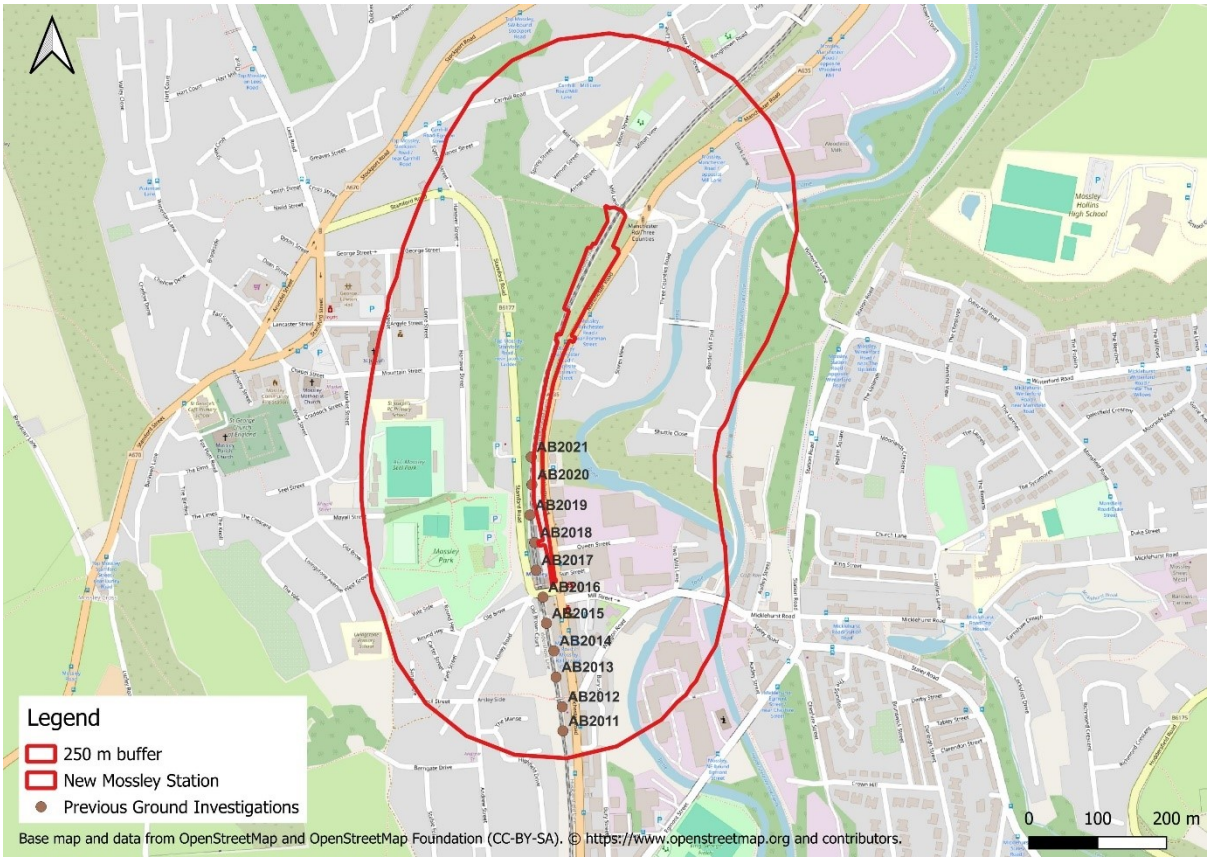

Figure 9-1 - Relocated Mossley Station works - Summary of investigations

Chemical analysis of environmental samples collected during investigations was scheduled by Structural Soils Ltd. and tested by EnviroLab. Table 9-3 summarises the soils samples analysed for selected determinants from within 250 m of the site.

Table 9-3 - Relocated Mossley Station works - Testing suites

Determinand/suite	Number of samples tested
Metals/Metalloids (antimony, arsenic, beryllium, boron (water soluble), cadmium, chromium (total) copper, lead, mercury, nickel, selenium, vanadium and zinc).	5
Speciated polycyclic aromatic hydrocarbons (USEPA 16) (PAH)**, total PAHs-16MS.	5
BTEX (benzene, toluene, ethylbenzene, m and p xylene and o xylene) and Methyl Tert Butyl Ether (MTBE).	0
Speciated total petroleum hydrocarbons (TPH) criteria working group (CWG) with aliphatic/aromatic separation and carbon banding,	5
Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs).	0
Asbestos screen.	5
Soil Organic Matter (SOM).	0
Speciated PCB-EC7	5

Ground conditions

Table 9-4 summarises the ground conditions encountered during the ground investigation.

Table 9-4 - Relocated Mossley Station works - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Pinkish and reddish dark brown to black gravel of granite. (Clean ballast) Grey and dark brownish black sandy slightly gravel of granite and some brick and ash. (Very dirty ballast) Light to dark grey gravel of igneous rock (Clean ballast)	0.20 (start of boreholes below rail line)	0.75 - 0.90

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
	Light grey and brown sandy slightly clayey gravel of granite (Dirty ballast) Dark grey and brown to black sandy slightly clayey gravel of granite and sandstone. Dark grey to black slightly sandy gravel of granite. (Clean ballast) Dark grey to black very sandy gravel of granite including coal and ash. (Dirty ballast) Light grey gravel of diorite (Clean ballast) Brown and grey sandy clayey gravel of diorite, dolomitic limestone and granite. (Dirty ballast)		
Gravel	Dark grey and brown to black sandy slightly clayey gravel of granite and sandstone. Brown very sandy slightly clayey gravel of sandstone.	0.75 – 0.90	0.90 – 0.95
Sand	Light and dark brown slightly gravelly slightly gravelly slightly clayey fine to coarse sand with coarse gravel size pockets of clay. Gravel is subangular to subrounded of sandstone. Light brown slightly gravelly slightly clayey fine to coarse sand. Gravel is subrounded to rounded of sandstone.	0.70 - 0.75	0.85 - 1.20

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs. However, a summary of the observed anthropogenic materials is displayed in Table 9-5.

Table 9-5 - Relocated Mossley Station works - Summary of anthropogenic materials observed within the logs

Exploratory Hole	Depth (m)	Comment	Strata
AB2011	0.65 – 0.90	Ash inclusions.	Made Ground
AB2012	0.70 – 0.75	Ash inclusions.	
AB2016	0.65	Textile material	
AB2018	0.75 – 0.90	Brick fragments and ash inclusions. Geotextile material	
AB2020	0.45 – 0.80	Ash inclusions.	

9.3 Published geology

A summary of the published geology relevant to the Relocated Mossley Station site is provided below. The data has been sourced from Groundsure[17] and British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is not recorded on-site. Made Ground is also recorded 20 m east of the site, 43 m south-east and 109 m east. Made Ground may be associated with historical development on-site and in proximity to the site including unspecified mills, unspecified tanks and unspecified ground workings.

Superficial deposits

The 1:10,000 scale published geology maps indicate there are no superficial designations recorded on-site. Alluvium is recorded 47 m east of the site, Glaciofluvial sheet deposits are recorded 71 m west and Devensian Till is recorded 171 m east.

Bedrock

The 1:10,000 scale published geology indicates there are three bedrock geology designations on-site. There are four other designations within 250 m of the site. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 9-6. Figure 9-2 presents

bedrock formations up to 250 m away from the site; beyond the 250 m buffer no bedrock information is included in this report.

Table 9-6 - Relocated Mossley Station works - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional Details
Fletcher Bank Grit	0 m	on-site	Sandstone
Marsden Formation	0 m 217 m 227 m	on-site west east	Mudstone And Siltstone
Upper Kinderscout Grit	0 m 147 m 190 m	on-site east east	Sandstone
Hebden Formation	104 m	east	Mudstone And Siltstone

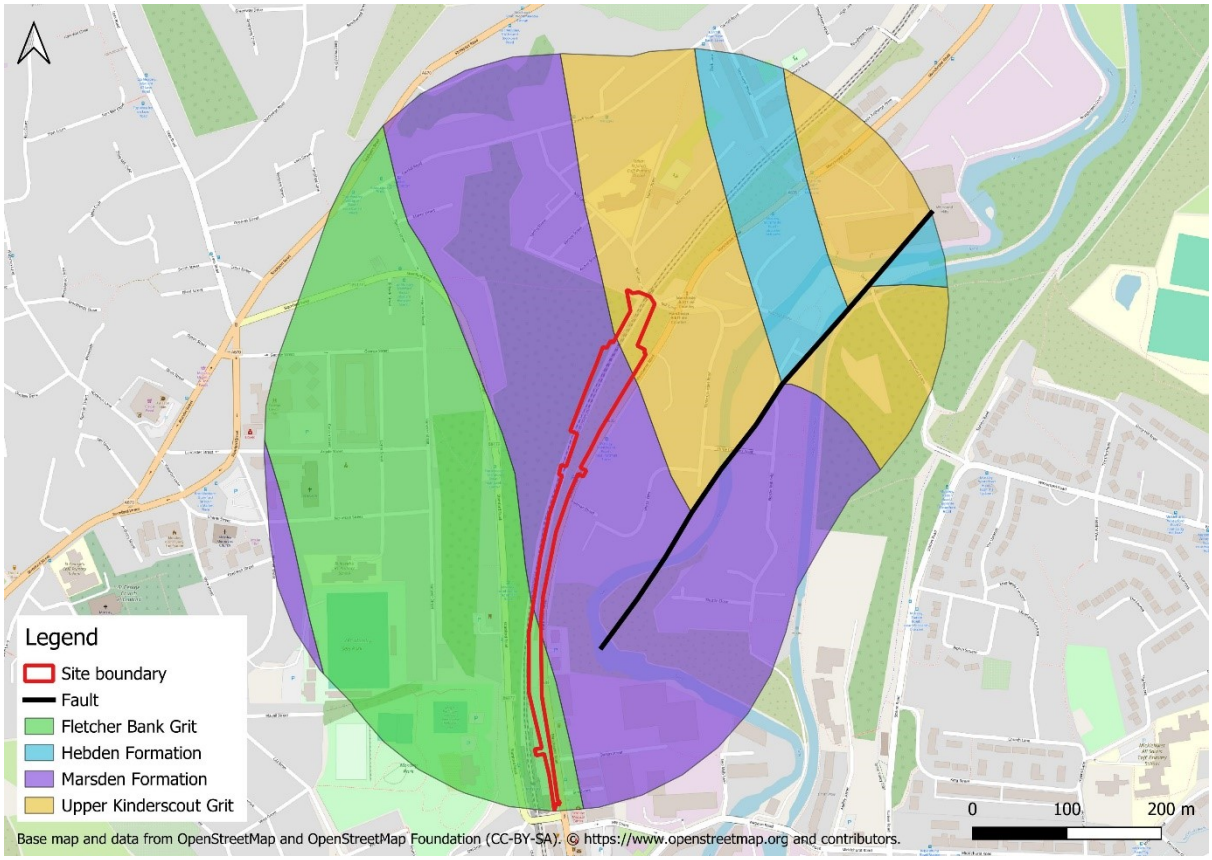

Figure 9-2 - Relocated Mossley Station works - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there are no faults or linear features on-site. There is one fault recorded 64 m east of the site. Faults are visible in Figure 9-2.

9.4 Hydrogeology

Superficial aquifers

The data from Groundsure[17] indicates that there are no superficial deposits recorded underlying the site.

Bedrock aquifers

The data from Groundsure[17] indicates that the geology underlying the site and surrounding 250 m has been designated as a secondary A aquifer.

The Environment Agency describes a secondary A aquifer as “Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers”.

Groundwater vulnerability

Groundsure[17] data indicates that the groundwater vulnerability is high for the bedrock aquifer and the superficial aquifer. A high groundwater vulnerability is defined as “*areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absences of low permeability superficial deposits.*”.

Groundwater source protection zones

The data from Groundsure[17] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[17] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[17] indicates there are no licensed discharges to groundwater features on-site or within 250 m of the site.

9.5 Hydrology

Surface watercourses

There are two surface water features within 250 m of the site. The nearest surface watercourse is recorded by Groundsure[17] as the River Tame and is located 55 m east of the site. A summary of all surface watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 9-7.

Table 9-7 - Relocated Mossley Station works - Surface watercourses

Name of watercourse	Type	Distance from site	Direction from site	WFD overall classification
Tame (Chew Brook to Swineshaw Brook)	River	55 m	east	Moderate
Huddersfield Narrow Canal west section	Canal	184 m	east	Moderate

Surface water discharge consents

The data from Groundsure[17] indicates there are no licensed discharges to surface water features on-site. There are nine licensed discharge consents within 250 m of the site. A summary is provided in Table 9-8.

Table 9-8 - Relocated Mossley Station works - Surface water discharge consents

Permit Number	Address	Receiving Water	Distance from Site	Direction from Site	Effective Date
01TAM0090	Russell street SSO, Stockport, Greater Manchester	Coastal trib for DA 68/69	83 m	east	15/09/1993
016990371	Mossley wool combing Ltd., Milton Mills, Mossley, Ashton-under-lyne, Greater Manchester	Huddersfield Narrow Canal	137 m	east	30/06/1982
01TAM0089	Dark lane CSO 441sh, Dark lane, Mossley, Ashton-under-lyne, Greater Manchester, OL59AT	To River Tame	189 m	north-east	01/01/1995
			189 m	north-east	03/09/2010
			194 m	north-east	05/02/2016

Permit Number	Address	Receiving Water	Distance from Site	Direction from Site	Effective Date
		Unnamed Trib to River Tame	194 m	north-east	01/04/2018

Surface water abstractions

The data from Groundsure[17] indicates there are no surface water abstractions within 250 m of the site.

9.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[17] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

9.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[17] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 9-9.

Table 9-9 - Relocated Mossley Station works - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is located within a coal mining area.
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral. There are no non-coal mining areas within 250 m of the site.
British Pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There are 2 other brit pits within 250 m of the site. These are located 69 m west and 106 m west. Both are surface ground working, for sandstone, but at date of entry, have ceased to extract minerals.

Category	Summary
Surface Ground Workings	There is one surface ground workings features on-site. There are 19 other surface ground workings features within 250 m of the site. Details are provided in Table 9-10.
Underground Workings	There are no underground workings on-site or within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 9-10 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 9-10 - Relocated Mossley Station works - Surface ground workings

Name	Distance from site boundary	Direction from site boundary	Date
Cuttings	0 m	on-site	1854-1918
Unspecified Ground Workings	24 m	west	1918-1982
Refuse Heap	30 m	east	1906-1956
Unspecified Ground Workings	66 m	east	1956
Unspecified Ground Workings	73 m	west	1863-1992
Refuse Heap	95 m	east	1956-1992
Unspecified Ground Workings	98 m	north-west	1906
Pond	130 m	east	1938
Refuse Heap	136 m	west	1891-1938
Refuse Heap	141 m	south-east	1906-1907
Refuse Heap	151 m	west	1891-1918
Refuse Heap	166 m	east	1938
Unspecified Ground Workings	169 m	north-west	1923-1938
Canal	173 m	east	1891-1992
Unspecified Pit	179 m	west	1956
Bricks Works	182 m	east	1891
Unspecified Quarry	197 m	north	1854-1982

Name	Distance from site boundary	Direction from site boundary	Date
Refuse Heap	207 m	north-east	1956
Unspecified Heap	210 m	west	1863
Unspecified Quarry	237 m	north	1891-1956

The Mining Remediation Authority[6] viewer indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[17] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 9-11. However, not all licence details have been provided by Groundsure.

Table 9-11 - Relocated Mossley Station works - Landfill and waste summary

Category	Site Name or Address	Description of Waste	Distance from site	Direction from site	Licence Issue Date	Licence Status
Historical Landfill (La/Mapping Records)	Refuse Tip	-	34 m	East	-	-
Historical Landfill	Milton and Border Mills	Inert, Industrial, Liquid sludge	61 m	east	22/09/1981	Surrendered: 21/02/1996
Historical Landfill	-	Inert, Industrial, Liquid sludge	80 m	south-east	22/09/1981	Surrendered: 21/02/1996
Waste Exemptions	Unit E310, Warmco Industrial Estate, Manchester Road, Mossley, Ol5 9ay	Storage of waste in a secure place	246 m	north-east	-	-
Waste Exemptions	Longlands Mill, Queen Street, Mossley,	Storage of waste in a secure place	68 m	east	-	-

Category	Site Name or Address	Description of Waste	Distance from site	Direction from site	Licence Issue Date	Licence Status
	Ashton-Under-Lyne, OL5 9AH	Storage of waste in secure containers			-	-
		Sorting mixed waste			-	-
		Manual treatment of waste			-	-

9.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

9.9 Sensitive land uses

The data from Groundsure[17] indicates there are sensitive land uses within 250 m of the site. A site of special scientific interest (SSSI), the Huddersfield Narrow Canal is located 178 m east of the site. There are no other sensitive land uses, including Ramsar or areas of conservation within 250 m. The site is located within a SSSI impact zone.

9.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site source of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are three pollution incidents reported by Groundsure[17] within 250 m of the site and a summary has been provided in Table 9-12.

Table 9-12 - Relocated Mossley Station works - Pollution incidents

Type	Distance from site	Direction from site	Category of Incident: Air	Category of Incident: Land	Category of Incident: Water	Date of Incident
General biodegradable materials and wastes	103 m	south-east	Category 4 (no impact)	Category 3 (minor)	Category 3 (minor)	06/11/2002
Pollutant not identified	188 m	east	Category 4 (no impact)	Category 4 (no impact)	Category 2 (significant)	17/10/2009
Contaminated water	205 m	east	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	28/03/2002

Pollution prevention and controls

The data from Groundsure[17] indicates there are not Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[17] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[17] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[17] indicates there are no recent industrial land uses on-site. There are 14 recent industrial land uses within 250 m of the site. A summary has been provided in Table 9-13.

Table 9-13 - Relocated Mossley Station works - Contemporary trade directory

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Mast	Infrastructure and Facilities	Telecommunications Features	0m	on-site

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Mossley (Manchester) Rail Station	Public Transport, Stations and Infrastructure	Railway Stations, Junctions and Halts	7 m	west
Electricity Substation	Infrastructure and Facilities	Electrical Features	11 m	east
Electricity Substation	Infrastructure and Facilities	Electrical Features	37 m	east
Electricity Substation	Infrastructure and Facilities	Electrical Features	103 m	east
Campbells Crane Hire	Hire Services	Construction and Tool Hire	219 m	east
Wharf	Water	Moorings and Unloading Facilities	227 m	east
Hive Entertainment Ltd	Transport, Storage and Delivery	Distribution and Haulage	228 m	east
Chimney	Industrial Features	Chimneys	236 m	east
Autofix	Repair and Servicing	Vehicle Repair, Testing and Servicing	238 m	east
Crescent Sheet Metal Company	Construction Services	Metalworkers Including Blacksmiths	245 m	east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site as indicated by Groundsure[17].

Contaminated land designations

According to Groundsure[17], there are no sites designated as contaminated land under Part 2A of the Environment Protection Act 1990 on-site or within 250 m of the site.

9.11 Site area reconnaissance

A site area walkover was undertaken on 22 August 2024 by an AtkinsRéalis environmental scientist. A walkover was conducted prior to changes to the Order Scheme boundary. A summary of the observations made during the visit is provided as follows.

Table 9-14 – Relocated Mossley Station works - Site walkover record

Item	Description
Location	The site area comprises a section of Manchester Road and land on each side of the railway lines to the north-west of Manchester Road.
Description of current use/ activities	Double metal gates are located off Manchester Road in the southern part of site. Manchester Road is situated at a lower level to the railway in the north-eastern area of site and the level difference increases to the north-east. In the far south of the site, Manchester Road is situated at a higher level to the railway. Land to the east of the railway is relatively level and land to the west of the railway slopes steeply up to the north-west. A mast is present in the central area of site, to the east of the railway. Several stockpiles of material were present at the time of the site walkover close to the access gates. Stockpiles of stone and mounds of wood chippings were visible. Anthropogenic material (e.g. plastic bags) was visible in some mounds of wood chippings and vegetation was growing from the mounds. Railway sleepers and other materials (including plastic pipes, plastic barriers) were also identified in the eastern part of the site.
Fuel/chemical storage	No evidence of fuel storage was observed.
Evidence of land contamination	No evidence of significant contamination was identified.
Invasive Species	Areas of Himalayan balsam and shoots of Japanese Knotweed were identified at the time of the site walkover. The area to the west of the railway is vegetated (rough vegetation, Himalayan balsam and Japanese Knotweed visible at the time of the walkover).
Surface coverage	The ground surface close to the access gates comprises stone setts. The north-eastern part of site between the railway and Manchester Road is heavily vegetated (rough vegetation and trees). Areas of rough vegetation are also present closer to the access gates.
Boundary Types	A stone wall runs between the parcel of land to the east of the railway and Manchester Road.
Surface Water Features	No surface water features were visible.

9.12 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of current land use and future use following the development as a train station.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground associated with former developments on-site:
        - Carr Hill Mills;
        - Railway building and sidings; and
        - Unspecified mills and tanks.
- Off-site:
    - Historical features surrounding the site including:
        - Cotton Mills;
        - Refuse heaps;
        - Railway station;
        - Brick works;
        - Garages;
        - Electricity substations;
        - Tanks;

        - Quarries; and
        - Unspecified industrial works.
    - Current features surrounding the site including:
        - Electricity substations;
        - Vehicle repairs and servicing; and
        - Wharf.
- Historical landfill [Milton and Border Mills: 61 m east].
- Pollution incidents [103 m south-east, 188 m east, 105 m east].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAHs), benzene, toluene, ethylbenzene and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a public open space and commercial end use:

- Human Health:
    - On-site:
        - Construction workers associated with the construction of the site; and
        - Future users of the site.
    - Off-site:
        - Resident and occupiers of commercial/industrial premises; and
        - Users of public open space areas.

- Controlled Waters:
    - Groundwater:
        - Bedrock secondary A aquifer.
    - Surface water:
        - River Tame; and
        - Huddersfield Narrow Canal west section.
- Property and Services:
    - On-site:
        - Station facilities;
    - Off-site:
        - Commercial businesses; and
        - Residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - ingestion of contaminated soils, soil-derived dust and groundwater;
    - dermal contact with soil, soil-derived dust and groundwater; and
    - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters
    - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;

- lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
- migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
- migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
- surface water run-off.

- Property and Services:
  - ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under the current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that all personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 9-15 - Relocated Mossley Station works - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Made Ground associated with former developments on-site: Carr Hill Mills; Railway building and sidings; Unspecified mills and tanks. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *PCBs* *Petroleum hydrocarbons* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: <u>Human Health</u> – Construction workers Future users of the site. <u>Property</u> – Station facilities <u>Off-site:</u> <u>Human Health</u> – Resident and occupiers of commercial/ industrial premises, users of public open space areas. <u>Property and Services</u> – Commercial businesses and residential properties.	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The public will have access during the operation as users of the train station. However, it is unlikely that risk will be increased as the station is predominantly made up of hardstanding, buildings and railway tracks which will limit the potential for exposure. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Severe	**Moderate risk** Made Ground and infilled ground are anticipated to be present on the site, which may be a source of ground gas. As the site includes plans for the creation of lift shafts, these could provide confined spaces for the accumulation and build-up of ground gas.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Asbestos may have been present in former structures/buildings on the site. Following the demolition of these buildings and structures, asbestos may be present within Made Ground or infilled ground. Based on the potential presence of

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
sulphide or carbon monoxide)					asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The majority of the site will be covered in hardstanding, or railway infrastructure therefore it is unlikely that contact with the Made Ground or infilled ground will occur. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/Low Risk** Made Ground is likely to overly bedrock across most of the site therefore piled foundations for new footbridge and lift shafts are likely to go into bedrock where no superficial deposits are found. The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifers. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding or buildings will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in	Surface Water Controlled Waters –	Low	Medium	**Moderate/Low Risk** Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	River Tame Huddersfield Narrow Canal west section			ingress of groundwater. The hydraulic gradient is assumed to be towards the south-east, towards the River Tame. Given the short distance between the site and the Huddersfield Narrow Canal west section and the River Time, it is likely that contaminants originating on-site could reach the river. Given the distances of the surface water receptors from the site, they are considered viable migration pathways of contaminants within groundwater (secondary A bedrock aquifers). If significant contamination is present, reworking of the Made Ground and infilled ground on-site during construction activities may mobilise contaminants and introduce a pathway for contaminants. Where hardstanding or buildings will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Cotton Mills; Refuse heaps; Garages; Electricity substations; Brick works; Railway station; Tanks;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Future users of the railway station Property – Station facilities	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is possible for future site users to come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/Low Risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Any cohesive superficial deposits present

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Quarries; and Unspecified industrial works. Current features surrounding the site including: Electricity substations; Vehicle repairs and servicing; and Wharf. Historical landfill [Milton and Border Mills: 61 m east] Pollution incidents					between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site. The majority of the off-site sources are located down hydraulic gradient from the site, therefore are unlikely to migrate on to the site. However, there are some off-site sources located up hydraulic gradient which could potentially result in contaminants migrating to the site. These sources are possibly underlain by a superficial aquifer which may limit the migration of contaminants. The nearest recorded superficial deposits are sand/gravel to the west and clay to the right which will limit migration of contaminants as the majority of off-site sources are located in the east of the site.
Possible contaminants include: Asbestos Metals PAHs Petroleum hydrocarbons VOCs PCBs Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/Low Risk** One historical landfill is located within 100 m of the site to the south, which could be a potential source of ground gas, however it has not been active since 1981. Therefore, it is unlikely that the site would still be producing gas at a high rate, or to a significant level that it would reach the site. No coal seams are found around the site. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways that might re-direct migration of gas and this should be considered during design.

9.13 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be samples, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with the CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devise to ensure the re-use of materials is in line with the DOWCOP suitability for use criteria and that require disposal off-site will be samples, tested, assessed and characterised in line with BS EN 14899:2005.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots, or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If

risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

The potential risks to human health and controlled waters associated with piling at the site would be considered within a piling risk assessment, as required, with the appropriate mitigation implemented through the CoCP.

10. BASELINE FOR ROUGHTOWN ROAD OVERBRIDGE (MVL3/17)

10.1 Site history

Table 10-1 provides a summary of the historical development at the Roughton Rd overbridge site and the surrounding 250 m buffer area. The history of the site and the 250 m surrounding area has been determined principally by reference to historical maps obtained from Groundsure[17].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 10-1 - Roughtown road overbridge (MVL3/17) - Summary of historical development

Feature	Date	Distance from the site boundary	Direction from the site boundary
Cuttings	1854-1992	0 m	on-site
Railway sidings	1891-1970	0 m	on-site
Unspecified old quarries	1894-1909	0 m	on-site
Unspecified structures	1894-1955	0 m	on-site
Unspecified tank	1909-1922	0 m	on-site
Allotment gardens	1954-1990	0 m	on-site
Tramway	1909-1933	3 m	south-east
Railway sidings	1891-1970	3 m	north-west
Cotton Mills	1891-1992	7 m	south-east
Refuse heap	1956	9 m	south-east
Carhill Mills	1891-1992	15 m	south-east
Unspecified pit	1891-1982	29 m	south-east
Cuttings	1854-1992	31 m	north-east
Unspecified quarry	1891-1938	32 m	east
Electricity substation	1996	33 m	south
Unspecified tank	1891	53 m	south-east
Allotment gardens	1954-1955	53 m	west
Unspecified tank	1918-1923	59 m	south

[17] Groundsure 2024. Enviro + Geo Insight (GS-4F5-ES2-8TP-9FB)

Feature	Date	Distance from the site boundary	Direction from the site boundary
Unspecified tank	1909-1955	69 m	south
Unspecified ground workings	1891-1906	71 m	north
Woodend Mills	1904-1956	75 m	south-east
Unspecified quarry	1854-1904	81 m	north
Unspecified pit	1956-1982	85 m	north
Refuse heap	1918-1938	93 m	north
Electricity substation	1991-1996	94 m	north-west
Unspecified quarry	1930-1938	94 m	north-west
Railway building	1891-1956	95 m	south-west
Unspecified industrial/commercial	1854	97 m	south-east
Unspecified pit	1956	101 m	north-west
Unspecified heap	1956	107 m	south
Dye Works	1891-1938	110 m	north-west
Refuse heap	1938	111 m	south
Electricity substation	1954-1996	116 m	south-east
Allotment gardens	1933-1992	120 m	north-west
Unspecified tank	1909-1933	126 m	west
Milton Mill	1906-1992	127 m	south
Bricks Works	1891-1982	136 m	south-east
Disused tank	1954-1955	138 m	north-west
Chimney	1970-1992	139 m	south
Garage	1996	143 m	east
Unspecified ground workings	1906-1982	152 m	south-west
Railway sidings	1938	156 m	south
Tanks	1909-1933	157 m	north-west
Carhill Quarry	1891-1982	159 m	west
Unspecified ground workings	1854	161 m	north-west
Unspecified commercial/industrial	1907	163 m	south
Stamford Mill	1891-1992	164 m	east
Tanks	1954-1955	171 m	north-west
Unspecified pit	1956	172 m	west
Unspecified pit	1904-1982	181 m	north-east

Feature	Date	Distance from the site boundary	Direction from the site boundary
Railway sidings	1891-1970	187 m	south-west
Unspecified commercial/industrial	1891	187 m	north-east
Roughtown Mill	1918-1956	193 m	north-east
Unspecified tank	1898	198 m	south
Electricity substation	1954-1955	200 m	north-east
Unspecified tanks	1894-1938	202 m	south
Unspecified tanks	1923-1972	214 m	south
Unspecified tanks	1894-1923	216 m	north-east
Refuse heap	1906-1938	225 m	south
Unspecified heap	1938	239 m	west
Refuse heap	1891	241 m	west
Unspecified old quarry	1930	245 m	north
Unspecified works	1982-1992	247 m	north-east
Unspecified tank	1872	249 m	south-east

10.2 Published geology

A summary of the published geology relevant to the Roughtown Road Overbridge (MVL/17) site is provided below. The data has been sourced from Groundsure[18] and the British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is not recorded on-site. Made Ground is recorded within 250 m of the site, approximately 23 m south-east.

Superficial deposits

The 1:10,000 scale published geology maps indicate there are no superficial deposits mapped on-site. Alluvium is mapped 65 m south-east of the site, and Devensian Till is mapped 134 m south-east of the site.

Bedrock

The 1:10,000 scale published geology indicates there are two bedrock geology designations on-site. There are two other bedrock geology designations within 250 m of the site. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table

10-2. Figure 10-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 10-2 - Roughtown road overbridge (MVL3/17) - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional details
Hebden Formation	0 m 125 m	on-site south-east	Mudstone and siltstone
Lower Kinderscout Grit	0 m	on-site	Sandstone
Upper Kinderscout Grit	0 m 131 m	on-site south-east	Sandstone
Kinderscout Grit	144 m	south-east	Sandstone
Marsden Formation	138 m 148 m	south-east west	Mudstone and siltstone

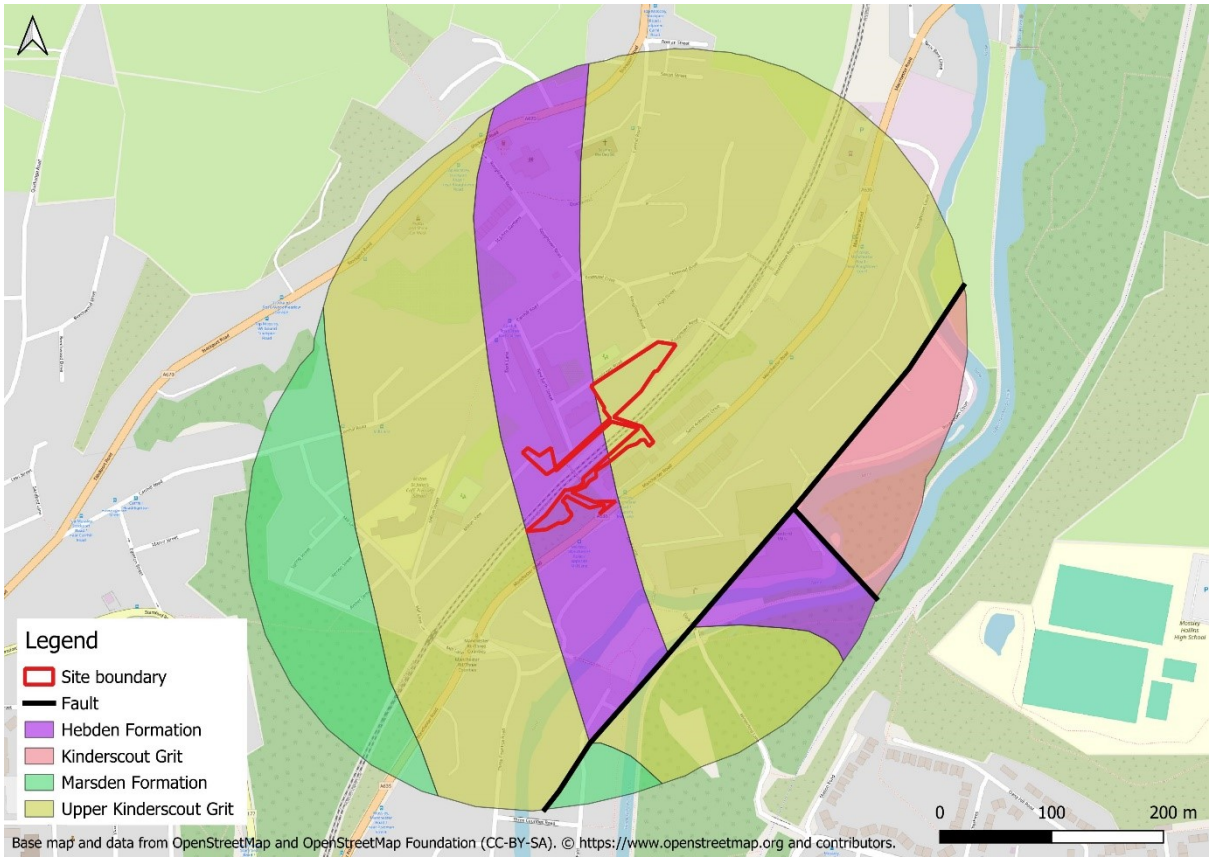

Figure 10-1 - Roughtown road overbridge (MVL3/17) - Summary of bedrock

Faults and linear features

The 1:10,000 scale published geology indicates there are no bedrock faults on-site. There are two other bedrock faults within 250 m of the site. A summary is provided in Table 10-3 and faults are visible in Figure 10-1.

Table 10-3 - Roughtown road overbridge (MVL3/17) - Bedrock structural feature summary

Data source	Description	Orientation	Distance from the site boundary	Direction from the site boundary
Fault	Normal fault, inferred	north-east to south-west	125 m	south-east
Fault	Normal fault, inferred	north-west to south-east	138 m	south-east

10.3 Hydrogeology

Superficial aquifers

The data from Groundsure[18] indicates that there are no superficial aquifers on-site. The closest superficial aquifer is a secondary A aquifer, located 66 m south-east. A secondary undifferentiated aquifer is located 134 m south-east of the site. The Environment Agency provides the following descriptions for the aforementioned aquifer designations:

Secondary A aquifer: Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Secondary undifferentiated aquifer: Assigned where it is not possible to attribute either category A or B to a rock type.

Bedrock aquifers

The data from Groundsure[18] indicates the presence of a secondary A bedrock aquifer underlying the site and surrounding area, associated with Lower Kinderscout Grit, and the Hebden Formation.

Groundwater vulnerability

Groundsure[18] data indicates that the groundwater vulnerability is high for the bedrock aquifer vulnerability. High vulnerability refers to areas that are able to easily transmit pollution to groundwater.

Groundwater source protection zones

The data from Groundsure[18] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[18] indicates there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[18] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

10.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[18] as the River Tame and is located 88 m south of the site. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 10-4.

Table 10-4 - Roughtown road overbridge (MVL3/17) - Surface water courses

Name of watercourse	Type	Flow direction	Distance from site	Direction from site	WFD overall classification
Tame (Chew Brook to Swineshaw Brook)	River	south	88 m	south	Moderate
Huddersfield Narrow Canal west section	Canal	-	141 m	south-east	Moderate

Surface water discharge consents

The data from Groundsure[18] indicates there are no licensed discharge to surface water features on-site. There are five licensed discharge to surface water features within 250 m of the site. In addition, there are no pollutant releases to surface water features on-site or within 250 m of the site. A summary of all surface water discharge consents within 250 m of the site has been provided in Table 10-5.

Table 10-5 - Roughtown road overbridge (MVL3/17) - Surface water discharge consents

Permit number	Effluent type	Address	Receiving water	Distance from site	Direction from site	Effective date
01TAM0089	Sewage discharges – sewer storm overflow – water company	Dark Lane CSO 441sh, Dark Lane, Mossley, Ashton Under Lyne, Greater Manchester, OL5 9AT	River Tame	66 m	south-east	01/01/1995, revoked 02/09/2010
				66 m		03/09/2010, revoked 04/02/2016
				73 m		05/02/2016, revoked 31/03/2018
				73 m		01/04/2018, to present
016990371	Trade discharges – cooling water	Mossley Wool Combing Ltd, Milton Mills, Mossley, Ashton-Under-Lyne, Greater Manchester	Huddersfield Narrow Canal	160 m	south	30/06/1982, revoked 01/03/1991

Surface water abstractions

The data from Groundsure[18] indicates there are no surface water abstractions within 250 m of the site.

10.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[18] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

10.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[18] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 10-6.

Table 10-6 - Roughtown road overbridge (MVL3/17) - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams recorded on the site or within 250 m of the site.
Coal mining areas	The site is located within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site, for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. There are no other non-coal mining areas within 250 m of the site.
British pits (active or closed surface and underground mineral workings)	There are no Brit pits recorded on-site. There are two other Brit pits within 250 m of the site. These are located 78 m north and 162 m north-west. Both are surface ground working, for sandstone, but at date of entry, have ceased to extract minerals.
Surface ground workings	There are two surface ground workings features on-site. There are 19 other surface ground workings features within 250 m of the site. Details are provided in Table 10-7.
Underground workings	There are no underground workings on-site or within 250 m of the site.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 10-7 further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 10-7 - Roughtown road overbridge (MVL3/17) - Surface ground workings

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1854-1992
Unspecified old quarries	0 m	on-site	1904
Refuse heap	11 m	south-east	1956

Name	Distance from site	Direction from site	Date
Unspecified pit	29 m	south-east	1956-1982
Cuttings	31 m	north-east	1970-1992
Unspecified old quarries	34 m	south-east	1894-1938
Sandstone Quarry	70 m	north	1854-1906
Pond	77 m	south-east	1938
Refuse heap	86 m	north	1918-1982
Unspecified quarry	94 m	north-west	1930-1956
Refuse heap	111 m	south	1938-1956
Canal	126 m	south-east	1891-1992
Bricks Works	136 m	south-east	1891
Unspecified ground workings	155 m	south-west	1918-1982
Unspecified quarry	160 m	west	1854-1982
Canal	177 m	south	1907
Unspecified quarry	183 m	west	1891-1906
Unspecified pit	191 m	north-east	1904-1982
Refuse heap	234 m	south	1906-1938
Refuse heap	241 m	west	1891-1938
Unspecified old quarry	245 m	north	1930

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[18] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 10-8.

Table 10-8 - Roughtown road overbridge (MVL3/17) - Landfill and waste summary

Category	Site name or Address	Description of waste	Distance from site	Direction from site	Licence issue date	Licence status

Historical landfill	Woodend Mill	Inert	163 m	east	24/01/1992	Surrendered, Active: 31/12/1981-11/03/1993
	Woodend Mill	Inert	238 m	north-east	24/01/1992	Surrendered, Active: 01/02/1992-11/03/1993
Waste exemptions	Unit E310, Warmco Industrial Estate, Manchester Road, Mossley, OL5 9AY	Storage of waste in a secure place	11 m	south-west		
		Recovery of scrap metal	128 m	south-east		
		Storage of waste in a secure place	145 m	north-east		

10.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

10.8 Sensitive land uses

The data from Groundsure[18] indicates there are sensitive land uses within 250 m of the site. A site of special scientific interest (SSSI), relating to the Huddersfield Narrow Canal, is located 129 m south-east of the site. The site is located within a SSSI impact zone. No other sensitive land uses, including Ramsar sites, nature reserves or areas of conservation, are recorded within 250 m of the site.

10.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are four pollutions incidents reported by Groundsure[18] within 250 m of the site and a summary has been provided in Table 10-9.

Table 10-9 - Roughtown road overbridge (MVL3/17) - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Pollutant not identified	79 m	south-east	Category 4 (No Impact)	Category 4 (No Impact)	Category 2 (Significant)	17/10/2009
Contaminated water – urban run-off	83 m	south-east	Category 4 (No Impact)	Category 4 (No Impact)	Category 3 (Minor)	28/03/2002
Contaminated water – chemically contaminated run-off	203 m	south-east	Category 3 (Minor)	Category 4 (No Impact)	Category 1 (Major)	12/06/2010
General biodegradable materials and wastes – other	223 m	south	Category 4 (No Impact)	Category 3 (Minor)	Category 3 (Minor)	06/11/2002

Pollution prevention and controls

The data from Groundsure[18] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. A summary of the number and location of these applications has been provided in Table 10-10.

Table 10-10 - Roughtown road overbridge (MVL3/17) - Pollution controls overview

Pollution prevention and control category	Summary
Pollution inventory substances	There are no pollution inventory substances on-site or within 250 m of the site.

Pollution prevention and control category	Summary
Licensed pollutant release (part A(2)/B)	There are no licensed pollutant release part 2A and B features on-site. There is one licensed pollutant release part A2 and B features within 250 m of the site. The historical licensed pollutant release (part B) is located 216 m north-west of the site and is associated with petrol vapour recovery.
Historical licensed industrial activities	There are no historical licensed industrial activities on-site or within 250 m of the site.
Licensed industrial activities (part A(1))	There are no licensed industrial activities on-site or within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[18] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents on or within 250 m of the site.

Radioactive substances

The data from Groundsure[18] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[18] indicates there are no recent industrial land uses on-site. There are 19 recent industrial land uses within 250m of the site. A summary has been provided in Table 10-11.

Table 10-11 - Roughtown road overbridge (MVL3/17) - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site	Direction from site
George Sixsmith & Son Ltd	Consumer Products	Musical Instruments	70 m	north-west
Hive Entertainment Ltd	Transport, Storage and Delivery	Distribution and Haulage	71 m	south-east
Autofix	Repair and Servicing	Vehicle Repair, Testing and Servicing	88 m	south-east
Crescent Sheet Metal Company	Construction Services	Metalworkers Including Blacksmiths	95 m	south-east
Chimney	Industrial Features	Chimneys	109 m	south-east

Site	Industrial land use category	Description	Distance from site	Direction from site
Electricity Substation (3no.)	Infrastructure and Facilities	Electrical Features	Closest 114 m	north-west
Myatt's of Mossley	Repair and Servicing	Vehicle Repair, Testing and Servicing	134 m	south-east
Industrial Park	Industrial Features	Business Parks and Industrial Estates	159 m	south-east
Broadbent Car & Commercials	Repair and Servicing	Vehicle Repair, Testing and Servicing	162 m	east
Notorious	Consumer Products	Clothing, Components and Accessories	162 m	east
D S Window Doors & Conservatories Ltd	Industrial Products	General Construction Supplies	167 m	east
Geotron UK Ltd	Construction Services	Cutting, Drilling and Welding Services	167 m	east
K Broadbent Carpet Contractors	Construction Services	Construction Completion Services	213 m	east
P N P	Engineering Services	Electrical and Electronic Engineers	217 m	south-east
M D R Autos	Repair and Servicing	Vehicle Repair, Testing and Servicing	218 m	north-east
Mast	Infrastructure and Facilities	Telecommunications Features	219 m	south-west
Vertical Access Ltd	Engineering Services	Civil Engineers	241 m	east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site, as indicated by Groundsure[18].

Contaminated land designations

According to Groundsure[18], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250m of the site.

10.10 Site area reconnaissance

A site area walkover was undertaken on 23 October 2024 by two AtkinsRéalis environmental scientists. The walkover was conducted prior to the addition of the Milton View compound to the Order Scheme; therefore, this area has not been viewed as part of the walkover. A summary of the observations made during the visit is provided as follows.

Table 10-12 – Roughtown road overbridge (MVL3/17) - Site walkover record

Item	Description
Current use and status of the site	Vacant land (South and North Roughtown sites). Public footpath leading from Manchester Road to foot bridge over railway in south-east part of site (South Roughtown)
General condition of site and surrounding land use	South Roughtown Site • Immediately adjacent (north/north-east) south part of site is recreation buildings – these appeared vacant at the time of visit. • Manchester road to south-east. • Railway line to north-north-west North Roughtown site • Railway line to east/south-east • Residential to south-west north-east and north with playground.
Presence of visual contamination, made ground, surface staining and odours	• No olfactory/visual evidence of contamination. • Evidence of fly tipping.
Topography and surface condition – open ground, hardstanding and other geotechnical or surface features	Steep gradient down from west to railway in east. 95% vegetation cover. Public footpath to foot bridge is cobbled.
Local surface water features	N/A
Presence and type of vegetation	Very heavily vegetated – grass, weeds, trees, bushes etc.
Signs of any vegetation dieback	No
Presence and extent of any non-native invasive plants such as Himalayan balsam, New Zealand pigmy weed or Giant hogweed	No

Item	Description
Buildings and below or above ground structures such as fuel tanks	No evidence of buildings or structures.
Above and likely below ground services	No evidence of services
Access to and security of the site	Access not granted at time of walkover so used Public Right of Way (PROW) Pedestrian access is available along public footpath. South Roughtown completely inaccessible as bounded by metal fencing and brick walls. No clear access point for vegetated land in both north and south sites.
Presence of any potential off-site receptors	Residential
Potential presence of any asbestos cement material within buildings or throughout the site	No evidence of asbestos cement material
Communications or discussions with site personnel	No communications or discussions with site personnel

10.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

Historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and potential/future uses following proposed reconstruction of the existing overbridge and as a storage compound. It is assumed the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground associated with former developments on-site:
        - Railway sidings; and
        - Unspecified structures/buildings;
    - Historical on-site uses including:
        - Unspecified tanks;
        - Allotment gardens; and
        - Old quarries.
- Off-site:
    - Historical features surrounding the site including:
        - Refuse heaps;
        - Carhill Mills;
        - Unspecified quarries;
        - Electricity substations;
        - Unspecified tanks;
        - Woodend Mills;
        - Railway buildings;
        - Dye Works;
        - Milton Mills;
        - Brick Works;
        - Garage;
        - Allotment gardens;
        - Carhill Quarry;
        - Stamford Mill; and
        - Roughtown Mill.

- Current features surrounding the site including:
  - Metalworkers;
  - Electricity substations;
  - Vehicle repairs and servicing;
  - Construction services;
  - Engineering services;
  - Telecommunication features; and
  - Industrial products.
- Historical landfill:
  - Woodend Mill [163 m east].

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAHs), benzene, toluene, ethylbenzene, polychlorinated biphenyls (PCBs) and xylenes (BTEX), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future users of the site.
  - Off-site:
    - Resident and occupiers of commercial/ industrial premises; and

- Controlled Waters:
    - Groundwater:
        - Secondary A bedrock aquifer;
    - Surface Water:
        - River Tame [88 m south]; and
        - Huddersfield Narrow Canal west section [141 m south-east]
- Property and Services:
    - On-site:
        - Access route; and
        - Structures (overbridge) and services.
    - Off-site:
        - Commercial businesses; and
        - Residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - ingestion of contaminated soils, soil-derived dust and groundwater;
    - dermal contact with soil, soil-derived dust and groundwater; and
    - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters
    - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;

  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 10-13 - Roughtown road overbridge (MVL3/17) - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Made Ground associated with former developments on-site: Railway sidings; Unspecified structures/buildings Historical on-site uses including: Unspecified tanks; Allotment gardens; and Old quarries. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – On-site users Future users of the site. Property and services: Access route Overbridge Off-site: Human Health – Residents and occupiers of commercial/industrial premises Users of public open spaces. Property and Services – Commercial businesses and residential properties.	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is potential for contaminants to be present in soil and groundwater on-site. Future site users are unlikely to come into contact with soil as the site is made up of mainly hardstanding. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** Made Ground is not recorded on-site, however, may still be present, which could be a source of ground gas. A quarry was historically recorded on-site which may have been infilled and could be a possible source of ground gas. However, the site does not require any confined or indoor spaces therefore accumulation of ground gas is unlikely.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Given the previous use of the site there is a potential for asbestos to be present. Based on the potential presence of asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk.

Volatile organic compounds (VOCs) Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)					It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/low risk** The proposed development does not include the use of piled foundations, and any necessary excavations are unlikely to be deep enough to create new preferential pathways. As no superficial deposits are recorded on-site, Made Ground will directly overlay bedrock resulting in minimal mitigation of potential migration. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. There are no superficial deposits located on-site to limit vertical and lateral migration in that area.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section	Low	Medium	**Moderate/low risk** Given the short distance between the site and the River Time, it is likely that contaminants originating on-site could reach the river. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the south, towards the River Tame. The proposed works to reconstruct the footbridge and provide access to the railway for electrics work are unlikely to create new migration pathways.

	controlled surface waters.				Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following <u>off-site</u> sources: Historical features surrounding the site including: Refuse heaps; Carhill Mills; Unspecified quarries; Electricity substations; Unspecified tanks; Woodend Mills; Railway buildings; Dye Works; Milton Mills; Brick Works; Garage; Carhill Quarry; Stamford Mill; and Roughtown Mill. Current features surrounding the site including: Metalworkers; Electricity substations;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: <u>Human Health</u> – On-site users Future users of the bridge <u>Property and services:</u> Overbridge Access route .	Unlikely	Medium	**Low risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is possible for future site users to come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings that have now been demolished. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Unlikely	Medium	**Low Risk** There is the potential of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer given the distance of the potentially contaminative off-site land uses. Any superficial deposits present between the potential Made Ground and bedrock will limit migration of contaminants. Superficial deposits are present underlying some of the off-site sources in the east, which will limit their migration, however there are no superficial deposits located to the south which could increase the probability and risk of contaminants

Vehicle repairs and servicing; Construction services; Engineering services; Telecommunication features; and Industrial products. Historical landfill: Woodend Mill [169 m east]. *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	Unlikely	Medium	migrating to the site from those sources. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site. Most off-site sources of contamination are down gradient from the site therefore are unlikely to migrate up the hydraulic gradient onto the site. **Low risk** No on-site receptors identified that would be impacted by off-site gas.

10.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

As the risk to future site users is generally low, there is no specific mitigation required to reduce the impact to human health for the site.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated

for inclusion in a verification report to demonstrate the remediation has been completed.

11. BASELINE FOR HERON LANE SITE COMPOUND AND WRIGHTS MILL OVERBRIDGE (MVL3/20) RECONSTRUCTION

11.1 Site history

Table 11-1 provides a summary of the historical development at the Heron Lane site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[18].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 11-1 - Heron Lane Site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Summary of the historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Cuttings	1854-1992	0 m	on-site
Unspecified Pit	1938-1956	1 m	north
Unspecified Mill	1891-1956	2 m	north-east
Unspecified Ground Workings	1906-1923	5 m	north
Unspecified Foundry	1906-1970	7 m	south-east
Unspecified Pit	1923	7 m	west
Unspecified Ground Workings	1906-1923	8 m	north
Unspecified Mill	1891-1956	8 m	north-east
Cotton Mill	1854	13 m	east
Unspecified Ground Workings	1906-1918	13 m	west
Unspecified Heap	1891-1906	13 m	east
Unspecified Mill	1891-1970	18 m	east

[18] Groundsure 2024. Enviro + Geo Insight (GS-GWW-SKK-3TG-CRD)

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified Works	1982-1992	18 m	east
Chimney	1970-1992	25 m	north
Cuttings	1854-1992	26 m	west
Unspecified Tank	1954-1992	26 m	north
Unspecified Works	1982-1992	31 m	south
Unspecified Pit	1904-1982	32 m	south-west
Cuttings	1854-1992	39 m	north
Electricity Substation	1954	51 m	east
Unspecified Ground Workings	1906-1918	57 m	south-west
Garage	1959-1992	58 m	north
Unspecified Mill	1904-1956	70 m	south
Unspecified Mill	1891-1970	72 m	east
Iron Works	1904-1938	88 m	east
Gravel Pit	1918	91 m	east
Bricks Works	1891	94 m	east
Refuse Heap	1923-1938	94 m	east
Sewage Works	1904-1956	97 m	north-east
Refuse Heap	1923-1970	98 m	east
Garage	1959-1992	103 m	north-west
Sewage Works	1904-1956	103 m	north-east
Fire Station	1938-1982	108 m	east
Spring Mill	1891-1956	108 m	east
Garage	1982-1992	110 m	north-west
Cuttings	1906	111 m	north-east
Unspecified Disused Mill	1938	118 m	east
Iron Works	1891-1970	119 m	east
Gas Works	1891-1978	122 m	east
Gasometer	1891-1923	124 m	east
Unspecified Tanks	1930-1956	124 m	east
Electricity Substation	1981-1984	126 m	east
Unspecified Mills	1891-1992	129 m	east
Cotton Mill	1854	130 m	south

Feature	Date	Distance from site boundary	Direction from site boundary
Electricity Substation	1992-1993	131 m	east
Gasometers	1891-1970	132 m	east
Refuse Heap	1918-1923	132 m	north-east
Unspecified Tanks	1930-1956	132 m	east
Electricity Substation	1955	135 m	east
Gas Holder	1978-1984	135 m	east
Gasometer	1894-1955	135 m	east
Refuse Heap	1918-1923	138 m	north-east
Settling Tanks	1933	138 m	north-east
Gas Works	1891-1970	143 m	east
Unspecified Quarry	1891-1938	143 m	west
Settling Tanks	1909-1954	144 m	north-east
Sandstone Quarry	1854-1992	146 m	west
Electricity Substation	1954-1955	147 m	south
Gasometer	1891-1923	148 m	east
Sandstone Quarry	1854-1992	148 m	north-west
Gas Works	1894-1978	150 m	south-east
Gasometers	1891-1970	151 m	south-east
Unspecified Tank	1909-1954	151 m	north-east
Unspecified Ground Workings	1891	153 m	west
Refuse Heap	1956-1970	154 m	east
Unspecified Tanks	1918-1956	154 m	south-east
Unspecified Tank	1982-1992	157 m	north-west
Unspecified Tank	1906-1923	159 m	north-east
Gasometers	1894-1984	160 m	south-east
Tanks	1933	160 m	north-east
Gas Holder	1955-1982	160 m	south-east
Tanks	1894	164 m	east
Unspecified Tank	1923	164 m	south
Unspecified Tank	1906-1933	165 m	north-east
Unspecified Mill	1891-1992	166 m	south-east
Bricks Works	1891	174 m	east

Feature	Date	Distance from site boundary	Direction from site boundary
Cotton Mills	1854	174 m	north-west
Gasometer	1891-1965	176 m	south-east
Unspecified Tank	1894-1956	181 m	south-east
Gas Governor	1992-1993	186 m	east
Unspecified Commercial/Industrial	1891	192 m	north-west
Unspecified Tank	1955	194 m	south-east
Unspecified Mill	1904-1970	198 m	east
Unspecified Works	1982-1992	198 m	east
Pumping Station	1918-1970	199 m	north
Tanks	1894-1918	204 m	south-east
Unspecified Mills	1891-1956	207 m	east
Unspecified Tank	1894-1909	207 m	east
Cuttings	1891-1982	208 m	east
Unspecified Mill	1930	210 m	south
Electricity Substation	1955	212 m	south-east
Tanks	1933	214 m	north-east
Electricity Substation	1981-1933	217 m	south-east
Unspecified Works	1982	217 m	east
Unspecified Tanks	1938	218 m	north
Garage	1996	219 m	south
Refuse Heap	1923-1956	219 m	east
Old Sandstone Quarry	1854-1938	220 m	north
Tanks	1933-1938	220 m	north-east
Pumping Station	1918-1938	221 m	north-west
Cuttings	1891-1970	230 m	east
Unspecified Ground Workings	1891-1938	230 m	north
Unspecified Tanks	1938	231 m	north
Electricity Substation	1992-1993	238 m	south-east
Gas Governor	1992-1993	240 m	south-east
Iron Works	1891-1956	240 m	south-east
Unspecified Heap	1938	243 m	east
Motor Works	1918-1938	244 m	east

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified Pit	1956-1982	245 m	south-west
Iron Works	1904-1992	246 m	south-east
Unspecified Mill	1891-1970	246 m	south-east
Unspecified Old Quarry	1904-1938	246 m	west
Cuttings	1904-1982	247 m	east
Refuse Heap	1923-1956	247 m	east

11.2 Previous ground investigations

Description of investigation

An intrusive ground investigation was undertaken by Structural Soils Ltd. In March 2018[19] around the existing bridge structures, MVL3/25, MVL3/26 and viaduct MVL3/31, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Two of the locations are within 250 m of the site and have been summarised in Table 11-2 and the investigation locations are displayed in Figure 11-1.

Table 11-2 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Summary of investigation

Item	No. undertaken
Number of boreholes	None
Number of trial pits	Two
PID* testing undertaken	None
Number of soil samples tested	None
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None
* photo-ionisation detector	

[19] Structural Soils Ltd. 2018 TransPennine Route Upgrade Factual Report on Ground Investigation (151667-TSA-05-MVL3-DM3-X-MF-700011)

Figure 11-1 - Heron Lane site Compound and Wrights Mill Overbridge (MVL3/20) reconstruction - Previous investigations

Ground conditions

Table 11-3 summarises the ground conditions encountered during the ground investigation.

Table 11-3 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Dark grey slightly sandy gravel of granite (Clean ballast) Dark greyish black slightly sandy gravel. Gravel of ash and ballast. (Very dirty ballast)	0.12 – 0.16 (Trial pit begins below rail line).	0.61 - 0.77

	Dark grey slightly sandy gravel of granite (Clean ballast)		
Weathered Sandstone Bridge Deck	Light yellowish grey silty slightly gravelly sand. Gravel of sandstone.	0.61	0.66

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs. However, a summary of the observed anthropogenic materials is displayed in Table 11-4.

Table 11-4 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Summary of anthropogenic materials observed

Exploratory Hole	Depth (m)	Comment	Strata
TP2001	0.52 – 0.77	Ash inclusions	Made Ground

11.3 Published geology

A summary of the published geology relevant to the Heron Lane Site Compound and Wrights Mill Overbridge (MVL3/20) reconstruction is provided below. The data has been sourced from Groundsure[19] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is recorded on-site. Made Ground is also recorded within 250 m of the site.

Superficial deposits

The 1:10,000 scale published geology maps indicate that Alluvium and Head deposits are both mapped on-site. Devensian Till is also recorded 87 m east of the site.

Bedrock

The 1:10,000 scale published geology indicates there is one bedrock geology designation on-site. There are three other bedrock geology designations within 250 m of the site.

A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 11-5. Figure 11-2 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 11-5 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Bedrock geology summary

Data source (scale)	Description	Distance from site boundary	Direction from site boundary	Additional Details
Bedrock Geology (1:10,000)	Upper Kinderscout Grit	0 m 82 m 125 m 179 m 226 m	on-site east west north north	Sandstone
Bedrock Geology (1:10,000)	Hebden Formation	18 m 131 m 190 m	west north north-west	Mudstone And Siltstone
Bedrock Geology (1:10,000)	Kinderscout Grit	154 m	south-east	Sandstone
Bedrock Geology (1:10,000)	Marsden Formation	219 m	west	Mudstone And Siltstone

Figure 11-2 - Heron Lane site Compound and Wrights Mill Overbridge (MVL3/20) reconstruction - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there are two bedrock faults on-site. There is one other bedrock fault within 250 m of the site. A summary is provided in Table 11-6 and faults are visible in **Error! Reference source not found.**.

Table 11-6 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Bedrock structural geology summary

Data source	Description	Distance from site boundary	Direction from site boundary
Fault	Normal fault, inferred	0 m	on-site
Fault	Normal fault, inferred	0 m	on-site
Fault	Normal fault, inferred	82 m	east

11.4 Hydrogeology

Superficial aquifers

The data from Groundsure[19] indicates that there is a secondary A aquifer on-site, associated with the Alluvium deposits. There is also a secondary (Undifferentiated) aquifer on-site, associated with the Head deposits.

The Environment Agency classifies a secondary A aquifer as “permeable layers capable of supporting water supplies to a local rather than strategic scale and in some cases forming an important source of base flow to rivers”.

A secondary (Undifferentiated) aquifer is classified as “when it is not possible to attribute either category A or B to a rock type. In general, these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type”.

Bedrock aquifers

The data from Groundsure[19] indicates that the site and surrounding area is underlain by a secondary A aquifer.

Groundwater vulnerability

Groundsure[19] data indicates that the groundwater vulnerability is high for both the superficial and bedrock aquifer. This indicates that the site is located in “*an area easily able to transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits”.*

Groundwater source protection zones

The data from Groundsure[19] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[19] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[19] indicates that there are no licensed discharge to groundwater features on-site or within 250 m of the site.

11.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[19] as an unnamed watercourse and is located 12 m north of the site. A summary of all surface water courses (rivers, lakes, canals and coastal and transitional waters) within 250 m of the site has been provided in Table 11-7.

Table 11-7 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Surface watercourses

Name of watercourse	Type	Distance from site	Direction from site	WFD overall classification
Unnamed watercourse	On ground surface watercourse	12 m	north	-
Tame (Chew Brook to Swineshaw Brook)	River	65 m	east	Moderate
Huddersfield Narrow Canal west section	Canal	179 m	east	Moderate

Surface water discharge consents

The data from Groundsure[19] indicates there are no licensed discharge to surface water features on-site. There are five licensed discharges to surface water features within 250 m of the site. A summary has been provided in Table 11-8. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 11-8 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Surface water discharge consents

Permit number	Effluent Type	Address	Receiving water	Distance from site	Direction from site	Effective date
016940369	Sewer storm overflow – water company	Roaches Lock CSO, 389 Manchester Road (A635), Mossley, Ashton-Under-Lyne, Greater	River Tame	53 m	east	07/12/2020

Permit number	Effluent Type	Address	Receiving water	Distance from site	Direction from site	Effective date
		Manchester, OL5 9BB				
EPRJB3892WZ	Treated effluent – water company	Heron Lane Wwtw, Stockport Road, Mossley, Ashton-Under-Lyne, 0L5 0RS	Tributary of River Tame	95 m	east	06/12/2018
01OLD0083	Sewer storm overflow – water company	Royal George Ps, Oldham, Greater Manchester	-	174 m	north-east	01/04/1991, revoked 31/12/1994
						01/01/1995, revoked 31/03/2020
016950639	Pumping station – water company	Armit Rd (Grasscroft) CSO Ps, Armit Road, Greenfield, Oldham, Greater Manchester, OL3 7LW	River Tame	201 m	north-east	27/08/2021
	Sewer storm – water company			201 m		
				245 m		01/04/1991, revoked 26/08/2021
01OLD0060	Treated effluent – water company	Armit Road SSO, Oldham, Greater Manchester	River Tame	241 m	north	15/09/1993, revoked 15/09/1993

Surface water abstractions

The data from Groundsure[19] indicates there are no surface water abstractions within 250 m of the site.

11.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[19] indicates that the maximum radon potential on the site is between 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

11.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[19] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 11-9.

Table 11-9 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal mining areas	The site is located in a coal mining area.
Non-coal mining features	There is one non-coal mining area identified on-site, for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There is one other brit pit within 250 m of the site. This is located 188 m west. It is a surface mineral working, for sandstone, but at date of entry, has ceased to extract minerals.
Surface ground workings	There is one surface ground workings feature on-site. There are 20 other surface ground workings features within 250 m of the site. Details are provided in Table 11-10.
Underground workings	There are no underground workings on-site or within 250 m of the site.

Category	Summary
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 11-10 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 11-10 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Surface ground workings

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1854-1992
Unspecified pit	3 m	north	1906-1956
Unspecified ground workings	37 m	south-west	1906-1918
Cuttings	40 m	north	1923
Ponds	53 m	north-east	1891-1956
Refuse heap	93 m	east	1918-1938
Sewage works	101 m	north-east	1904-1970
Cuttings	115 m	north-east	1906
Sewage works	138 m	north	1906-1938
Sandstone quarry (disused)	142 m	west	1854-1992
Sewage works	143 m	north-east	1930
Canal	161 m	east	1891-1992
Bricks works	175 m	east	1891
Old sandstone quarry	224 m	north	1854-1938
Ponds	231 m	north-west	1891
Unspecified ground workings	231 m	north	1891-1938
Refuse heap	239 m	east	1923-1956
Ponds	241 m	north-west	1891
Reservoir	246 m	north-west	1956-1992
Unspecified heap	248 m	south	1904

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[19] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites have been provided in Table 11-11, however not all licence details have been provided by Groundsure.

Table 11-11 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Landfill and waste summary

Category	Site Name or Address	Description of Waste	Distance from site	Direction from site	Licence Issue Date	Licence Status
Historical Landfill	-	Commercial	0 m	On-site	-	-
Historical Landfill	-	Commercial	58 m	south	-	-
Historical Landfill	Woodend Mills	Inert	117 m	south-east	24/01/1992	Surrendered: 11/03/1993
Historical Landfill (BGS Records)	Midge Hill, Mossley	N/A	120 m	south-west	-	-
Historical Landfill	Mossley Holder Station	Inert, Industrial	154 m	east	04/11/1987	Surrendered: 20/09/1989
Historical Landfill	Quick Edge Quarry	-	141 m	north-west	-	-
Waste Exemptions	Unit E310, Warmco Industrial Estate, Manchester Road, Mossley, OL5 9AY	Storage of waste in a secure place	229 m	south	-	-

11.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site

11.9 Sensitive land uses

The data from Groundsure[19] indicates that a site of special scientific interest (SSSI) is located 242 m south-east of the site. The SSSI is associated with the Huddersfield Narrow Canal. The site is also located within a SSSI impact zone. There are no other sensitive land uses, including Ramsar or areas of conservation within 250 m of the site.

11.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are two pollution incidents reported by Groundsure[19] within 250 m of the site and a summary has been provided in Table 11-12.

Table 11-12 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Contaminated water	22 m	north-east	Category 4 (no Impact)	Category 4 (no Impact)	Category 3 (minor)	19/05/2001
Contaminated water	160 m	west	Category 4 (no Impact)	Category 3 (minor)	Category 4 (no Impact)	14/01/2002

Pollution prevention and controls

The data from Groundsure[19] indicates there are not Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[19] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[19] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[19] indicates there are no recent industrial land uses on-site. There are seven recent industrial land uses within 250 m of the site. A summary has been provided in Table 11-13.

Table 11-13 - Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
N C S Forklifts Ltd	Industrial products	Lifting and handling equipment	31 m	east
Tame Valley Steelstock Ltd	Industrial products	Metals, manufacturers, fabricators and stockholders	31 m	east
Park Mill Ind Est	Industrial features	Business parks and industrial estates	62 m	east
Electricity substation	Infrastructure and facilities	Electrical features	109 m	east
M D R Autos	Repair and servicing	Vehicle repair, testing and servicing	117 m	south-west
Howarth Flooring Contractors Ltd	Construction services	Construction completion services	142 m	east
Pump house	Industrial features	Water pumping stations	159 m	north-east
Howarth flooring contractors ltd	Construction services	Construction completion services	161 m	south-east
Quick quarry (disused)	Extractive industries	Unspecified quarries or mines	178 m	west
Gas governor station	Infrastructure and facilities	Gas features	192 m	east
Electricity substation	Infrastructure and facilities	Electrical features	230 m	south-east
G s w plastics ltd	Industrial products	Rubber, silicones and plastics	232 m	south

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Tame Valley Steelstock Ltd	Industrial products	Metals manufacturers, fabricators and stockholders	240 m	south
Gas governor station	Infrastructure and facilities	Gas features	244 m	south-east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[19].

Contaminated land designations

According to Groundsure[19], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250 m of the site.

11.11 Site area reconnaissance

A site walkover was undertaken on 16 August 2024 by two AtkinsRéalis Environmental Scientists. A summary of the observations made during the visit is provided as follows.

Table 11-14 – Heron Lane site Compound and Wrights Mill Overbridge (mvl3/20) reconstruction - Site walkover record

Item	Description
Location	The site is located on Third Party land north of Mossley, Greater Manchester. The site is off-track with national grid reference SD 97839 03619 and What3Words of packing.cookbooks.topped. The compound covers total area of 2.6 Ha and is divided into three areas: a section east of the railway, a large area south-west of the railway and a smaller area north-west of the railway. Heron Lane bounds the west and south-west of the site, with access off Midge Hill Lane. The railway bisects the site in an approximately north-south direction. The north-east of the site is bound by a public footpath, which continues to the west through the site, bisecting the smaller north-western area from the larger south-west compound area and joining Midge Hill Lane.

	The whole site generally slopes from west to east with a change of elevation of approximately 50 m.
Description of current use/ activities	The site as a whole is predominantly grazing pasture. Livestock were present in the area east of the railway. The south-west site area is used for storage (farm equipment), as well as grazing, and there appears to be some quarrying and storage of stone in the west of this site area. A public footpath runs approximately west to east, before crossing over a bridge over the railway, and then turning north-east and bounding the north of the eastern site area. Heron Lane, which consists primarily of a gravel trackway in the west, and hardstanding in the east borders much of the west and south-west of the site.
Fuel/chemical storage	No fuel or chemical storage was evident on the site.
Evidence of land contamination	No evidence of land contamination was observed. Minor litter/fly tipping was observed in the east and south-west of the site of plastic fragments and a glass bottle respectively. Plastic fragments were also observed on the embankment bordering the west of the northern site area. An empty drum and plastic fragments were observed in the west corner of the site off Heron Lane, plus an approximately 1 m tall and 1.5 m by 3 m wide stockpile of broken tarmacadam.
Invasive Species	Himalayan Balsam was noted in several locations along the public footpath, railway embankment and an embankment bordering the west of the northern site area.
Surface coverage	The site comprises dominantly agricultural fields of grass coverage (approximately 80%) plus trees and low shrubbery (approximately 15%). Heron Lane consists of some hardstanding (concrete and tarmac) and gravel (approximately 5% of the site) and the public footpath of gravel and soft vegetated cover.
Boundary Types	The south-west site area is accessed from the east from Midge Hill Lane, which branches south to form Heron Lane. Heron Lane is accessed via a metal gate approximately 4 m wide by 1.5 m tall. This site area is bound in the north and east by a wire livestock fence with wood posts and barbed wire, approximately 1 m tall, with the public footpath to the north. Heron Lane bounds the west and south-west of this site area. In the south, the site is bordered by an approximately 1 m tall wire livestock fence with wood posts and barbed wire The east site area is accessed from the south off Heron Lane (on the eastern side of the viaduct) by two metal gates approximately 4 m

	wide by 1.5 m tall. A wire livestock fence with wood posts and barbed wire, approximately 1 m tall, borders the west of the area with the railway embankment and railway approximately 1.5 to 2 m above in elevation. The public footpath, accessed from the field by a wooden stile, borders this site area to the north, separated from the site by an approximately 1 m tall wire livestock fence with wood posts and barbed wire. The site border is open to the east. The north-west site area is accessed from the public footpath on its south border via a wooden stile. The south and west of this site area are bordered by an approximately 1 m tall wire livestock fence with wood posts and barbed wire. In the west, beyond the border there is an embankment of what appears to be Made Ground (mixed gravel and brick fragments) with shrubbery and an outflow pipe (likely of surface or ground water). The east of the site is bordered by a stone wall, approximately 1 m tall, collapsed in areas and patched with wire livestock fencing, barbed wire and wood posts of the same height. The railway embankment is behind the wall. The northern border of this site area is an open field.
Surface Water Features	What appears to be an ephemeral pond was evident to the east of Heron Lane (where it branches from Midge Hill Lane) in the north-west corner of the south-west site area. The pond was approximately 5 m long by 2-3 m wide. A minor amount of lying water was observed at the base, with saturated mud.

11.12 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and potential/future uses following the proposed reconstruction of the existing overbridge and use of the site as a construction compound. It is assumed that the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Commercial landfill
- Off-site:
    - Historical features surrounding the site including:
        - Unspecified mills, pits and foundries;
        - Cotton Mills;
        - Electricity substations;
        - Garages;
        - Sewage works;
        - Iron works;
        - Gas works;
        - Gasometers;
        - Refuse heaps;
        - Quarries;
        - Settling tanks;
        - Pumping stations; and
        - Brick works.
    - Current features surrounding the site including:
        - Pumping station;
        - Construction services;
        - Gas governors; and
        - Electricity substations.
    - Historical landfill [58 m south, 117 m south-west, 154 m east, 141 m north-west].

- Pollution incidents [22 m north-east, 160 m west].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future site users.
  - Off-site:
    - Resident and occupiers of commercial/industrial premises; and
    - Users of public open space areas.
- Controlled Waters:
  - Groundwater:
    - Secondary A bedrock aquifer; and
    - Secondary (Undifferentiated) superficial aquifer.
  - Surface water:
    - River Tame; and
    - Huddersfield Narrow Canal west section.

- Property and Services:
  - On-site: structures (overbridge) and services, construction compound buildings (offices, welfare, canteen, stores, etc.); and
  - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.
- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 11-15 - Heron Lane site Compound and Wrights Mill Overbridge (MVL3//20) reconstruction - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Commercial landfill Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Property – Compound related facilities Overbridge Off-site: Human Health - Residents and occupiers of commercial/ industrial premises, users of public open spaces. Property and Services – Commercial businesses and residential properties.	Low	Severe	**Moderate risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. The site is currently predominantly grazing pasture and the land use is unlikely to be altered following the construction of the site, therefore it is unlikely will come into contact with contaminants in areas of the site. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. However, there are businesses in the north/northwest area of the site. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Landfill previously located on-site is a potential source of ground gas. Made Ground and infilled ground are anticipated to be present on the site, which may also be a source of ground gas however the landfill previously located on-site is considered to be the main potential source of ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. However, welfare cabins are likely to have a void between the floor

				and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk. It is also assumed that after construction of the railway is completed, there will be no buildings on-site for the accumulation of gas.
Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Former buildings on-site which may have been demolished increase the likelihood of asbestos being present. Based on the potential presence of asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The majority of site is currently grassed with small areas of hardstanding and rough vegetation. During the site's use as a construction compound it is likely to comprise hardstanding or gravel which will break the direct exposure pathway. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service	Groundwater Controlled Waters – Bedrock secondary A aquifer Secondary A superficial aquifer Secondary (Undifferentiated) superficial aquifer)	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer and for the superficial aquifers If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from

	pipes/trenches, piled foundations.				precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to surface waters. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Bridge End Foundry; Wright Mill; Cotton Mills; Unspecified tanks; Bankside Iron works; Electricity substations; Gas works; and	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	Human Health – On-site: Construction workers Property – Compound related facilities Overbridge	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential

Sandstone quarries. Current features surrounding the site including: Industrial products;				for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
Electricity substations; and Auto repairs and servicing. Historical landfill: Woodend Mills; Midge Hill; Mossley Holder Station; Quick Edge Quarry; Pollution incidents:	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.	Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
Sewage materials; Inert materials and wastes *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	Low	Medium	**Moderate/low risk** Historical landfills are located around the site which could be a potential source of ground gas. No coal seams are found around the site. There have been two pollution incidents involving sewage materials and inert materials and waste around the site, the nearest of which occurred 22 m north-east.

11.13 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If

risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

12. BASELINE FOR ARMIT ROAD SITE COMPOUND

12.1 Site history

Table 12-1 provides a summary of the historical development at the Armit Rd site and the surrounding 250 m buffer area. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[20].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 12-1 – Armit Road site compound - Historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Cuttings	1891-1938	0 m	on-site
Sewage Works	1904-1956	0 m	on-site
Lower Grove Mill (Cotton) Lists dyeing and bleaching from 1922	1854-1938	0 m	on-site
Unspecified Quarry	1891-1992	1 m	north-west
Chimney	1970-1992	4 m	north-east
Tanks	1933-1938	51 m	south-west
Unspecified Heap	1891-1970	56 m	north-west
Unspecified Tanks	1938	58 m	south-west
Bricks Works	1891	65 m	east
Old Sandstone Quarry	1854-1938	74 m	south-west
High Grove Mill (cotton)	1854-1938	78 m	north-east
Unspecified Heap	1918-1956	93 m	north-west
Cuttings	1906-1918	108 m	north-east
Railway Sidings	1891-1970	108 m	north-east
Unspecified Tank	1906-1933	118 m	south-west
Unspecified Tank	1918-1923	122 m	north-east

[20] Groundsure, 2025. Enviro + Geo Insight (GS-LHE-639-WE6-VAS)

Feature	Date	Distance from site boundary	Direction from site boundary
Settling tanks	1909-1954	124 m	south-west
High Grove Works (soap and detergents)	1956-1982	125 m	north-east
Refuse Heap	1918-1923	129 m	south
Cuttings	1854-1992	136 m	north
Cuttings	1906	137 m	south-west
Royal Geroge Mills	1854-1992	144 m	east
Railway Station	1918-1938	154 m	north-east
Sewage Tank	1955-1978	154 m	east
Cuttings	1854-1992	168 m	north-west
Cuttings	1854-1992	181 m	south-west
Cotton Mill	1854-1956	187 m	south-west
Unspecified Ground Workings	1906-1918	197 m	south-west
Unspecified Ground Workings	1930	210 m	north-east
Unspecified Tank	1906-1978	219 m	east
Tunnel	1854-1891	229 m	north-west
Electricity Substation	1978-1990	239 m	north-west
Refuse Heap	1930-1938	239 m	south
Gravel Pit	1918	240 m	south
Electricity Substation	1954	243 m	south-west
Tanks	1906-1978	243 m	east

12.2 Previous ground investigations

Description of investigation

An intrusive ground investigation was undertaken by Structural Soils Ltd. in March 2018[20] around the existing bridge structures, MVL3/25, MVL3/26 and viaduct MVL3/31, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Two of the locations are within 250 m of the site and have been summarised in Table 12-2 and the investigation locations are displayed in Figure 12-1.

Table 12-2 - Armit Road site compound - Summary of 2018 investigation

Item	No. undertaken
Number of boreholes	None
Number of trial pits	Two
PID* testing undertaken	None
Number of soil samples tested	None
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None
* photo-ionisation detector	

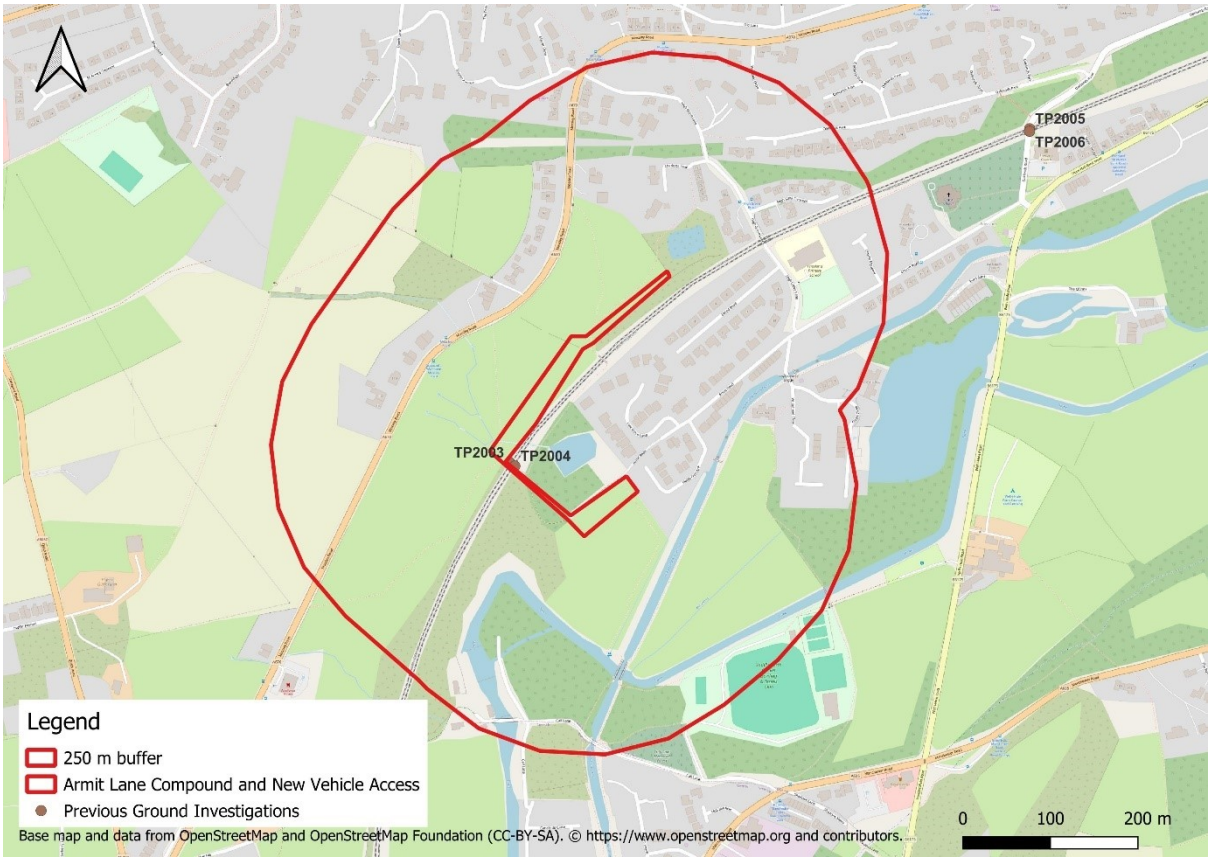

Figure 12-1 - Armit Road site compound - Summary of investigations

Ground conditions

Table 12-3 summarises the ground conditions encountered during the ground investigation.

Table 12-3 - Armit Road site compound - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Dark grey slightly sandy angular to subangular fine to coarse gravel of granite >25 mm (Clean ballast) Dark grey slightly sandy gravel. Gravel is very angular to subangular fine to coarse of granite >25 mm (Clean ballast) Dark greyish black very gravelly sand. Gravel is subangular to subrounded fine to coarse of ash and granite (Very dirty ballast)	0.17-0.21 (start of borehole below rail line).	0.47-0.76
Clay	Greyish brown slightly gravelly sandy clay. Gravel is angular to subangular fine to medium of sandstone.	0.47	0.82

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs. However, a summary of the observed anthropogenic material is displayed in Table 12-4.

Table 12-4 - Armit Road site compound - Summary of anthropogenic materials observed within the logs

Exploratory Hole	Depth (m)	Comment	Strata
TP2004	0.61 – 0.76	Ash inclusions	Made Ground

12.3 Published geology

A summary of the published geology relevant to the Armit Road Site Compound and vehicle access site is provided below. The data has been sourced by Groundsure[21] and British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is recorded on-site. Made Ground is also recorded within 250 m of the site. Made Ground may be associated with sewage works, mills, tanks and electricity substations.

Superficial deposits

The 1:10,000 scale published geology maps indicate that Alluvium is recorded on-site underlying the south of the site. Head deposits are recorded 219 m north-west, and Devensian Till is recorded 224 m south of the site.

Bedrock

The 1:10,000 scale published geology maps indicates that the Hebden Formations is recorded underlying the northern boundary of the site. Upper Kinderscout Grit is recorded underlying the remainder of the site. There are three other bedrock geology designations within 250 of the site. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 12-5. Figure 12-2 presents bedrock formations up to 250 m from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 12-5 - Armit Road site compound - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional details
Hebden Formation	0 m 247 m	on-site south-west	Mudstone and siltstone
Upper Kinderscout Grit	0 m 14 m 247 m	on-site north-west south-west	Sandstone
Marsden Formation	153 m 175 m	north-west north	Mudstone and siltstone
Fletcher Bank Grit	244 m	north-west	Sandstone

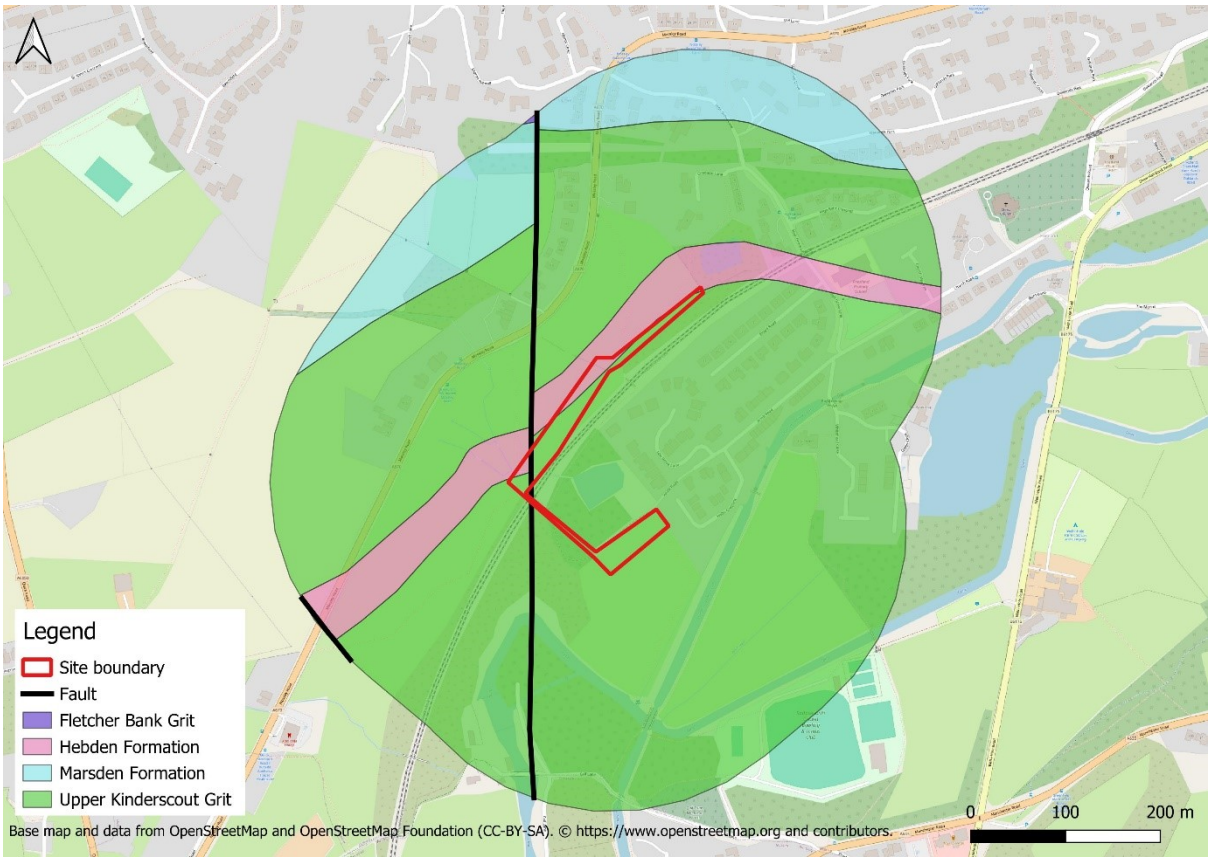

Figure 12-2 - Armit Road site compound - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there is one bedrock fault on-site. There is one other bedrock fault within 250 m of the site, located 247 m south-west. Faults are visible in Figure 12-2.

12.4 Hydrogeology

Superficial aquifers

The data from Groundsure[21] indicates that there is a secondary A superficial aquifer in the south of the site. There is a secondary (Undifferentiated) aquifer recorded in the north of the site.

Secondary A aquifers are defined by the Environment Agency as “permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.”

Secondary (Undifferentiated) aquifers are defined as “where it is not possible to attribute either category A or B to a rock type. In general, these layers

have previously been designed as both minor and non-aquifer in different locations due to the variable characteristics of the rock type."

Bedrock aquifers

The data from Groundsure[21] indicates that the secondary A aquifer underlies the entire site and surrounding area.

Groundwater vulnerability

Groundsure[21] indicates that the groundwater vulnerability is high for bedrock aquifer and the superficial aquifers. A high classification is assigned to areas which are "*able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits."*

Groundwater source protection zones

The data from Groundsure[21] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[21] indicates that there are no groundwater abstractions within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[21] indicates there are no licensed discharges to groundwater features on-site or within 250 m of the site.

12.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[21] as an unnamed watercourse and is located on the site. A summary of all surface watercourses (rivers, lakes, canals and coastal and transitional waters) within 250 m of the site has been provided in Table 12-6.

Table 12-6 - Armit Road site compound - Surface watercourses

Name of watercourse	Type	Distance from site boundary	Direction from site boundary	WFD overall classification
Unnamed watercourse	On ground surface level	0 m	on-site	-
Unnamed pond	-	13 m	north-east	

Name of watercourse	Type	Distance from site boundary	Direction from site boundary	WFD overall classification
Unnamed pond	Man-made fishing pond	29 m	south-east	-
Unnamed watercourse	On ground surface level	32 m	north-east	-
Huddersfield Narrow Canal west section	Canal	68 m	south-east	Moderate
Tame (Chew Brook to Swineshaw Brook)	River	98 m	south-west	Moderate
Mill Stream	On ground surface level	142 m	south-east	-

Surface water abstractions

The data from Groundsure[21] indicates there are no licensed discharges to groundwater features on-site or within 250 m of the site.

Surface water discharge consents

The data from Groundsure[21] indicates there are no licensed discharge to surface water features on-site. There are five licensed discharge to surface water features within 250 m of the site. A summary of surface water discharge consents is provided in Table 12-7. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 12-7 - Armit Road site compound - Surface water discharge consents

Permit number	Address	Receiving water	Distance from site boundary	Direction from site boundary	Effective date
016950639	Armit Rd (Grasscroft CSO PS), Armit Road, Greenfield, Oldham, Greater Manchester, OL37LW	River Tame	44 m	south-west	01/04/1991
01OLD0060	Armit Road SSO, Oldham,	River Tame	51 m	south-west	15/09/1993

Permit number	Address	Receiving water	Distance from site boundary	Direction from site boundary	Effective date
	Greater Manchester				
016950639	Armit Rd (Grasscroft CSOPS), Armit Road, Greenfield, Oldham, Greater Manchester, OL37LW	River Tame	84 m	south-west	27/08/2021
01OLD0083	Royal George PS, Oldham, Greater Manchester	-	103 m	south-west	01/04/1991
		-	103 m	south-west	01/01/1995

Surface water abstractions

The data from Groundsure[21] indicates there are no surface water abstractions within 250 m of the site.

12.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[21] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

12.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[21] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 12-8.

Table 12-8 - Armit Road site compound - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.

Category	Summary
Coal Mining Areas	The site is located within a coal mining area.
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral. There are no other non-coal mining areas within 250 m of the site.
British Pits (active or closed surface and underground mineral workings)	There are no brit pits on-site or within 250 m of the site.
Surface Ground Workings	There are two surface ground workings features on-site. There are 32 other surface ground workings features within 250 m of the site. Details are provided in Table 12-9.
Underground Workings	There are no underground workings on-site. There is one other underground workings within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 12-9 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 12-9 - Armit Road site compound - Surface ground workings

Name	Distance from site boundary	Direction from site boundary	Date
Cuttings	0 m	on-site	1904-1938
Sewage works	0 m	on-site	1923-1938
Cuttings	1 m	south-east	1891-1918
Unspecified quarry	2 m	north-west	1904-1938
Pond	3 m	north-east	1891-1970
Pond	14 m	north	1854-1970
Unspecified pit	18 m	north-west	1904-1938
Reservoir	19 m	north	1891-1992
Unspecified pit	20 m	north-west	1906-1992

Name	Distance from site boundary	Direction from site boundary	Date
Reservoir	21 m	north-east	1904-1992
Canal	55 m	south-east	1891-1992
Unspecified heap	56 m	north-west	1891
Bricks works	65 m	east	1891
Unspecified heap	73 m	north-west	1923-1970
Old sandstone quarry	74 m	south-west	1854-1938
Unspecified heap	78 m	north	1904-1956
Sewage works	100 m	south-west	1904-1956
Cuttings	108 m	north-east	1906-1918
Refuse heap	129 m	south	1918-1923
Cuttings	136 m	north	1854-1956
Cuttings	137 m	south-west	1906
Cuttings	168 m	north-west	1891-1992
Cuttings	181 m	south-west	1854-1923
Pond	194 m	south-west	1891-1956
Cuttings	197 m	south-west	1956-1992
Unspecified ground workings	197 m	south-west	1906-1918
Cuttings	202 m	south-west	1904-1938
Unspecified ground workings	210 m	north-east	1930
Pond	215 m	east	1854
Tunnel	229 m	north-west	1891
Refuse heap	239 m	south	1930-1938
Gravel pit	240 m	south	1918
Water body	242 m	east	1891
Reservoir	249 m	east	1904-1938

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[21] records landfills/waste management facilities within 250 m of the site. One historical landfill is recorded within 250 m of the

site, located 66 m north-west. However no additional details have been provided by Groundsure.

12.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

12.9 Sensitive land uses

The data from Groundsure[21] indicates there are no sensitive land uses, including sites of special scientific interest (SSSIs), Ramsar or areas of conservation within 250 m of the site. The site is located within a SSSI impact zone.

12.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There is one pollution incident reported by Groundsure[21] within 250 m of the site and a summary has been provided in Table 12-10.

Table 12-10 - Armit Road site compound - Pollution incidents

Type	Distance from site boundary	Direction from site boundary	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Oils and fuel	242 m	east	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	24/03/2001

Pollution prevention and controls

The data from Groundsure[21] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[21] indicates there is one Control of Major Accident Hazard (COMAH) site/planning hazardous substance consents within 250 m of the site. There is a non-active list 1 dangerous substance (mercury and cadmium) recorded 104 m north-east.

Radioactive substances

The data from Groundsure[21] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[21] indicates there are no recent industrial land uses on-site. There are six recent industrial land uses within 250 m of the site. A summary has been provided in Table 12-11.

Table 12-11 - Armit Road site compound - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Chimney	Industrial features	Chimneys	8 m	north-east
Pump house	Industrial features	Water pumping stations	118 m	south-west
Electricity substation	Infrastructure and facilities	Electrical features	192 m	south-east
Gas governor station	Infrastructure and facilities	Gas features	195 m	south-east
Electricity substation	Infrastructure and facilities	Electrical features	244 m	north-west
Sewage pumping station	Infrastructure and facilities	Waste storage, processing and disposal	248 m	east

Active and current petrol stations

There are no active or current petrol stations recorded within 250 m of the site, as indicated by Groundsure[21].

Contaminated land designations

According to Groundsure[21], there are no sites designated as contaminated land on-site or within 250 m of the site under Part 2A of the Environmental Protection Act 1990.

12.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or

discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of the existing site and future use of the site as a construction compound. It is assumed that the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical developments on the site including:
        - Sewage works; and
        - Lower Grove cotton mill.
- Off-site:
    - Historical developments surrounding the site including:
        - Unspecified/sandstone quarries;
        - Tanks;
        - Brick works;
        - High Grove cotton mill;
        - High Grove works;
        - Refuse heap;
        - Royal George Mills;
        - Railway station; and
        - Electricity substations.

- Current features surrounding the site including:
  - Water pumping station;
  - Electricity substation;
  - Gas governor station; and
  - Sewage pumping station.
- Historical landfill:
  - Unknown landfill [66 m north-west]
- Pollution incident:
  - Oils and fuels [242 m east].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future users of the site.
  - Off-site:

        - Resident and occupiers of commercial/industrial premises; and
        - Users of public open spaces.
    - Controlled Waters
        - Groundwater:
            - Secondary A superficial aquifer;
            - Secondary (Undifferentiated) superficial aquifer; and
            - Secondary A bedrock aquifer.
        - Surface water:
            - On-site: Unnamed watercourse;
            - Off-site: Ponds, unnamed watercourse, Huddersfield Narrow Canal west section, River Tame, Mill Stream.
    - Property and Services:
        - On-site: construction compound buildings (offices, welfare, canteen, stores, etc.); and
        - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - ingestion of contaminated soils, soil-derived dust and groundwater;
    - dermal contact with soil, soil-derived dust and groundwater; and

- inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.

- Controlled Waters
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that all personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 12-12 - Armit Road site compound - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Historical developments on the site including: Sewage works; and Lower Grove cotton mill. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust. Inhalation of vapours Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	On-site: <u>Human Health</u> – Construction workers Future users of the site. <u>Property –</u> Compound related facilities. Overbridge Off-site: <u>Human Health -</u> Residents and occupiers of commercial/ industrial premises, users of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties.	Low Low	Medium Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. The site is currently predominantly grazing pasture, and the land use is unlikely to be altered following the construction of the, therefore it is unlikely will come into contact with contaminants in areas of the site. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Residential properties are present to the north of the site; therefore dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks. **Moderate/low risk** Made Ground and infilled ground are anticipated to be present on the site, which may be a source of ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. However, welfare cabins are likely to have a void between the floor and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk. It is also assumed that after construction of the railway is completed, there will be no buildings on-site for the accumulation of gas.

	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Former buildings on-site which may have been demolished increase the likelihood of asbestos being present. Based on the potential presence of asbestos in made ground, which is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The site is currently grassed with rough vegetation. During the site's use as a construction compound it is likely to comprise hardstanding or gravel which will break the direct exposure pathway. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer Superficial secondary A aquifer Superficial secondary (Undifferentiated) aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer and for the superficial aquifers. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration	Surface Water Controlled Waters –	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to surface waters.

	Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Unnamed watercourses Huddersfield Narrow Canal west section River Tame Mill Stream			Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the south-east, towards the River Tame. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Unspecified/sandstone quarries; Tanks; Brick works; High Grove cotton mill; High Grove works; Refuse heap; Royal George Mills; Railway station; and Electricity substations. Current features surrounding the site including:	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	<u>Human Health</u> – On-site: <u>Human Health</u> – Construction workers <u>Property –</u> Compound related facilities. Overbridge	Unlikely	Medium	**Low risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE, and a safety risk assessment will be conducted.
	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.

Water pumping station; Electricity substation; Gas governor station; and Sewage pumping station. Historical landfill: Unknown landfill [66 m north-west]	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site.
Pollution incidents: Oils and fuels [242 m east] Possible contaminants include: *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** One historical landfill is located close to the site, which could be a source of ground gas able to migrate to the site. No coal seams are found around the site. There is one pollution incident, located 242 m east of the site, which based on the distance from the site is unlikely to pose a risk.

12.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If

risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

13. BASELINE FOR OAKLANDS ROAD SITE COMPOUND AND GREENFIELD SITE COMPOUND, INCLUDING BRIDGE WORKS (MVL3/27B AND MVL3/28)

This section covers the relevant baseline data for Royal George Overbridge Works MVL3/25, Oaklands Road Compound, Replacement Parking, Oldham Road Overbridge and New Footbridge Works MVL3/27, MVL 3/28 and Greenfield Compound.

13.1 Site history

Table 13-1 provides a summary of the historical development at the sites and the surrounding 250 m buffer areas which may represent potential sources of contamination. The history of the sites and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[21].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 13-1 - Oaklands road site compound and greenfield site compound, including bridge works - Summary of the historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Cuttings	1891-1992	0 m	on-site
Railway Building	1891-1948	0 m	on-site
Railway Sidings	1891-1956	0 m	on-site
Railway Station	1891-1992	0 m	on-site
Unspecified Wharf	1854	0 m	on-site
Electricity Substation	1951- 1990	6 m	south-west
Unspecified Ground Workings	1930	13 m	north-west
Frenches Dye Works	1929-1956	15 m	east
Unspecified Tank	1906-1909	15 m	north-west
Bricks Works	1891-1970	16 m	south-east

[21] Groundsure 2024. Enviro + Geo Insight (GS-LQI-WSM-6RZ-384)

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified Tank	1904-1951	16 m	north-west
Railway Sidings	1891-1956	22 m	north-west
Unspecified Quarry	1891-1982	26 m	north
Unspecified Wharf	1923-1938	29 m	south
Railway Building	1904-1948	31 m	north
Unspecified Pit	1891	35 m	north
Urban District Council Sewage Works	1929-1948	37 m	east
Unspecified Tank	1952-1957	45 m	south-east
Wellington Mill	1891-1992	65 m	south-east
Unspecified Tank	1906-1952	69 m	east
Railway Sidings	1891-1970	84 m	west
Unspecified Works	1904-1948	89 m	east
Unspecified Tank	1951-1990	90 m	north-west
Railway Building	1891	94 m	west
Unspecified Tanks	1904-1958	94 m	north-east
Garage	1978-1990	98 m	north-west
Sewage Works	1906-1992	98 m	south-east
Cuttings	1906-1918	104 m	west
Unspecified Pit	1933-1938	118 m	north-west
Digestion Tank	1951-1992	132 m	south-east
Unspecified Pits	1938	145 m	east
Sewage Works	1906- 1992	148 m	south
Refuse Heap	1956	152 m	south
Unspecified Mill	1891-1938	160 m	west
Electricity Substation	1978-1999	164 m	south-east
Unspecified Mills	1938-1992	168 m	south-east
Unspecified Works	1956-1982	173 m	west
Cuttings	1904	174 m	east
Unspecified Tank	1952	179 m	south-east
Urban District Council Sewage Works	1929	179 m	south-east
Unspecified Works	1904-1948	193 m	south

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified Ground Workings	1904-1982	197 m	south-east
Unspecified Disused Quarry	1977-1989	204 m	north-west
Unspecified Heaps	1956-1970	206 m	south-east
Sludge Tanks	1982-1999	211 m	south-east
Unspecified Ground Workings	1970-1992	216 m	south-east
Refuse Heap	1956	217 m	south-east
Garage	1991-1999	221 m	south-east
Unspecified Ground Workings	1891	221 m	west
Unspecified Ground Workings	1929-1982	224 m	south-east
Unspecified Tank	1952	232 m	south-east
Unspecified Quarry	1929-1989	237 m	north
Settling Tanks	1982-1999	241 m	south-east
Unspecified Heaps	1929-1982	242 m	south

13.2 Previous ground investigations

Description of investigation

An intrusive ground investigation was undertaken by Structural Soils Ltd. In March 2018[20] around the existing bridge structures, MVL3/25, MVL3/26 and viaduct MVL3/31, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Four of the locations are within 250 m of the site and have been summarised in Table 13-2 and the investigation locations are displayed in Figure 13-1.

Table 13-2 - Oaklands road site compound and greenfield site compound, including bridge works - Summary of investigation

Item	No. undertaken
Number of boreholes	None
Number of trial pits	Four
PID* testing undertaken	None
Number of soil samples tested	None

Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None

* photo-ionisation detector

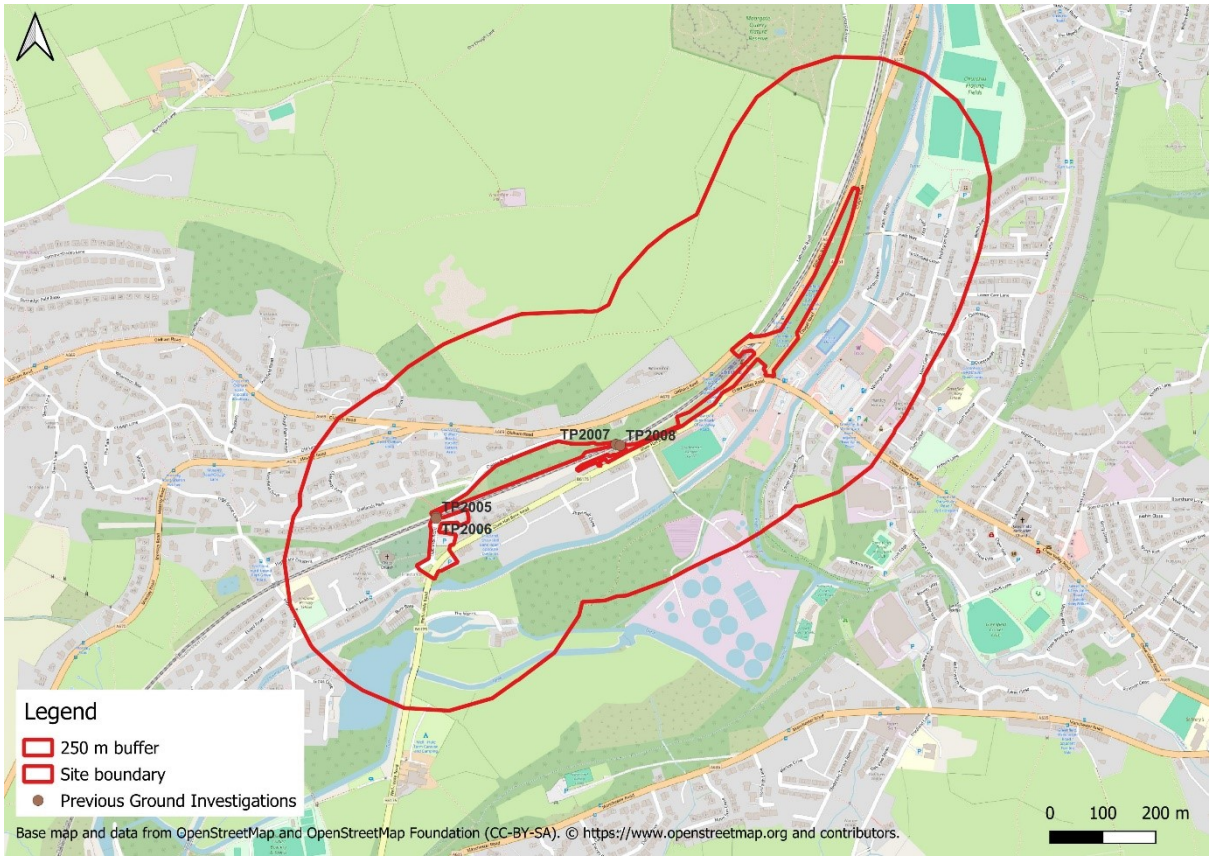

Figure 13-1 - Previous ground investigations

Summary of ground conditions

Table 13-3 summarises the ground conditions encountered during the ground investigation.

Table 13-3 - Oaklands road site compound and greenfield site compound, including bridge works - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Dark greyish black very gravelly sand. Gravel of ash and ballast. (Very dirty ballast). Dark grey slightly sandy gravel. Gravel of granite. (Clean ballast) Dark greyish black very sandy gravel. Gravel of ash and granite. (Dirty ballast) Dark greyish black very gravelly sand. Gravel of ash and granite. (Very dirty ballast). Dark grey slightly sandy gravel. Gravel of granite (Ballast) Dark greyish black very sandy gravel. Gravel of ash and granite. (Dirty ballast) Dark greyish black very gravelly sand. Gravel of granite and ash. (Very dirty ballast)	0.12 - 0.19 (start of borehole below rail line)	0.54 – 0.73
Sandstone	Sandstone Bridge Deck	0.72 - 0.73	0.74

Groundwater was encountered in TP2005 and TP2006 at a depth of 0.25 m bgl. A slight hydrocarbon odour was noted in TP2005 at a depth of 0.30 m bgl, and a strong hydrocarbon odour was noted in TP2006 at the same depth.

A summary of the observed anthropogenic materials is displayed in Table 13-4.

Table 13-4 - Oaklands road site compound and greenfield site compound, including bridge works - Summary of anthropogenic materials observed

Exploratory Hole	Depth (m)	Comment	Strata
TP2005	0.19 – 0.54	Ash inclusions	Made Ground
TP2006	0.20 – 0.55		
TP2007	0.49 – 0.73		
TP2008	0.47 – 0.72		

13.3 Published geology

A summary of the published geology relevant to the Oaklands Road Site Compound and Greenfield Site Compound, including bridge works (MVL3/27B and MVL3/28) is provided below. The data has been sourced from Groundsure[22] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is mapped as being present on-site. Made Ground may be associated with historical development including railway buildings, sidings, and stations, unspecified ground workings, unspecified tanks and unspecified mills.

Superficial deposits

The 1:50,000 scale published geology maps indicate that Alluvium is recorded in the south-east of the site. Alluvium is also recorded off-site to the south-east. Devensian Till is recorded 150 m east.

Bedrock

The 1:10,000 scale published geology indicates there are three bedrock geology designations on-site. There are five other bedrock geology designations within 250 m of the site.

A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 13-5. Figure 13-2 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 13-5 - Oaklands road site compound and greenfield site compound, including bridge works - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional Details
Hebden Formation	0 m 26 m 78 m	on-site east south	Mudstone and siltstone
Lower Kinderscout Grit	0 m	on-site	Sandstone
Marsden Formation	0 m 191 m	on-site north-west	Mudstone and siltstone
Upper Kinderscout Grit	0 m 104 m 246 m	on-site south south-east	Sandstone
Fletcher Bank Grit	60 m 224 m	north-west north-west	Sandstone
Shale Grit	74 m	south-east	Sandstone

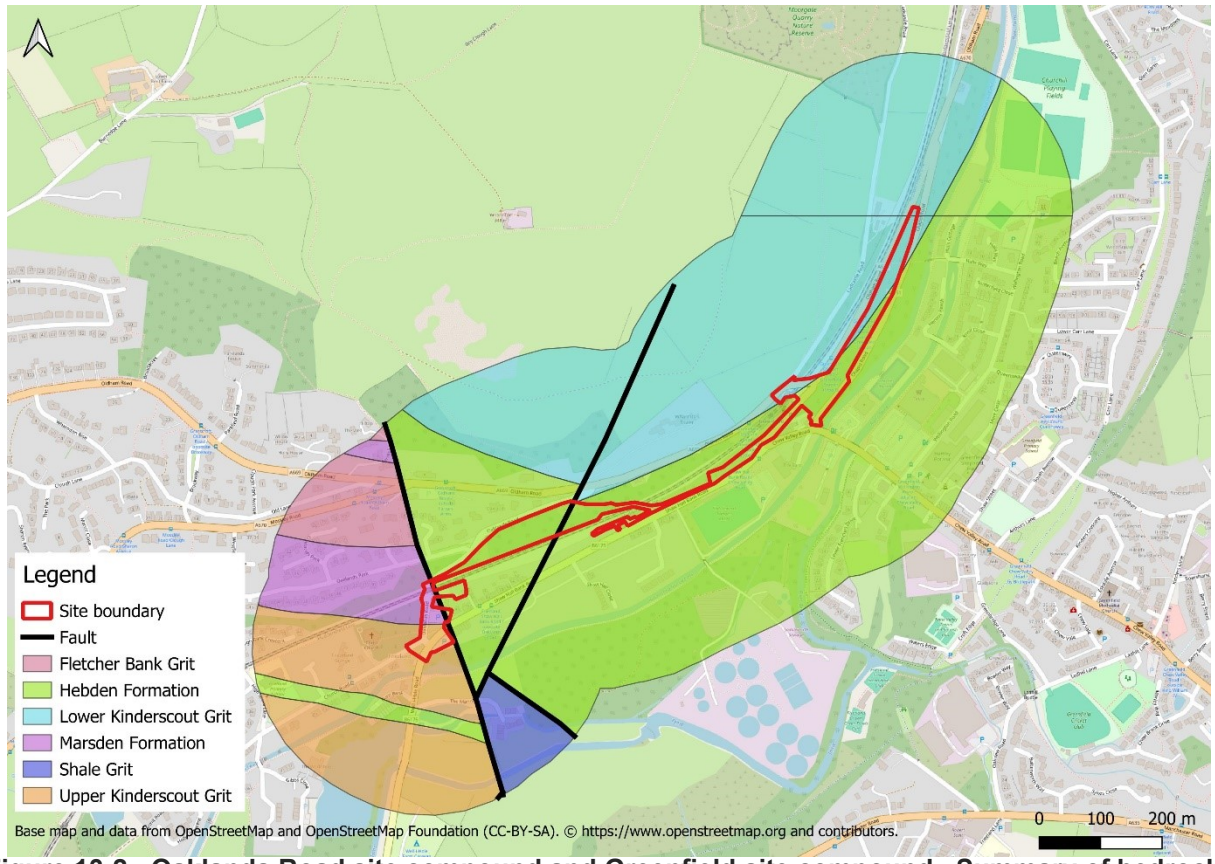

Figure 13-2 - Oaklands Road site compound and Greenfield site compound, Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there is two bedrock fault on the site. There are two other bedrock faults within 250 m of the site. A summary is provided in Table 13-6. Faults are visible in Figure 13-2.

Table 13-6 - Oaklands road site compound and greenfield site compound, including bridge works - Summary of bedrock faults

Category	Description	Distance from the site boundary	Direction from the site boundary
Fault	Normal fault, inferred	0 m	on-site
Fault	Normal fault, inferred	0 m	on-site
Fault	Normal fault, inferred	74 m	south-east
Fault	Normal fault, inferred	246 m	south-east

13.4 Hydrogeology

Superficial aquifers

The data from Groundsure[22] indicates that there is a secondary (Undifferentiated) superficial aquifer located on-site. This classification is assigned by the Environmental Agency when *"it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type"*.

There is also a secondary A aquifer located 4 m east of the site. The Environment Agency describes a secondary A aquifer as "Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers."

Bedrock aquifers

The data from Groundsure[22] indicates the presence of a secondary A bedrock aquifer underlying the site and surrounding area.

Groundwater vulnerability

Groundsure[22] data indicates that the groundwater vulnerability ranges from low to high for the superficial aquifer, and medium to high for the bedrock aquifer vulnerability.

High groundwater vulnerability is assigned to "areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits."

Medium groundwater vulnerability is as an "intermediate between high and low vulnerability".

Low groundwater vulnerability is assigned to "areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability".

Groundwater source protection zones

The data from Groundsure[22] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[22] indicates that there are no groundwater abstraction licenses on or within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[22] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

13.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[22] as the Huddersfield Narrow Canal west section and is located 8 m south-east of the site. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 13-7. There are nine surface water features within 250 m of the site.

Table 13-7 - Oaklands road site compound and greenfield site compound, including bridge works - Surface watercourses

Name of watercourse	Type	Distance from site	Direction from site	WFD overall classification
Huddersfield Narrow Canal west section	Canal	7 m	south-east	Moderate
Tame (Source to Chew Brook)	River	57 m	south-east	Moderate
Unnamed watercourse	Lake, loch or reservoir	87 m	south	-
Unnamed watercourse	On ground surface watercourse	110 m	west	-
Unnamed watercourse	On ground surface watercourse	137 m	south-east	-
Unnamed watercourse	Lake, loch or reservoir	151 m	south-west	-
Unnamed watercourse	Underground	141 m	south-east	-

Surface water discharge consents

The data from Groundsure[22] indicates there are no licensed discharge to surface water features on-site. There are four surface water discharge consents within 250 m of the site. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 13-8 - Oaklands road site compound and greenfield site compound, including bridge works - Surface water discharge consents

Permit number	Address	Receiving water	Distance from site boundary	Direction from site boundary	Effective date
01OLD0141	Halls Cottage Ps, Greenfield, Greater Manchester	River Tame	74 m	east	01/01/1995
016982796	Halls Cottage Ps, Greenfield, Greater Manchester	River Tame	74 m	east	30/09/1994
01OLD0116	Mann SPS, Oldham, Greater Manchester	-	222 m	south-east	13/05/1993
0173/1911	Mann SPS, Greenfield, Near Saddleworth, Lancashire	River Tame	222 m	south-east	30/07/1993

Surface water abstractions

The data from Groundsure[22] indicates there is one historical surface water abstraction within 250 m of the site. This was located 199 m south-west of the site on the River Tame and related to general use from 22 May 1998, with no expiry date available from Groundsure.

13.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[22] indicates that the maximum radon potential on-site is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

13.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[22] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 13-9.

Table 13-9 - Oaklands road site compound and greenfield site compound, including bridge works - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal mining areas	The site is not located within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site. There is one other non-coal mining area within 250 m of the site. This is located 241 m south-east. Both non-coal mining areas are for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There are two other brit pits within 250 m of the site. Both are surface mineral working, used for sandstone, however at date of entry, have ceased to extract minerals. They are located 63 m north and 82 m north.
Surface ground workings	There are two surface ground workings features on-site. There are 27 other surface ground workings features within 250 m of the site. Details are provided in Table 13-10 below.
Underground workings	There are no underground workings on-site or within 250 m of the site.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 13-10 provides further detail on the surface ground workings and the relative distance and direction from the site boundary.

Table 13-10 - Oaklands road site compound and greenfield site compound, including bridge works - Surface ground workings

Name	Distance from site boundary	Direction from site boundary	Date
Cuttings	0 m	on-site	1891-1948
Unspecified Wharf	0 m	on-site	1854
Canal	2 m	east	1891-1992
Cuttings	5 m	north	1970-1992
Unspecified Ground Workings	13 m	north-west	1930
Bricks Works	16 m	south-east	1891
Pond	22 m	south-east	1956
Unspecified Disused Quarry	25 m	north	1891-1948
Shaw Hall Bank Quarry	29 m	north	1891-1982
Unspecified Wharf	29 m	south	1923-1938
Pond	30 m	south-east	1891-1904
Canal	59 m	south	1891-1938
Sewage Works	69 m	east	1938-1948
Pond	70 m	south	1854-1992
Sewage Works	98 m	south-east	1938-1948
Reservoir	103 m	south	1891-1938
Cuttings	104 m	west	1906-1918
Unspecified Pit	118 m	north-west	1933-1938
Sewage Works	120 m	south-east	1982-1992
Unspecified Pits	145 m	east	1938
Sewage Works	148 m	south	1906
Refuse Heap	152 m	south	1956
Cuttings	174 m	east	1904
Sewage Works	186 m	south-east	1938-1970
Unspecified Ground Workings	197 m	south-east	1904-1948
Unspecified Disused Quarry	204 m	north-west	1956-1977

Name	Distance from site boundary	Direction from site boundary	Date
Refuse Heaps	206 m	south-east	1956-1992
Unspecified Ground Workings	221 m	west	1891
Unspecified Quarry	237 m	north	1929-1967

The Mining Remediation Authority[6] viewer indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[22] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 13-11, however no licence details have been provided by Groundsure.

Table 13-11 - Oaklands road site compound and greenfield site compound, including bridge works - Landfill and waste summary

Category	Site name or address	Description of waste	Distance from site	Direction from site
Historical landfill	Land at Shaw Hall Bank	-	21 m	south-east
Historical landfill	Land at Frenches Dye Works	-	35 m	south-east
Waste exemptions	-	Disposal by incineration	0 m	on-site
Waste exemptions	-	Use of waste in construction	76 m	south-east
Waste exemptions	-	Use of waste in construction	81 m	south-east
Waste exemptions	-	Various wastes including: Manual treatment of waste Storage of waste in secure containers Sorting mixed waste Use of waste in construction	219 m	south-east

13.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

13.9 Sensitive land uses

The data from Groundsure[22] indicates there are no sensitive land uses within 250 m of the site. The site is located within a SSSI impact zone. There are no SSSIs, Ramsar or areas of conservation within 250 m of the site.

13.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are two pollution incidents reported by Groundsure[22] within 250 m of the site and a summary has been provided in Table 13-12.

Table 13-12 - Oaklands road site compound and greenfield site compound, including bridge works - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Oils and fuel	140 m	west	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	24/03/2001
General biodegradable materials and wastes	246 m	south-east	Category 4 (No Impact)	Category 3 (Minor)	Category 4 (No Impact)	11/02/2003

Pollution prevention and controls

The data from Groundsure[22] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[22] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[22] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[22] indicates there are no recent industrial land use on-site. There are 25 recent industrial land uses within 250m of the site. A summary has been provided in Table 13-13.

Table 13-13 - Oaklands road site compound and greenfield site compound, including bridge works - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Greenfield Rail Station	Public Transport, Stations and Infrastructure	Railway Stations, Junctions and Halts	5 m	north-west
Electricity Substation	Infrastructure and Facilities	Electrical Features	15 m	south-west
Electricity Substation	Infrastructure and Facilities	Electrical Features	35 m	east
Marina	Water	Moorings and Unloading Facilities	55 m	south-east
Mann's Wharf Bridge	Water	Moorings and Unloading Facilities	57 m	south-east
Mast (Telecommunication)	Infrastructure and Facilities	Telecommunications Features	62 m	south-east
Marina View	Water	Moorings and Unloading Facilities	70 m	south-east
Tank	Industrial Features	Tanks (Generic)	83 m	north-west
Gas Valve Compound	Infrastructure and Facilities	Gas Features	100 m	north-east
Hidden Hearing	Consumer Products	Disability and Mobility Equipment	139 m	north-west
Electricity Substation	Infrastructure and Facilities	Electrical Features	142 m	south-east

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Pump House	Industrial Features	Water Pumping Stations	145 m	south-east
Generator Services	Repair and Servicing	Vehicle Repair, Testing and Servicing	152 m	east
Peniron Metalwork & Fabrication	Construction Services	Metalworkers Including Blacksmiths	163 m	south-east
Electricity Substation	Infrastructure and Facilities	Electrical Features	183 m	north-west
Electricity Substation	Infrastructure and Facilities	Electrical Features	184 m	south-east
Hartley Botanic	Industrial Products	Horticultural Equipment	194 m	south-east
Avanti	Transport, Storage and Delivery	Distribution and Haulage	200 m	south-east
The Standring Brothers	Industrial Products	Rubber, Silicones and Plastics	200 m	east
The Windmill Special Needs Co Ltd	Consumer Products	Baby, Nursery and Playground Equipment	201 m	south-east
Range Valley Engineering Ltd	Engineering Services	Industrial Engineers	212 m	south-east
Bryn Hilton Motor Engineering	Repair and Servicing	Vehicle Repair, Testing and Servicing	233 m	south-east
Sewage Works	Infrastructure and Facilities	Waste Storage, Processing and Disposal	240 m	south-east
Electricity Substation	Infrastructure and Facilities	Electrical Features	243 m	south-east
Works	Industrial Features	Unspecified Works Or Factories	244 m	south-east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[22].

Contaminated land designations

According to Groundsure[22], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250m of the site.

13.11 Site area reconnaissance

A site area walkover was undertaken on 22 August 2024 by an AtkinsRéalis Environmental Consultant. The walkover was conducted before Order Scheme boundary finalisation. A summary of the observations made during the visit is provided as follows.

Table 13-14 – Oaklands road site compound and greenfield site compound, including bridge works - Site walkover record

Item	Description
Location	The site comprises three main areas: Saddleworth Rangers car park, the area of site in the east around the existing Greenfield Station and the area of land to the west off Oaklands Road. Pedestrian access to Saddleworth Rangers car park can be gained via steps from Shaw Hall Bank Road. Vehicular access to the car park is via a track which runs off Shaw Hall Bank Road to the west of the sports pitch.
Description of current use/ activities	Saddleworth Rangers car park was not accessed during the walkover however photographs were taken of the area from Shaw Hall Bank Road. The eastern area of site is situated around the existing Greenfield Station. Part of the site is located off Shaw Hall Bank Road at the junction with Chew Valley Road and is accessed via double metal gates. Land adjacent north is situated at a higher level to site and Shaw Hall Bank Road to the south is situated at a lower level. At the time of the site walkover, several items were being stored on the site including plastic barriers, plastic pipes, bags of Postcrete/sand and plastic crates. A mound of branches and vegetation was situated in the western part of the site. Greenfield Station and the embankment to the north of the railway were not accessed during the site walkovers however photographs were taken from Shaw Hall Bank Road and Oldham Road. Greenfield Station is located adjacent to Shaw Hall Bank Road and a small car parking area is present between the station and the pavement. The majority of the site area to the west off Oaklands Road is vegetated except for an area in the west of the site which was being used as a storage area at the time of the site walkover. The storage area can be accessed via double metal gates off Oaklands Road. At the time of the site walkover, several items were stored on the site including bulk bags of gravel, plastic barriers, plastic blocks, plastic pipes, bags of post

Item	Description
	cement, a skip and several parts of machinery. Two stockpiles of soil/rubble were present at the time of the site walkover. The remainder of the area of site to the west off Oaklands Road is vegetated (rough vegetation, trees, areas with Himalayan balsam). The site is situated at a lower level to the public right of way (PRoW).
Fuel/chemical storage	No evidence of fuel storage was observed.
Evidence of land contamination	A slight leakage of potential fuel/oil was identified in one location next to a hydraulic hose at the area of site to the west off Oaklands Road. No evidence of significant contamination was identified elsewhere.
Invasive Species	Himalayan balsam was identified in the area of site to the west off Oaklands Road.
Surface coverage	The ground surface of the area of site to the west off Oaklands Road comprises compact gravel and the area is relatively level. The ground surface of the eastern area around the existing Greenfield Station (located off Shaw Hall Bank Road at the junction with Chew Valley Road) comprises tarmacadam with grass growing through cracks and some areas of stone setts exposed.
Boundary Types	The area of site to the west off Oaklands Road is bound by Oaklands Road to the north/west, the railway to the south and a PRoW to the east. A stone wall runs between the remainder of the area to the west off Oaklands Road Oaklands Road. A PRoW runs adjacent to the eastern boundary of the site from Oaklands Road, through and underpass to Shaw Hall Bank Road. The area of site located off Shaw Hall Bank Road at the junction with Chew Valley Road slopes up to the south-west and is bound by a retaining wall to the north and to the south.
Surface Water Features	No surface water features were visible.

13.12 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the

source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and potential future use surrounding the bridge works and compound use to support works. It is assumed the Shaw Hall Bank compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical developments on the site including:
        - Railway buildings and sidings; and
        - Unspecified wharf.
- Off-site:
    - Historical developments surrounding the site including:
        - Electricity substations;
        - Frenches Dye Works;
        - Unspecified mills;
        - Tanks;
        - Brick works;
        - Quarries;
        - Sewage works;
        - Garages;
        - Digestion and sludge tanks;
        - Refuse heaps; and
        - Unspecified ground workings.

- Current industrial land uses surrounding the site:
  - Greenfield railway station;
  - Electricity substations;
  - Gas compound;
  - Water pumping station; and
  - Sewage works.
- Historical landfills:
  - 21 m south-east;
  - 35 m south-east.
- Pollution incidents:
  - Oils and fuels [140 m west]; and
  - General biodegradable materials and wastes [246 m south-east].

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAHs), benzene, toluene, ethylbenzene, xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and

        - Future users of the site.
    - Off-site:
        - Resident and occupiers of commercial/ industrial premises; and
        - Users of public open space areas.
- Controlled Waters:
    - Groundwater:
        - Bedrock secondary A aquifer;
        - Superficial secondary (Undifferentiated) aquifer [on-site]; and
        - Superficial secondary A aquifer [4 m east].
    - Surface Water:
        - Huddersfield Narrow Canal west section;
        - Unnamed watercourses; and
        - River Tame (Source to Chew Brook).

- Property and Services:
    - On-site:
        - Compound related facilities; and
        - Overbridge.
    - Off-site:
        - Commercial businesses; and
        - Residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health

  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.

- Controlled Waters
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the

construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 13-15 - Oaklands road site compound and Greenfield site compound, including bridge works - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Historical developments surrounding the site including: Railway buildings and sidings; Unspecified wharf. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust. Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	On-site: <u>Human Health</u> – Construction workers Future users of the site. <u>Property –</u> Compound related facilities Overbridge Off-site: <u>Human Health -</u> Residents and occupiers of commercial/ industrial premises, users of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties.	Low Low	Medium Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. During the site's use as a construction compound it is expected that the site surface will be predominately gravel cover or hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. It is also unlikely that significant excavation will take place on-site as it will be used for temporary welfare/offices and storage. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. However, there are businesses in the north/north-west area of the site. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks. **Moderate/low risk** Made Ground and infilled ground are anticipated to be present on the site, which may also be a source of ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. However, welfare cabins are likely to have a void between the floor

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk. It is also assumed that after construction of the railway is completed, there will be no buildings on-site for the accumulation of gas.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Former buildings on-site which may have been demolished increase the likelihood of asbestos being present. Based on the potential presence of asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. Where the site's use will be as a construction compound it is likely to comprise hardstanding or gravel which will break the direct exposure pathway. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing	Groundwater Controlled Waters – Bedrock secondary A aquifer Secondary A superficial aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer and for the superficial aquifers If significant Made Ground is present, there is potential for leaching of contaminants into

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Secondary (Undifferentiated) superficial aquifer)			groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section Unnamed watercourses	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to surface waters. Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Electricity substations; Frenches Dye Works; Unspecified mills;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	Human Health – On-site: Human Health – Construction workers Property – Compound related facilities Overbridge	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Tanks; Brick works; Quarries;					It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Sewage works; Garages; Digestion and sludge tanks; Refuse heaps; and Unspecified ground workings. Current industrial land uses	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
surrounding the site: Greenfield railway station; Electricity substations; Gas compound; Water pumping station; and Sewage works. Historical landfills:	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
21 m south-east; 35 m south-east. Pollution incidents: Oils and fuels [140 m west]; General biodegradable materials and wastes [246 m south-east].	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Historical landfills are located around the site which could be a potential source of ground gas. No coal seams are found around the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Possible contaminants include: *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*					

13.13 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the origination-site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of materials is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include the remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If

risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

14. BASELINE FOR OLDHAM ROAD ACCESS

14.1 Site history

Table 14-1 provides a summary of the historical development at the Oldham Rd site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[22].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 14-1 – Oldham Road access - Historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Urban District Council Sewage Works	1929-1948	73 m	east
Unspecified Works	1904-1948	83 m	south-east
Unspecified Quarry	1929-1989	94 m	north-west
Tanks	1904-1958	96 m	south-east
Unspecified Pit	1904	114 m	north-west
Unspecified Quarry	1891-1956	200 m	north-west
Unspecified Mill	1891	215 m	north
Cuttings	1904	216 m	south-east
Frenches Dye Works	1929-1956	218 m	south
Unspecified Works	1891-1970	226 m	south
Unspecified Tank	1957	248 m	south

14.2 Published geology

A summary of the published geology relevant to the Oldham Road Access site is provided below. The data has been sourced from Groundsure[23] and British Geological Survey (BGS) GeoIndex[3].

[22] Groundsure 2024. Enviro + Geo Insight (GS-KNT-M3C-RMA-6W2)

Artificial geology

The 1:10,000 scale published geology indicate that there is no Made Ground on-site. Made Ground is recorded 101 m south, 122 m west, 168 m south-east and 211 m south.

Superficial deposits

The 1:10,000 scale published geology maps indicate that there are no superficial deposits recorded on-site. Alluvium is recorded 63 m east of the site and Devensian Till is recorded 184 m south-east.

Bedrock

The 1:10,000 scale published geology indicates that the site is underlain by Lower Kinderscout Grit. There are two other bedrock geology designations within 250 m of the site. A summary is provided in Table 14-2. Figure 14-2 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 14-2 - Oldham Road access - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional details
Lower Kinderscout Grit	0 m 138 m	on-site south	Sandstone
Hebden Formation	63 m 138 m	south-east south	Mudstone and siltstone

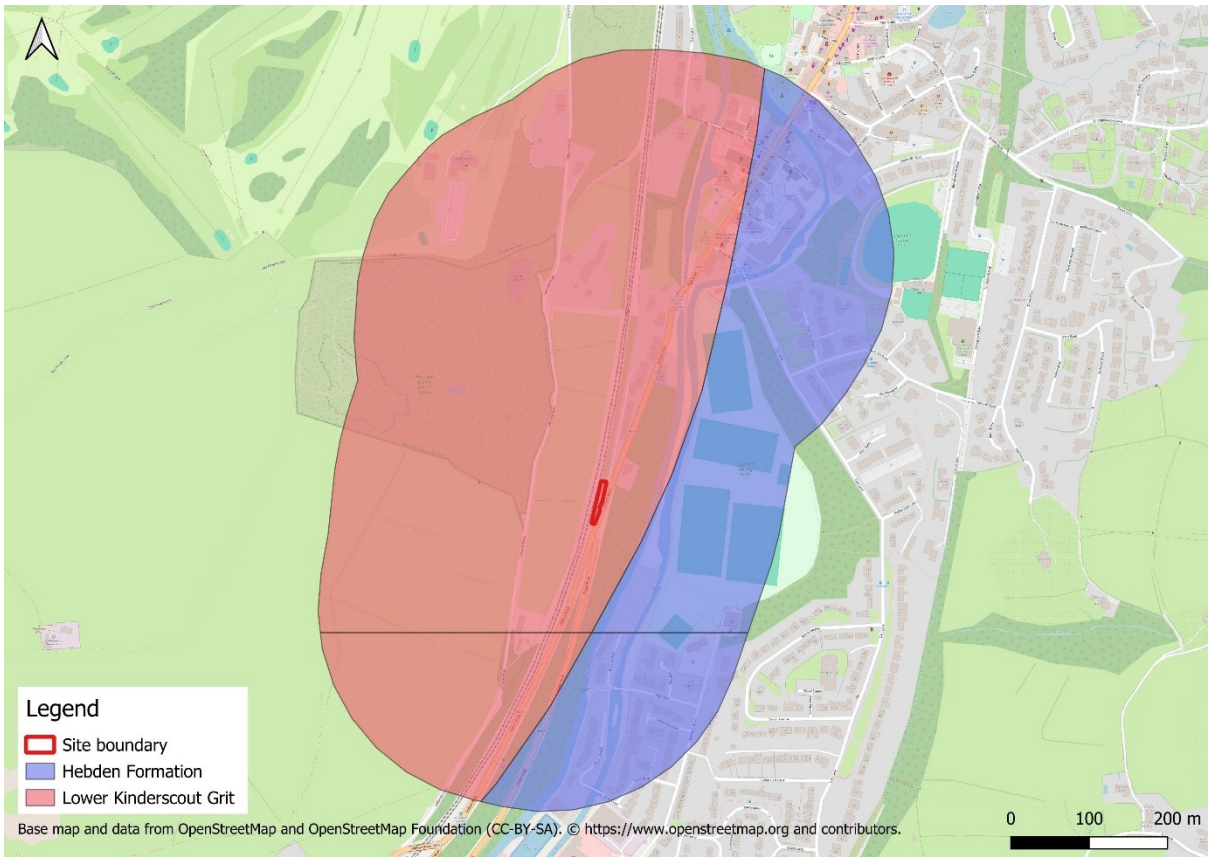

Figure 14-1 - Oldham Road access - Summary of bedrock and linear features

Faults and linear features

1:10,000 scale published geology indicates there are no bedrock faults or linear features on-site or within 250 m of the site.

14.3 Hydrogeology

Superficial aquifers

The data from Groundsure[23] indicates that a secondary A aquifer is located 45 m east of the site. The Environment Agency provides the following descriptions for the aquifer classification mentioned: *"Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers."*

Bedrock aquifers

The data from Groundsure[23] indicates the presence of a secondary A bedrock aquifer underlying the site and surrounding 250 m.

Groundwater vulnerability

Groundsure[23] data indicates that the groundwater vulnerability is low for the superficial aquifer and medium for the bedrock aquifer. Low vulnerability is assigned to "*areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability".* Medium vulnerability is assigned as an "*intermediate between high and low vulnerability".*

Groundwater source protection zones

The data from Groundsure[23] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[23] indicates that there are no groundwater abstractions within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[23] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

14.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[23] as Huddersfield Narrow Canal west section and is located 63 m east of the site. A summary of all surface water courses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 14-3.

Table 14-3 - Oldham Road access - Surface watercourses

Name of watercourse	Type	Distance from site boundary	Direction from site boundary	WFD overall classification
Huddersfield Narrow Canal west section	Canal	63 m	east	Moderate
Tame (Source to Chew Brook)	River	84 m	east	Moderate
Unnamed watercourse	-	245 m	north-west	-

Surface water discharge consents

The data from Groundsure[23] indicates there are no licensed discharges to surface water features on-site. There are three licensed discharge to surface water features within 250 m of the site. A summary of all recorded surface water discharge consents within 250 m of the site has been provided in Table 14-4. There have been no recorded pollutant releases to surface water features on-site or within 250 m of the site.

Table 14-4 - Oldham Road access - Surface water discharge consents

Permit number	Address	Receiving water	Distance from site boundary	Direction from site boundary	Effective date
01OLD0141	Halls Cottage PS, Greenfield, Greater Manchester	River Tame	210 m	south	01/01/1995
016982796		River Tame	210 m	south	30/09/1994
016992031	Balfour Beatty Developmen t SWO, Near Moorgate Quarry, Greater Manchester	Wickens Clough	244 m	north-west	01/07/1991

Surface water abstractions

The data from Groundsure[23] indicates there are no surface water abstractions within 250 m of the site.

14.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[23] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

14.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[23] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 14-5.

Table 14-5 - Oldham Road access - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is not located within a coal mining area.
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral. There is one other non-coal mining area within 250 m of the site, for vein mineral. This is located 138 m south. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere.
British Pits (active or closed surface and underground mineral workings)	There are no recorded Brit pits on-site. There are two Brit pits recorded within 250 m of the site. These are 132 m north-west, 200 m north-west. All were utilised for the extraction of sandstone, however at date of entry, all have ceased to extract minerals.
Surface Ground Workings	There are no surface ground working features on-site. There are nine other surface ground workings features within 250 m of the site. Details are provided in Table 14-6.
Underground Workings	There are no underground workings on-site or within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site. There is one other historical mineral planning area within 250 m of the site. This is located 197 m west and was established for surface mineral working in 1968.

Table 14-6 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 14-6 - Oldham Road access - Surface ground workings

Name	Distance from site boundary	Direction from site boundary	Date
Canal	56 m	east	1891-1989
Sewage Works	78 m	east	1938-1948
Unspecified Quarry	94 m	north-west	1904-1967
Unspecified Quarry	134 m	west	1977-1989
Canal	137 m	south	1956-1992
Unspecified Quarry	200 m	north-west	1929-1956

Name	Distance from site boundary	Direction from site boundary	Date
Cuttings	216 m	south-east	1904
Unspecified Quarry	219 m	north	1891-1948
Pond	228 m	south	1891-1904

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[23] records no landfills or waste management facilities within 250 m of the site.

14.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

14.8 Sensitive land use

The data from Groundsure[23] indicates there are no sensitive land uses within 250 m of the site. The site is located within a SSSI impact zone. There are no SSSI's, Ramsar or areas of conservation within 250 m of the site.

14.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are no pollution incidents reported by Groundsure[23] within 250 m of the site.

Pollution prevention and controls

The data from Groundsure[23] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[23] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[23] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[23] indicates there are no recent industrial land uses on-site. There is one recent industrial land use within 250 m of the site, a gas valve compound located 104 m south-east.

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site as indicated by Groundsure[23].

Contaminated land designations

According to Groundsure[23], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990, on-site or within 250 m of the site.

14.10 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

Historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of potential existing and/or future uses of the site as access for fencing installation.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - There are no potentially contaminative sources located on the site.
- Off-site:

- Historical developments surrounding the site including:
  - Sewage works;
  - Unspecified works;
  - Unspecified quarries;
  - Tanks;
  - Frenches dye works; and
  - Unspecified mills.
- Current features surrounding the site including:
  - Gas valve compound

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), volatile and semi-volatile organic compounds (VOCs/SVOCs); and
- ground gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human health
  - On-site:
    - Construction workers associated with the construction of the site; and
  - Off-site:
    - Resident and occupiers of commercial/industrial premises; and
    - Users of public open space areas.

- Controlled waters
    - Groundwater:
        - Secondary A bedrock aquifer
    - Surface water
        - Huddersfield Narrow Canal west section;
        - River Tame; and
        - Unnamed watercourse.
- Property and services:
    - On-site:
        - Fencing.
    - Off-site:
        - Residential properties and commercial businesses.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - ingestion of contaminated soils, soil-derived dust and groundwater;
    - dermal contact with soil, soil-derived dust and groundwater; and
    - inhalation of organic vapours (e.g. from fuel spills) and ground gases.
- Controlled waters
    - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;

  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 14-7 - Oldham Road access - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: No potential on-site sources. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future users of the site Property and Services – Fencing Off-site: Human Health – Resident and occupiers of commercial/ industrial premises, users of public open space areas. Property and Services – Commercial businesses	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, there is a low potential for contaminants to be present in soil and groundwater on-site. Future site users may come into contact with contaminants, if present, in areas of the site not covered with hardstanding vegetation. Construction workers using the site for access to the railway line may come into contact with soil and groundwater on-site and potential contaminants including during the construction of the underbridge. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** Made Ground and infilled ground are not indicated as being present on the site, which may reduce the likelihood of ground gas. The installation of fencing will not introduce new enclosed spaces, however could introduce new migration pathways dependent on the depth of installation.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Inhalation of asbestos fibres.	and residential properties	Unlikely	Severe	**Moderate/low risk** There are no previous buildings located on-site that could be a source of asbestos and Made Ground is not indicated to be present across the majority of the site, therefore no significant sources have been identified It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters Bedrock secondary A aquifer	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, there is a low potential for contaminants to be present in soil and groundwater on-site . The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as low for the superficial aquifer and medium for the bedrock aquifer. If Made Ground is present, there is potential for leaching of contaminants into groundwater directly into the bedrock aquifer, due to no superficial deposits being present on-site. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. New migration pathways may be created as part of the fencing installation, increasing the potential risk to the groundwater.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Surface Water Controlled Waters – Huddersfield Narrow Canal west section. River Tame Unnamed watercourses	Low	Medium	**Low Risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants, if present, will migrate to surface waters. However, based on the site history and recent land use, there is a low potential for contaminants to be present in soil and groundwater on-site . Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the east, towards the River Tame, therefore the site is upgradient of the River. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Sewage works; Unspecified works;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Future users of the site	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, it is considered unlikely for contaminants in soil and groundwater from off-site source to migrate on-site due to the location, topography and distance to the off-site sources. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Unspecified quarries; Tanks; Frenches dye works; and Unspecified mills Current features surrounding the site including: Gas Valve Compound	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. The surrounding area is most likely covered in vegetation or soil therefore there is a potential exposure to Made Ground whereby contaminants could migrate to the site through windblown dust.
Possible contaminants include: *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs*	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Unlikely	Medium	**Low Risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. Any superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** There are no historical landfills located within 250 m of the site. With the exception of the fencing no other permanently occupied buildings are planned for the development, so the risks from gas are deemed to be low. No coal seams are found around the site. There are no new service installations as part of the proposed development.

14.11 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the relevant Local Authority will be consulted to agree a remedial strategy and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

15. BASELINE FOR WICKENS UNDERBRIDGE MVL3/29 PROW UPGRADES

This section covers the relevant baseline date for the Moorgate Hall PRoW Diversion and Access

15.1 Site history

Table 15-1 provides a summary of the historical development at the Wickens site and the surrounding 250 m buffer area. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[23].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1.250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 15-1 - Wickens underbridge MVL3/29 PRoW upgrades - Historical development

Feature	Date	Distance from the site boundary	Direction from the site boundary
Railway line	1893-present	0 m	on-site
Victoria Mills	1891-1989	0 m	on-site
Wickens Quarry	1891-1977	3 m	west
Ladcastle Farm	1966-1993	3 m	north
Unspecified pit	1904	15 m	west
Top o' th' croft quarry	1958	31 m	west
Unspecified tank	1893-1958	72 m	north
Urban District Council Sewage Works	1904-1929	77 m	east
Railway building	1956	83 m	north
Unspecified tanks	1904-1958	100 m	east
Unspecified works	1904-1948	100 m	east
Alexandra Mill	1891-1989	110 m	north-east
Electricity substation	1966-1997	116 m	north-east
Railway sidings	1938	129 m	north
Moorgate Quarry	1904-1989	133 m	north-west

Feature	Date	Distance from the site boundary	Direction from the site boundary
Unspecified ground workings	1948-1967	145 m	east
Unspecified tank	1957	146 m	south-east
Cuttings	1891-1992	152 m	south
Unspecified tank	1952	172 m	south
Spring Mill	1891-1989	191 m	north-east
Mountain Ash Farm	1893-1906	201 m	north-west
Cuttings	1904	208 m	east
Unspecified pits	1938	224 m	south-east
Urban District Council Sewage works	1929-1938	246 m	south
Frenches Dye Works	1891-1970	249 m	south-east

15.2 Published geology

A summary of the published geology relevant to the Wickens Underbridge MVL3/29 PRoW upgrade site is provided below. The data has been sourced from Groundsure[23] and British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that the site is not recorded to be underlain by Made Ground. Made Ground is recorded 29 m west of the site.

Superficial deposits

The 1:10,000 scale published geology maps indicate that the majority of the site is not recorded to be underlain by superficial deposits. Alluvium is mapped at the north-east boundary of the site. Devensian Till is recorded 80 m to the south-east of the site.

Bedrock

The 1:10,000 scale published geology indicates that the site is underlain by the Lower Kinderscout Grit. There is one other bedrock geology designation within 250 m of the site. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 12 2. Figure 15-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 15-2 - Wickens underbridge MVL3/29 PRoW upgrades - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional Details
Lower Kinderscout Grit	0 m	on-site	Sandstone
Hebden Formation	37 m	east	Mudstone and siltstone

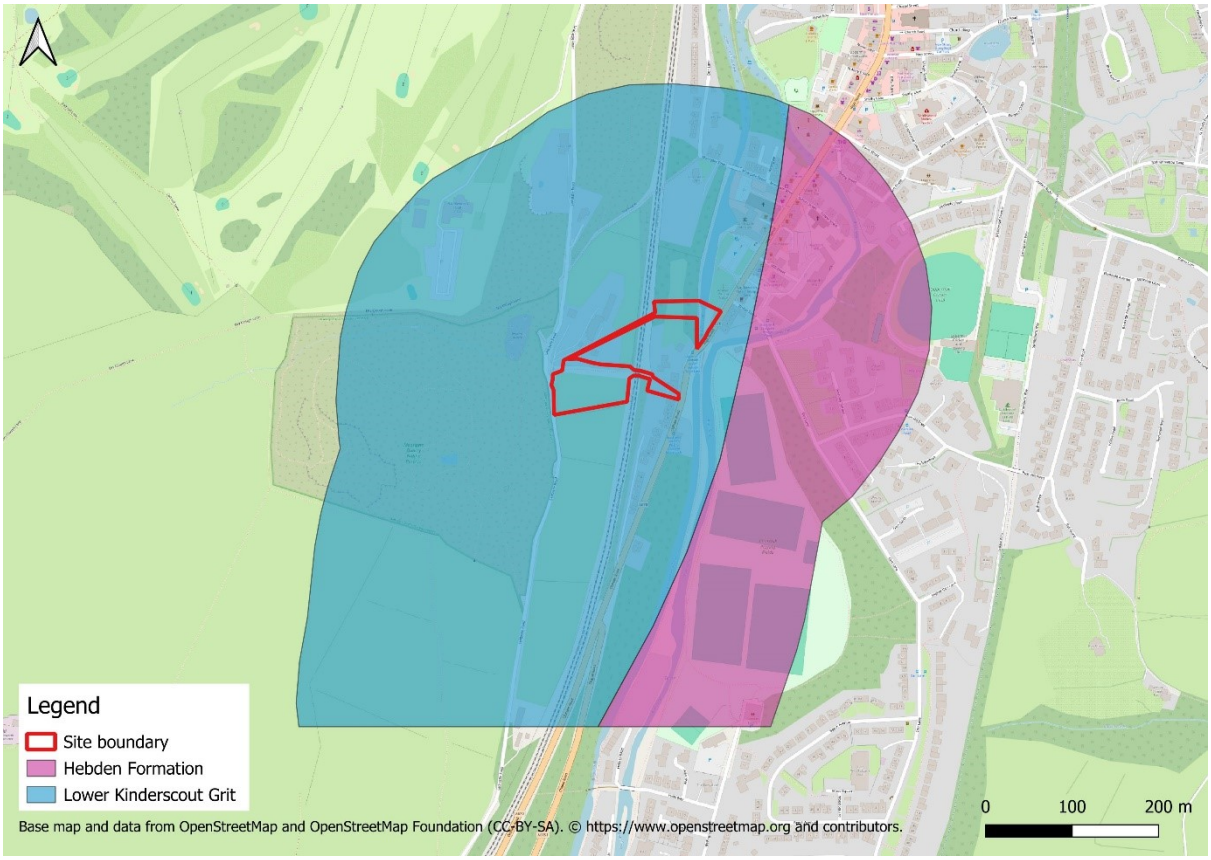

Figure 15-1 - Wickens underbridge MVL3/29 PRoW upgrades - Summary of bedrock and linear features

Faults and linear features

1:10,000 scale published geology indicates there are no bedrock faults or linear features on-site or within 250 m of the site.

15.3 Hydrogeology

Superficial aquifers

The data from Groundsure[23] indicates that a secondary A superficial aquifer on-site, located in the north-east and extends off-site to the east. The Environment Agency provides the following descriptions for the aquifer classifications mentioned previously:

Secondary A aquifer: “Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.”

Bedrock aquifers

The data from Groundsure[23] indicates the presence of a secondary A bedrock aquifer underlying the site and surrounding 250 m.

Groundwater vulnerability

Groundsure[23] data indicates that the groundwater vulnerability is low for the superficial aquifer, and medium for the bedrock aquifer. Low vulnerability is assigned to “areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability”. Medium vulnerability is assigned as an “intermediate between high and low vulnerability”.

Groundwater source protection zones

The data from Groundsure[23] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[23] indicates there are two groundwater abstraction licenses within 250 m of the site. These are located 228 m north-west (one active, one historical) of the site, extracting for spray irrigation operated by Saddleworth Golf Club.

Groundwater discharge consents

The data from Groundsure[23] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

15.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[23] as Huddersfield Narrow Canal west section and is located on-site. A summary of all surface watercourses (rivers, lakes, canals and coastal and transitional waters) within 250 m of the site has been provided in Table 15-3.

Table 15-3 - Wickens underbridge MVL3/29 PRoW upgrades - Surface watercourses

Name of watercourse	Type	Flow Direction	Distance from site	Direction from site	WFD overall classification
Unnamed watercourse	Underground watercourse	-	0 m	on-site	-
Huddersfield Narrow Canal west section	Canal	-	0 m	on-site	Moderate
Tame (Source to Chew Brook)	River	south	22 m	south-east	Moderate
Unnamed watercourse	Underground watercourse	-	204 m	north	
White Brook	Underground watercourse	-	204 m	north	-

Surface water discharge consents

The data from Groundsure[23] indicates there are no licensed discharge to surface water features on-site. There are three licensed discharge to surface water features within 250 m of the site. A summary of all recorded surface water discharge consents within 250 m of the site has been provided in Table 15-4. There have been no recorded pollutant releases to surface water features on-site or within 250 m of the site.

Table 15-4 - Wickens underbridge MVL3/29 PRoW upgrades - Surface water discharge consents

Permit Number	Address	Effluent Type	Receiving Water	Distance from Site	Direction from Site	Effective Date
016992031	Balfour Beatty Development SWO, Near Moorgate Quarry, Greater Manchester	Miscellaneous discharges – surface water	Wickens Clough	64 m	west	01/07/1991, revoked 01/07/1991

Surface water abstractions

The data from Groundsure[23] indicates there are no surface water abstractions within 250 m of the site.

15.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[23] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

15.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[23] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 15-5.

Table 15-5 - Wickens underbridge MVL3/29 PRoW upgrades - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is not located within a coal mining area.
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral.

Category	Summary
	There is one other non-coal mining area within 250 m of the site, for vein mineral. This is located 22 m south. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere.
British Pits (active or closed surface and underground mineral workings)	There are no recorded Brit pits on-site. There are four Brit pits recorded within 250 m of the site. These are 58 m south, 58 m north-west, 124 m south-west and 180 m north-west. All were utilised for the extraction of sandstone, however at date of entry, all have ceased to extract minerals.
Surface Ground Workings	There is one surface ground working features on-site. There are 17 other surface ground workings features within 250 m of the site. Details are provided in Table 15-6.
Underground Workings	There are no underground workings on-site or within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site. There is one other historical mineral planning area within 250 m of the site. This is located 110 m west and was established for surface mineral working in 1968.

Table 15-6 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 15-6 - Wickens underbridge MVL3/29 PRoW upgrades - Surface ground workings

Name	Distance from site	Direction from site	Date
Canal	0 m	on-site	1891-1977
Unspecified quarry	4 m	west	1904-1987
Unspecified pit	55 m	south-west	1904
Unspecified disused quarry	130 m	north-west	1929-1967
Pond	132 m	south-east	1891-1904
Unspecified ground workings	145 m	east	1956-1967
Cuttings	152 m	south	1970-1992
Unspecified disused quarry	153 m	north-east	1904-1989
Unspecified ground workings	164 m	north-east	1948
Cuttings	219m	south	1891-1948
Unspecified pits	223 m	south	1938
Cuttings	230 m	south	1929

Name	Distance from site	Direction from site	Date
Sewage works	249 m	South	1938-1948

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[23] records landfills/waste management facilities within 250 m of the site. A summary of all historical landfills has been provided in Table 15-7. However no licence details have been provided by Groundsure. There are no active landfills or licensed waste sites within 250 m of the site.

Table 15-7 - Wickens underbridge MVL3/29 PRoW upgrades - Landfill and waste summary

Category	Site name or Address	Description of waste	Distance from site	Direction from site	Licence issue date	Licence status
Historical landfill	School Street Reservoir	-	115 m	north-east	-	-
Waste exemptions	1, Bridge Street, Uppermill, Oldham, OL3 6HZ	Sorting and de-naturing of controlled drugs for disposal	38 m	north-east	-	-

15.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

15.8 Sensitive land uses

The data from Groundsure[23] indicates there are no sensitive land uses within 250 m of the site. The site is located within a SSSI impact zone. There are no SSSI's, Ramsar or areas of conservation within 250 m of the site.

15.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are three pollution incidents reported by Groundsure[23] within 250 m of the site and a summary has been provided in Table 15-8.

Table 15-8 - Wickens underbridge MVL3/29 PRoW upgrades - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Oils and fuel - diesel	192 m	north-east	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	05-11-2002
Inorganic chemicals/products - other	203 m	north-east	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	04-05-2002
Sewage materials – crude sewage	213 m	north-east	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	03-04-2002

Pollution prevention and controls

The data from Groundsure[23] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[23] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[23] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[23] indicates there are no recent industrial land uses on-site. There are seven industrial land uses within 250 m of the site. A summary has been provided in Table 15-9.

Table 15-9 - Wickens underbridge MVL3/29 PRoW upgrades - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site	Direction from site
Gas Valve Compound	Infrastructure and facilities	Gas features	107 m	east
Victoria Grant Ltd	Industrial products	Educational equipment and supplies	107 m	north-east
Electricity Substation	Infrastructure and facilities	Electrical features	142 m	north-east
Quarry (Disused)	Extractive industries	Unspecified quarries or mines	157 m	north-west
The Cake Kitchen	Foodstuffs	Baking and confectionery	172 m	north-east
Saddleworth St John Ambulance	Health support services	Ambulance and medical transportation services	176 m	north-east
Quarry (Disused)	Extractive industries	Unspecified quarries or mines	216 m	north-west

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[23].

Contaminated land designations

According to Groundsure[23], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990, on-site or within 250 m of the site.

15.10 Site area reconnaissance

A site walkover was undertaken on 24 October 2024 by two AtkinsRéalis environmental scientists. The walkover was undertaken prior to Order Scheme boundary finalisation. A summary of the observations made during the visit is provided as follows.

Table 15-10 – Wickens underbridge MVL3/29 PRoW upgrades - Site walkover record

Item	Description
Location	The site is located on Third Party land in Uppermill, Greater Manchester. The site is off-track and comprises two land packages: the west package has a national grid reference of SD 99404 05244 and What3Words of roadmap.totally.comply. The east parcel has a national grid reference of SD 99512 05472 and What3Words of feared.prospered.define. At the time of the walkover, access had not been agreed. Therefore, the walkover of the west area was conducted from Ladcastle Road and the east section from the canal towpath/public footpath. The west land parcel covers an area of approx. 0.5 Ha, and the east parcel an area of approx. 0.2 Ha.
Description of current use/ activities	The west parcel of land comprises a vegetated grazing field. Overhead power lines were observed running parallel to the west boundary. The east land parcel comprises a gravel canal towpath and the remainder of the site slopes upwards as a vegetated slope. In the east parcel, the area beyond the slope could not be observed from the towpath.
Fuel/chemical storage	No evidence of fuel storage was observed in either land package. A brick building approx. 2.0 by 2.0 m with “gas” markings was observed in the east area, off the towpath.
Evidence of land contamination	No evidence of land contamination was observed. Possible Made Ground or reworked natural material was observed in the centre of the west land parcel; blocks/rubble could be observed forming part of a raised, vegetated mound.
Invasive Species	No evidence of invasive species was observed.
Surface coverage	The west land parcel comprises entirely of vegetative cover (90% grass, 10% trees and shrubbery). Mature trees are sporadically present throughout the site. Three stone walls, in a state of disrepair, bisect the site in the north and centre of the parcel, running approximately east-west. The whole of the west land parcel slopes from approximately west to east from Ladcastle Road down to the railway. The east land parcel comprises a gravel towpath (approx. 10%) with a vegetated slope comprising of mature and young trees (approx. 40%). The area above the slope could not be observed.
Boundary Types	The west land parcel has two access gates, both off Ladcastle Road. One is located in the south of the land parcel and the other in the approximate centre. Both gates comprised wood and are approx. 1.5 m tall. Livestock

Item	Description
	wire metal fencing with wood posts comprises the majority of the western boundary of the site. The south of the west parcel of land is bound by a stone wall, approx. 1.5 m tall with a residential property beyond. The south-east boundary is also bound by a stone wall approx. 1.5 m tall with the railway beyond. The north-east boundary is bound by a metal fence approx. 1.0 to 1.5 m tall, often obscured by vegetation/shrubbery with the railway beyond. The north boundary comprises a livestock wire fence with wood posts. Mature trees are located beyond the fence. The east parcel of land is bound to the east by the Huddersfield Narrow Canal and to the west by the railway (not observed). The north and south of the east parcel are open (partially observed). A stone wall approx. 1.0 m tall with a livestock metal fence and wood posts (approx. 1.0 m tall) above the wall is located on the edge of the canal towpath and bisects the site in a north/south direction.
Surface Water Features	No evidence of surface water was observed in the west land parcel. The Huddersfield Broad Canal runs north-south on the east land parcel.

15.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

Historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of potential existing and/or future uses of the site as a upgraded footpath for public right of way.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground associated with former developments on-site:

    - Railway line
    - Victoria Mills
- Off-site:
    - Historical features surrounding the site including:
        - Wickens Quarry;
        - Sewage Works;
        - Unspecified tanks;
        - Railway buildings;
        - Unspecified works, quarries and pits;
        - Frenches Dye works;
        - Spring Mill; and
        - Alexandra Mill.
- Current features surrounding the site including:
    - Gas Valve Compound;
    - Equipment; and
    - Transportation services.
- Historical landfills:
    - School Street Reservoir [108 m north-east].

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future users of the site.
  - Off-site:
    - Resident and occupiers of commercial/ industrial premises; and
    - Users of public open space areas.
- Controlled Waters:
  - Groundwater:
    - Secondary A bedrock aquifer, Lower Kinderscout Grit; and
    - Secondary A superficial aquifer, Alluvium
  - Surface Water:
    - Huddersfield Narrow Canal west section [on-site];
    - River Tame [25 m south-west]; and
    - Unnamed watercourses
  - Property and Services:
  - On-site:
    - No on-site properties.
  - Off-site:
    - commercial businesses; and
    - residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - ingestion of contaminated soils, soil-derived dust and groundwater;
    - dermal contact with soil, soil-derived dust and groundwater; and
    - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters
    - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
    - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
    - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
    - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
    - surface water run-off.
- Property and Services:
    - Ground gas migration and build up within confined spaces; and
    - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks

to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 15-11 - Wickens underbridge MVL3/29 PRoW upgrades - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Railway line Victoria Mills Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future users of the site Property and Services – Underbridge Off-site: Human Health – Resident and occupiers of commercial/ industrial premises, use of public open space areas. Property and Services – Commercial businesses and residential properties	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, there is a low potential for contaminants to be present in soil and groundwater on-site. Future site users may come into contact with contaminants, if present, in areas of the site not covered with hardstanding vegetation. Construction workers using the site for access to the railway line may come into contact with soil and groundwater on-site and potential contaminants including during the construction of the underbridge. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** Made Ground and infilled ground are not indicated as being present on the site, which may reduce the likelihood of ground gas. Due the size of the underbridge, it is unlikely that any potential ground gas would accumulate in the space.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** There are no previous buildings located on-site that could be a source of asbestos and Made Ground is not indicated to be present across the majority of the

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					site, therefore no significant sources have been identified It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters Bedrock secondary A Superficial secondary A aquifer Secondary (Undifferentiated) aquifer	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, there is a low potential for contaminants to be present in soil and groundwater on-site . The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as low for the superficial aquifer and medium for the bedrock aquifer. If Made Ground is present, there is potential for leaching of contaminants into groundwater directly into the bedrock aquifer, due to no superficial deposits being present on-site. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock.	Surface Water Controlled Waters – Huddersfield Narrow Canal west section. River Tame	Low	Medium	**Low Risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants, if present, will migrate to surface waters. However, based on the site history and recent land use, there is a low potential for contaminants to be present in soil and groundwater on-site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Unnamed watercourses			Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the south-east, towards the River Tame, therefore the site is upgradient of the River. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Human Health – Resident and occupiers of commercial/ industrial premises, use of public open space areas. Property and Services – Commercial businesses and residential properties.	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is nearby to residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources:	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Future users of the site	Unlikely	Medium	**Low Risk** Based on the site history and recent land use, it is considered unlikely for contaminants in soil and groundwater from off-site source to migrate on-site due to the location, topography and distance to the off-site sources. It is considered unlikely that the public will have access to the area during construction providing the

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Historical features surrounding the site including: Wickens Quarry; Sewage Works; Unspecified tanks; Railway buildings; Unspecified works, quarries and pits; Frenches Dye works; Spring Mill; and Alexandra Mill. Current features surrounding the site including: Gas Valve Compound; Equipment; and Transportation services. Historical landfills: School Street Reservoir [115 m north-east]. *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs*	Inhalation of airborne asbestos fibres. Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	Property and Services – Footpath upgrades	Unlikely Unlikely Unlikely	Severe Medium Medium	appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks. **Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. The surrounding area is most likely covered in vegetation or soil therefore there is a potential exposure to Made Ground whereby contaminants could migrate to the site through windblown dust. **Low Risk** Most of the off-site sources are located down hydraulic gradient from the site, with the exception of Wickens Quarry making it unlikely that contamination from off-site source will migrate towards the site in the secondary A bedrock aquifer. **Low Risk** Historical landfills are located within 250 m of the site, which could be a potential source of ground gas. However, there are none located within 100 m, limiting the potential for migration. No occupied buildings are planned for the development, so the risks from gas are deemed to be low. No coal seams are found around the site. There are no new service installations as part of the proposed development.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
PCBs *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*					

15.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

16. BASELINE FOR UPPERMILL VIADUCT VEHICLE ACCESS

16.1 Site history

Table 16-1 provides a summary of the historical development at the Uppermill Viaduct site and the surrounding 250 m buffer area. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[23].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 16-1 - Uppermill viaduct vehicle access - Summary of historical development

Feature	Date	Distance from the site boundary	Direction from the site boundary
Railway line	1906-2003	0 m	on-site
Cuttings	1906-1993	0 m	on-site
Unspecified quarries	1890-1989	0 m	on-site
Unspecified disused quarries	1956-1989	3 m	south-west
Railway line	1904-present	7 m	east
Railway sidings	1904-1948	8m	south
Lime Kiln	1904	43 m	north
Sawmills	1904-1967	62 m	north
Sewage works	1904-1948	72 m	north-west
Electricity substation	1952-1997	116 m	north-east
Unspecified disused quarries	1956-1989	127 m	south-west
Sewage tanks	1904-1948	147 m	north-west
Telephone exchanges	1989	160 m	north
Unspecified mill	1904-1989	160 m	south-east
Refuse heap	1904-1967	166 m	west
Unspecified tanks	1948	168 m	north-west

[23] Groundsure 2024. Enviro + Geo Insight (GS-IWW-P65-MNV-7DC)

Feature	Date	Distance from the site boundary	Direction from the site boundary
Unspecified quarry	1890-1956	192 m	north
Railway station	1890-1967	228 m	north-east
Unspecified tank	1906-1952	243 m	north-east
Cuttings	1890	247 m	north
Railway sidings	1904-1956	247 m	north-east
Unspecified tanks	1933	249 m	north-east

16.2 Previous ground investigations

Description of the investigation

Intrusive ground investigations were undertaken by Structural Soils Ltd. between March and July 2018[20],[24] around the existing bridge structures, MVL3/25, MVL3/26 and viaduct MVL3/31, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Five of the locations are within 250 m of the site and have been summarised in Table 16-2 and the investigation locations are displayed in Figure 16-1.

Table 16-2 - Uppermill viaduct vehicle access - Summary of investigation

Item	No. undertaken
Number of boreholes	Two
Number of trial pits	Three
PID* testing undertaken	None
Number of soil samples tested	None
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None
* photo-ionisation detector	

[24] Structural Soils Ltd. 2018 TransPennine Route Upgrade Factual Report on Ground Investigation (151667-TSA-05-MVL3-DM3-X-MF-700012)

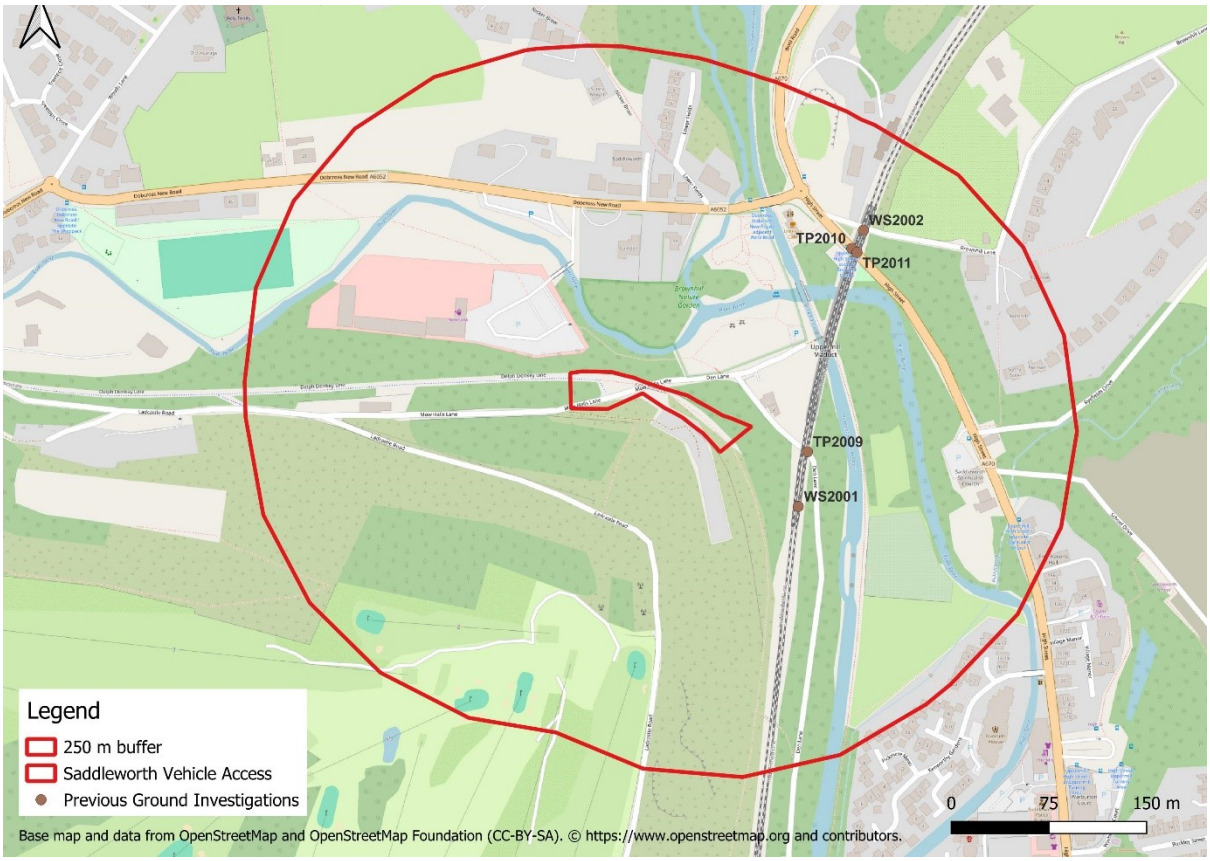

Figure 16-1 - Saddleworth viaduct vehicle access - Previous investigations

Ground conditions

Table 16-3 summarises the ground conditions encountered during the ground investigation.

Table 16-3 - Uppermill viaduct vehicle access - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Grey gravel of granite (Clean ballast). Dark greyish black gravelly sand. Gravel of ash, slag, clinker, granite, sandstone (Very dirty ballast) Greyish black gravel of granite (Clean ballast).	0.18 – 0.40	0.40 - 1.38

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
	Greyish black gravel ballast of granite (Clean ballast) Dark grey orange slightly sandy gravel. Gravel is fine to coarse ballast (Slightly dirty ballast) Black and dark grey very gravelly sand. Gravel is fine to coarse ballast (Very dirty ballast). Dark grey very sandy gravel. Gravel is fine to coarse ballast (Slightly dirty ballast) Dark grey and black very gravelly sand. Gravel is fine to coarse ballast (Very dirty ballast)		
Made Ground – Cohesive	Soft grey sandy gravelly clay. Gravel is of mixed lithologies including ash and clinker.	0.48	0.57

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs. However, a summary of the observed anthropogenic materials is displayed in Table 16-4.

Table 16-4 - Uppermill viaduct vehicle access - Summary of anthropogenic materials observed within the logs

Exploratory Hole	Depth (m)	Comment	Strata
TP2009	0.58 – 1.38	Ash, slag, clinker.	Made Ground
TP2010	0.49 – 0.68	Possible concrete bridge backing	
	0.57 – 0.58	Ash and clinker inclusions	

TP2011	0.58	Possible concrete bridge backing

16.3 Published geology

A summary of the published geology relevant to the Uppermill Viaduct Vehicle Access site is provided below. The data has been sourced from Groundsure[24] and the British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate Made Ground is recorded underlying the majority of the site and is present within 250 m of the site. There is no Made Ground recorded in the south-west of the site. Made Ground may be associated with historical development including quarries, sewage tanks, electricity substations, railway buildings and sawmills.

Superficial deposits

The 1:10,000 scale published geology maps indicate there are no superficial geology designations mapped on-site. There are two superficial geology designations mapped within 250 m of the site. Alluvium is recorded 12 m north at its closest point and follows the path of the river to the south of the site, and Devensian Till is recorded 162 m east.

Bedrock

The 1:10,000 scale published geology that Lower Kinderscout Grit is recorded on-site. There are two other bedrock geology designations recorded within 250 m of the site. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 16-5. Figure 16-2 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 16-5 - Uppermill viaduct vehicle access - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional details
Lower Kinderscout Grit	0 m	on-site	Sandstone
Hebden Formation	21 m 121 m 198 m	north south south-west	Mudstone and siltstone
Upper Kinderscout Grit	25 m 143 m	north south	Sandstone

Figure 16-2 – Saddleworth viaduct vehicle access - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates that there is one bedrock fault located 4 m north of the site. This fault is visible in Figure 16-2.

16.4 Hydrogeology

Superficial aquifers

The data from Groundsure[24] indicates that there is a secondary A superficial aquifer along the northern boundary of the site. The Environment Agency provides the following descriptions for the aquifer classifications:

Secondary A Aquifer: “Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.”

Bedrock aquifers

The data from Groundsure[24] indicates that a secondary A bedrock aquifer underlies the site and surrounding area.

Groundwater vulnerability

Groundsure[24] data indicates that the groundwater vulnerability is low for the superficial aquifer and medium for the bedrock aquifer.

A low vulnerability is assigned to “areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.”

A medium vulnerability is assigned as an “intermediate between high and low vulnerability”.

Groundwater source protection zones

The data from Groundsure[24] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[24] indicates there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[24] indicates there are no licensed discharge to groundwater features on-site or within 250 m of the site.

16.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[24] as the River Tame and is located 22 m north of the site. A summary of all surface watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 16-6.

Table 16-6 - Uppermill viaduct vehicle access - Surface watercourses

Name of watercourse	Type	Flow Direction	Distance from site	Direction from site	WFD overall classification
Tame (Source to Chew Brook)	River	south	22 m	north	Moderate
Huddersfield Narrow Canal west section	Canal	-	66 m	east	Moderate

Surface water discharge consents

The data from Groundsure[24] indicates there are no licensed discharge to surface water features on-site. There is one licensed discharge to surface water features within 250 m of the site; a summary of the surface water discharge consent details has been provided in Table 16-7. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 16-7 - Uppermill viaduct vehicle access - Surface water discharge consents

Permit number	Address	Effluent Type	Receiving water	Distance from site	Direction from site	Effective date
EPRNB3693WE	The Limekiln Cafe Stp, Wool Road, Dobcross, Oldham, OL3 5PB	Sewage discharges – final/treated effluent – not water company	River Tame	117 m	north-east	03/10/2019

Surface water abstractions

The data from Groundsure[24] indicates there are no surface water abstractions within 250 m of the site.

16.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[24] indicates that the maximum radon potential is 0-1%. The UK Radon Map[5] indicates this results in a 0-1% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

16.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[24] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 16-8.

Table 16-8 - Uppermill viaduct vehicle access - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal mining areas	The site is not located within a coal mining area.
Non-coal mining features	There is one non-coal mining area on-site, for vein mineral. There are no other non-coal mining areas within 250 m of the site. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site. There are three brit pits within 250 m of the site. All are surface ground working, for sandstone, however at date of entry have ceased to extract minerals. They are located 27 m south-west, 155 m south, and 209 m north-east.
Surface ground workings	There is one surface ground workings features on-site. There are 10 other surface ground workings features within 250 m of the site. Details are provided in Table 16-9.
Underground workings	There are no underground workings on-site or within 250 m of the site.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 16-9 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 16-9 - Uppermill viaduct vehicle access - Surface ground workings

Name	Distance from site	Direction from site	Date
Unspecified quarries	0 m	on-site	1904-1967
Unspecified disused quarries	3 m	south-west	1890-1989
Canal	62 m	east	1890-1989
Sewage works	72 m	north-west	1904-1948
Sewage tanks	94 m	north-west	1933
Unspecified quarry	152 m	north	1890-1956
Refuse heap	166 m	west	1904-1967
Unspecified quarries	192 m	south	1933-1967
Ponds	234 m	east	1890-1904
Cuttings	247 m	north	1890

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[24] records no landfills/waste management facilities within 250 m of the site.

16.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

16.9 Sensitive land uses

The data from Groundsure[24] indicates there is a Site of Special Scientific Interest (SSSI) located on-site. The SSSI is associated with Ladcastle and Den Quarries and extends off-site to the south-west. There are no Ramsar or areas of conservation on-site or within 250 m of the site. The site is located within a SSSI impact zone.

16.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are no pollution incidents reported by Groundsure[24] on-site or within 250 m of the site.

Pollution prevention and controls

The data from Groundsure[24] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[24] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[24] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[24] indicates there are no recent industrial land uses on-site. There are seven industrial land uses within 250 m of the site. A summary has been provided in Table 16-10.

Table 16-10 - Uppermill viaduct vehicle access - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site	Direction from site
Lime Kiln	Industrial features	Lime Kilns	90 m	north
Pump House	Industrial features	Water pumping stations	137 m	north-east
Masts (Telecommunication)	Infrastructure and facilities	Telecommunications features	141 m	south
Electricity Substation	Infrastructure and facilities	Electrical features	144 m	north-east
Disused Ladcastle quarries	Industrial features	Unspecified quarries or mines	149 m	south
Telephone Exchange	Infrastructure and facilities	Telecommunications features	159 m	north
Gas Governor Station	Infrastructure and facilities	Gas features	179 m	north

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[24].

Contaminated land designations

According to Groundsure[24], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250 m of the site.

16.11 Site area reconnaissance

A site walkover was undertaken on 29 October 2024 by two AtkinsRéalis environmental scientists. A summary of the observations made during the visit is provided as follows.

Table 16-11 – Uppermill viaduct vehicle access - Site walkover record

Item	Description
Location	The site is located on third party (not Network Rail) land in Uppermill, Greater Manchester. The site is located off-track with national grid reference SD 99507 06167 and What3Words of spoils.redouble.amuse. The site is accessed from the north via a public footpath, which crosses a bridge over Mow Halls Lane. At the time of the walkover, permissions had not been granted for land access. Photos were therefore taken from the public footpath and Mow Halls Lane. The site covers an area of approximately 0.26 Ha.
Description of current use/ activities	A public footpath runs approximately north-south through the site. The site is otherwise vacant vegetated land. A compound/construction-site containing spare materials is located adjacent to the site next to the railway in the south.
Fuel/chemical storage	No fuel storage was in evidence on the areas of the site that could be observed.
Evidence of land contamination	No evidence of land contamination was observed. Some vegetated mounds, possibly of reworked natural or Made Ground were observed in the north of the site east of the footpath, and in the south of the site.
Invasive Species	No invasive species were observed.
Surface coverage	The site comprises predominantly of vegetation cover (80% trees and shrubbery), with a dirt footpath and outcrops of sandstone.

Item	Description
	The site is approx. level with the railway in the north section of site. The site then slopes slightly up to the south relative to the railway where it is approx. 1.5 to 2.0 m above the railway level.
Boundary Types	The site is bound by a metal mesh fence approximately 1.5 m tall in the north-east of the site. Wood posts and metal wire lines form the boundary in the central east of the site and a stone wall bounds the site in the south-west if the site. A construction-site is located in the south-east of the site adjacent to the railway; heras panels prevent access to this area. The site is open to the south with a continuation of the public footpath and vacant vegetated land beyond. Outcrops of sandstone are located to the west, approx. 10.0 m tall with Ladcastle Road above. In the north-west of the site the outcrops are approximately 3.0 to 5.0 m above the footpath level with private residences and a kennels located above. The north of the site is open and accessible via a public footpath over Mow Halls Lane.
Surface Water Features	No surface water was observed on-site.

16.12 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of the existing site use and future use as a vehicle access route to enable construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground associated with former developments on-site:
        - Railway sidings;
        - Active railway.
    - Historical on-site uses including:
        - Unspecified quarries
- Off-site:
    - Historical features surrounding the site including:
        - Electricity substations;
        - Sewage works;
        - Unspecified quarries;
        - Sewage tanks;
        - Unspecified mills;
        - Railway station;
        - Refuse heaps; and
        - Railway sidings.
    - Current features surrounding the site including:
        - Lime Kiln;
        - Water pumping stations;
        - Electricity substations;
        - Ladcastle quarry;
        - Telecommunication features;
        - Gas governor station; and
        - Industrial features.

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAHs), benzene, toluene, ethylbenzene, polychlorinated biphenyls (PCBs) and xylenes (BTEX), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

Human Health:

- On-site:
  - Construction workers associated with the construction of the site; and
  - Future users of the site.
- Off-site:
  - Resident and occupiers of commercial/industrial premises; and
  - Users of public open space areas.

Controlled Waters:

- Groundwater:
  - Bedrock secondary A aquifer; and
  - Secondary A superficial aquifer
- Surface Water:
  - River Tame [27 m north-west]; and
  - Huddersfield Narrow Canal west section [39 m east].

Property and Services:

- Off-site: commercial businesses and residential properties.

Ecology:

- Ladcastle and Den Quarries SSSI

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

Human Health

- Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
- ingestion of contaminated soils, soil-derived dust and groundwater;
- dermal contact with soil, soil-derived dust and groundwater; and
- inhalation of organic vapours (e.g. from fuel spills) and ground gas.

Controlled Waters

- Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
- lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
- migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
- migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
- surface water run-off.

Property and Services:

- Ground gas migration and build up within confined spaces; and
- potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 16-12 - Uppermill viaduct vehicle access - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Made Ground associated with former developments on-site: Railway sidings Active railway Historical on-site uses including: Unspecified quarries Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future users of the site. Property and services: Access road Off-site: Human Health – Residents and occupiers of commercial/ industrial premises Users of public open space areas. Property and Services – Commercial businesses and residential properties.	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is some potential for contaminants to be present in soil and groundwater on-site. The proposed use of the site is for a vehicle access road and it is assumed only small scale excavation work will be required to construct the road. During operation of the road, site users will be transient through the site and are unlikely to be exposed to contaminants in soil or groundwater. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** Made Ground is recorded on-site. However the degree of risk posed will be dependent on the type and the thickness of the Made Ground. The site does not require any confined or indoor spaces therefore accumulation of ground gas is unlikely. As the site is being used as vehicle access for the railway line, there is minimal time for any exposure to occur.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** As there are no previous buildings on-site it is unlikely that asbestos will be present.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)					The proposed use of the site is for a vehicle access road and it is assumed only small scale excavation work will be required to construct the road. During operation of the road, site users will be transient through the site and are unlikely to be exposed to contaminants in soil including asbestos. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer Superficial secondary A aquifer	Low	Medium	**Moderate/low risk** The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as medium for the bedrock aquifer and low for the superficial aquifer. Made Ground on-site results in a potential for leaching of contaminants into groundwater in the bedrock aquifer. The potential for mobilisation of contaminants from Made Ground in leachate will increase during excavation works but as only small scale excavations are assumed to be required, it is considered unlikely these will lead to significant mobilisation. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. There are no superficial deposits underlying the site, therefore Made Ground directly overlays bedrock. It is likely that contaminants would be able to leach directly down into the aquifer. The proposed

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					development does not include the use of piled foundations, and any necessary excavations are unlikely to be deep enough to create new preferential pathways.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section	Low	Medium	**Moderate/low risk** Given the distance between the site and the River Tame, it is possible that contaminants originating on-site could reach the river. The Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the north-east, towards the River Tame. The main source that could produce contaminants that travel to site by hydraulic gradient is therefore the disused quarry to the west of the site. The majority of other sources are on the other side of the River Tame. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Electricity substations; Sewage works; Unspecified quarries;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Future users of the area Property and services: Access road	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is possible for future site users to come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
	Inhalation of airborne asbestos fibres.		Low	Medium	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings that have now been demolished.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Sewage tanks; Unspecified mills; Railway station; Refuse heaps; and Railway sidings. Current features surrounding the site including: Lime Kilns; Water pumping stations; Ladcastle quarries; Electricity substations; Telecommunication features; Gas governor station; and Industrial features. Pollution incidents Possible contaminants include: *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen*	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low Unlikely	Medium Medium	Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation. **Moderate/Low Risk** There is the potential for off-site contamination to migrate towards the site and impact the secondary A bedrock aquifer given the distance of the potentially contaminative off-site land uses. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site. **Low Risk** There are no landfills within 250 m of the site. No coal seams are found around the site. There are no new service installations as part of the proposed development. As the proposed development will be installing a construction access road, there will be minimal excavation required and no buildings will be installed, therefore the risk from gas is low.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
sulphide or carbon monoxide)					

16.13 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

17. BASELINE FOR FORMER SADDLEWORTH STATION SITE COMPOUND

17.1 Site history

Table 17-1 provides a summary of the historical development at the former Saddleworth station site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[25].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 17-1 – Former Saddleworth Station site compound - Historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Brownhill Quarry	1890-1956	0 m	on-site
Cuttings	1890	20 m	north-east
Unspecified Tank	1993	27 m	north
Railway Sidings	1904-1967	32 m	east
Railway Station	1890-1967	33 m	east
Unspecified Tank	1997	33 m	north
Electricity Substation	1952-1997	47 m	south-east
Unspecified Tank	1906-1952	67 m	east
Sawmills	1904-1956	88 m	south-west
Railway Building	1933	91 m	north-east
Brownhill Bridge Sawmills	1906-1967	93 m	south-west
Telephone Exchanges	1989	110 m	west
Cuttings	1890-1956	115 m	north-east
Unspecified Quarry	1956	119 m	west
Lime Kiln	1904	124 m	south

[25] Groundsure, 2025. Enviro + Geo Insight (GS-G8A-KAK-G8G-A7A)

Feature	Date	Distance from site boundary	Direction from site boundary
Stone Bottom Mills (Woolen)	1904-1989	130 m	north
Unspecified Tanks	1901-1948	131 m	north-west
Unspecified Depot	1890	152 m	north
Unspecified Disused Quarry	1904-1977	195 m	north-west
Unspecified Works	1977, 1989	199 m	north-east
Unspecified Quarries	1890-1989	213 m	south-west
Mill Pond	1906-1967	218 m	north
Railway Sidings	1904-1948	223 m	south
Sewage Works	1906-1948	242 m	west
Unspecified Disused Quarries	1956-1989	245 m	south-west
Victoria Works	1952-1993	248 m	north-east

17.2 Previous ground investigations

Description of the investigation

Intrusive ground investigations were undertaken by Structural Soils Ltd. between March and July 2018[20],[25] around the existing bridge structures, MVL3/25, MVL3/26 and viaduct MVL3/31, as part of an investigation for the TransPennine Route Upgrade – West of Leeds. Five of the locations are within 250 m of the site and have been summarised in Table 17-2 and the investigation locations are displayed in Figure 17-1.

Table 17-2 - Former Saddleworth Station site compound - Summary of investigation

Item	No. undertaken
Number of boreholes	Two
Number of trial pits	Three
PID* testing undertaken	None
Number of soil samples tested	None
Number of samples tested for soil-leachate	None
Number of groundwater samples tested	None
Gas monitoring rounds	None

* photo-ionisation detector

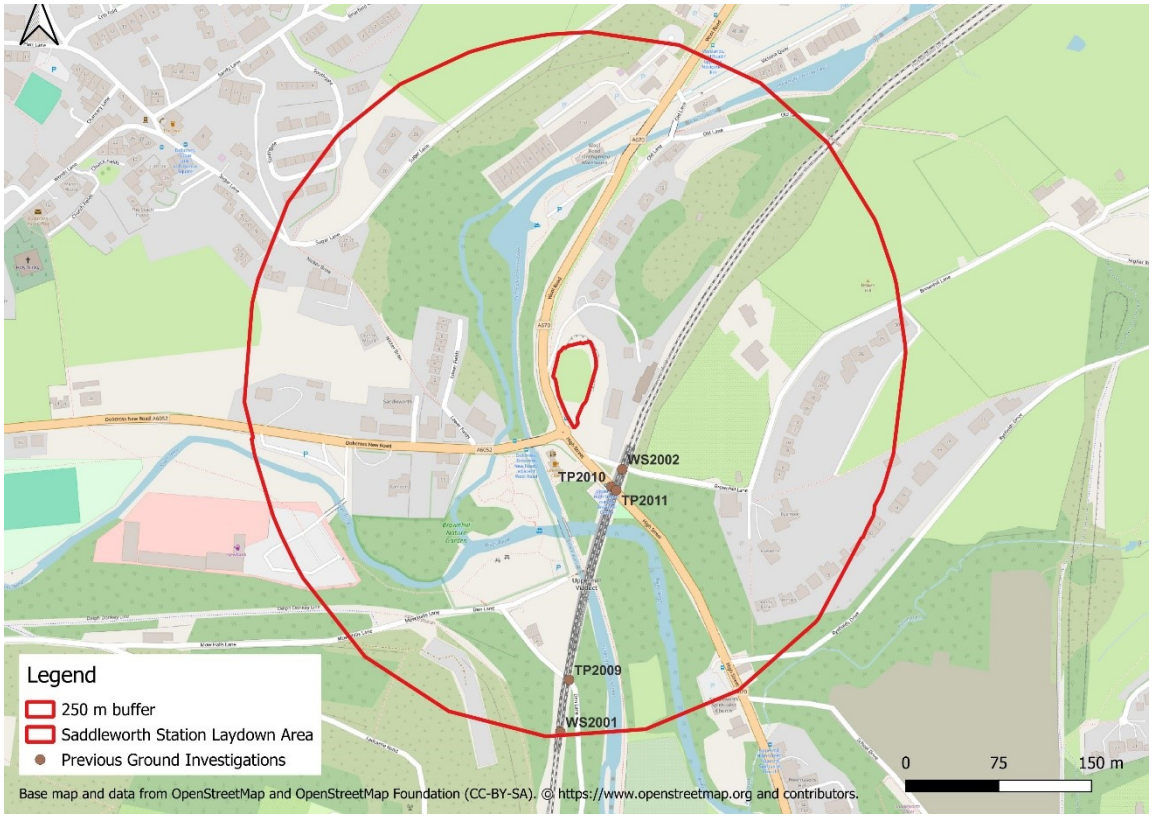

Figure 17-1 - Former Saddleworth Station site compound - Previous investigations

Ground conditions

Table 17-3 summarises the ground conditions encountered during the ground investigation.

Table 17-3 - Former Saddleworth Station site compound - Summary of ground conditions

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
Ballast	Grey gravel of granite (Clean ballast). Dark greyish black gravelly sand. Gravel of ash, slag, clinker, granite, sandstone (Very dirty ballast) Greyish black gravel of granite (Clean ballast).	0.18 – 0.40	0.40 - 1.38

Geological Unit	General description	Range of depths to top of Unit (m bgl)	Range of depths to base of Unit (m bgl)
	Greyish black gravel ballast of granite (Clean ballast) Dark grey orange slightly sandy gravel. Gravel is fine to coarse ballast (Slightly dirty ballast) Black and dark grey very gravelly sand. Gravel is fine to coarse ballast (Very dirty ballast). Dark grey very sandy gravel. Gravel is fine to coarse ballast (Slightly dirty ballast) Dark grey and black very gravelly sand. Gravel is fine to coarse ballast (Very dirty ballast)		
Made Ground – Cohesive	Soft grey sandy gravelly clay. Gravel is of mixed lithologies including ash and clinker.	0.48	0.57

No groundwater was encountered in any of the boreholes.

No visual/olfactory evidence of hydrocarbon/chemical contamination recorded in the borehole logs. However, a summary of the observed anthropogenic materials is displayed in Table 17-4.

Table 17-4 - Former Saddleworth Station site compound - Summary of anthropogenic materials observed within the logs

Exploratory Hole	Depth (m)	Comment	Strata
TP2009	0.58 – 1.38	Ash, slag, clinker.	Made Ground
TP2010	0.49 – 0.68	Possible concrete bridge backing	
	0.57 – 0.58	Ash and clinker inclusions	

Exploratory Hole	Depth (m)	Comment	Strata
TP2011	0.58	Possible concrete bridge backing	

17.3 Published geology

A summary of the published geology relevant to the Former Saddleworth Sation Site Compound is provided below. The data has been sourced from Groundsure[26] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is not recorded on-site. Made Ground is recorded within 250 m of the site, the closest being 44 m west of the site.

Superficial deposits

The 1:10,000 scale published maps indicate that superficial deposits are not recorded on-site. Alluvium is recorded 20 m west of the site, Devensian Till is recorded 173 m north-east and Head deposits are recorded 228 m north.

Bedrock

The 1:10,000 scale published geology indicates there is one bedrock geology designation recorded underlying the site, Lower Kinderscout Grit. There are two additional bedrock geology designations within 250 m of the site. The Hebden Formation is mapped 40 m west of the site, and Upper Kinderscout Grit is mapped 70 m west. Bedrock geology is visible in Figure 17-2.

Figure 17-2 - Former Saddleworth Station site compound – Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there is one bedrock fault within 250 m of the site. The fault is located 169 m south-west of the site.

17.4 Hydrogeology

Superficial aquifers

The data from Groundsure[26] indicates that there is secondary A superficial aquifer located 1 m south of the site. There is a secondary (Undifferentiated) superficial aquifer located 230 m north-east of the site.

A secondary A superficial aquifer is described by the Environment Agency as “Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.”

A secondary (Undifferentiated) superficial aquifer is described as “when it is not possible to attribute either category A or B to a rock type. In general, these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.”

Bedrock aquifers

The data from Groundsure[26] indicates the presence of a secondary A bedrock aquifer, associated with the Lower Kinderscout Grit, underlying the site and surrounding area.

Groundwater vulnerability

Groundsure[26] data indicates that the groundwater vulnerability is medium for the bedrock aquifer, and low for the superficial aquifer. This indicates that the bedrock aquifer is an intermediate between high and low vulnerability. A low vulnerability describes “areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability”.

Groundwater source protection zones

The data from Groundsure[26] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[26] indicates that there are no groundwater abstraction licenses on or within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[26] indicates there are no licenced discharges to groundwater features within 250 m of the site.

17.5 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[26] as the Huddersfield Narrow Canal west section and is located 17 m west of the site. A summary of all surface watercourses (rivers, lakes, canals, coastal and transitional waters) within 250 m of the site has been provided in Table 17-5.

Table 17-5 - Former Saddleworth Station site compound - Surface watercourses

Name of watercourse	Type	Distance from site boundary	Direction from site boundary	WFD overall classification
Huddersfield Narrow Canal west section	Canal	17 m	west	Moderate
Diggle brook	On ground surface watercourse	28 m	west	-
Tame (Source to Chew Brook)	River	79 m	south	Moderate

Surface water discharge consents

The data from Groundsure[26] indicates there are no licensed discharge to surface water features on-site. There is one licensed discharge to surface water features within 250 m of the site. A summary is provided in Table 17-6. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 17-6 - Former Saddleworth Station site compound - Surface water discharge consents

Permit number	Address	Receiving water	Distance from site boundary	Direction from site boundary	Effective date
EPRNB3693WE	The Lime Kiln Café Stp, Wool Road, Dobcross, Oldham, OL3 5PB	River Tame	75 m	south	03/10/2019

Surface water abstractions

The data from Groundsure[26] indicates there are no surface water abstractions on-site or within 250 m of the site.

17.6 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[26] indicates that the maximum radon potential on the site is between 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

17.7 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[26] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 17-7.

Table 17-7 - Former Saddleworth Station site compound - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is not located within a coal mining area.
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral. There are no other non-coal mining areas within 250 m of the site.
British Pits (active or closed surface and underground mineral workings)	There is one brit pit on-site, for sandstone, but at date of entry has ceased operations. There is one other brit pit within 250 m of the site. This is located 243 m south, for sandstone, that has also ceased operations.
Surface Ground Workings	There is one surface ground workings feature on-site. There are 14 other surface ground workings features within 250 m of the site. Details are provided in Table 17-8.
Underground Workings	There are no underground workings on-site or within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 17-8 provides further detail on the surface ground workings and the relative distance and direction from the site boundary.

Table 17-8 - Former Saddleworth Station site compound - Surface ground workings

Name	Distance from site boundary	Direction from site boundary	Date
Brownhill Quarry And Clay Pit	0 m	on-site	1890-1956
Canal	18 m	west	1890-1989
Cuttings	20 m	north-east	1890
Cuttings	115 m	north-east	1904-1948
Unspecified Quarry	119 m	west	1956
Cuttings	132 m	north-east	1890-1956
Pond	193 m	north-west	1904-1948
Unspecified Quarry	203 m	north-west	1904-1977
Unspecified Disused Quarries	208 m	south-west	1956-1967
Pond	209 m	north	1890-1904
Unspecified Quarries	213 m	south-west	1890-1989
Mill Pond	218 m	north	1956-1967
Unspecified Quarries	223 m	south	1904-1948
Sewage Works	242 m	west	1933-1948
Unspecified Quarry	245 m	west	1890-1904

The Mining Remediation Authority viewer[6] indicates that the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[26] records one historical landfill, located 210 m north of the site. However no additional information has been provided by Groundsure.

17.8 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

17.9 Sensitive land uses

The data from Groundsure[26] indicates that a site of special scientific interest (SSSI) is located 204 m south-west of the site. The SSSI is associated with the Ladcastle and Den Quarries. The site is also located within a SSSI

impact zone. There are no other sensitive land uses, including Ramsar or areas of conservation within 250 m of the site.

17.10 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There is one pollution incident reported by Groundsure[26] within 250 m of the site. A summary is provided in Table 17-9.

Table 17-9 - Former Saddleworth Station site compound - Pollution incidents

Type	Distance from site boundary	Direction from site boundary	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Atmospheric Pollutants and Effects	66 m	north-west	Category 3 (Minor)	Category 4 (No Impact)	Category 4 (No Impact)	21/05/2001

Pollution prevention and controls

The data from Groundsure[26] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications on-site or within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[26] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[26] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[26] indicates there are no recent industrial land uses on-site. There are seven recent industrial land uses within 250 m of the site. A summary has been provided in Table 17-10.

Table 17-10 - Former Saddleworth Station site compound - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Gas Governor Station	Infrastructure and Facilities	Gas Features	26 m	south-west
Electricity Substation	Infrastructure and Facilities	Electrical Features	57 m	south
Pump House	Industrial Features	Water Pumping Stations	57 m	south
Lime Kiln	Industrial Features	Lime Kilns	98 m	south
Telephone Exchange	Infrastructure and Facilities	Telecommunications Features	120 m	west
The Wharf	Water	Moorings and Unloading Facilities	200 m	north
Electricity Substation	Infrastructure and Facilities	Electrical Features	225 m	north

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site as indicated by Groundsure[26].

Contaminated land designations

According to Groundsure[26], there are no sites designated as contaminated land under Part 2A of the Environmental Protection Act 1990 on-site or within 250 m of the site.

17.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site use and potential future use of the site as a laydown area. It is assumed that the area will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical development on the site:
        - Brownhill Quarry and clay pit.
- Off-site:
    - Historical developments surrounding the site:
        - Tanks;
        - Railway station and sidings;
        - Electricity substations;
        - Sawmills;
        - Lime Kiln;
        - Stone Bottom woollen mills;
        - Unspecified works;
        - Mill pond;
        - Unspecified quarry;
        - Sewage works; and
        - Victoria works.
    - Current developments surrounding the site:
        - Gas governor station;
        - Electricity substation;
        - Water pumping station; and

        - Lime Kiln.
    - Historical landfill:
        - Unknown landfill [210 m north]
    - Pollution incidents:
        - Atmospheric pollutants [66 m north-west].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, Total Petroleum Hydrocarbons (TPH), Polycyclic Aromatic Hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), benzene, toluene, ethylbenzene, xylenes (BTEX), volatile and semi volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use during construction works:

- Human Health:
    - On-site:
        - Construction workers associated with the construction of the site; and
        - Future users of the site.
    - Off-site:
        - Resident and occupiers of commercial/industrial premises; and
        - Users of public open space areas.
- Controlled Waters:
    - Groundwater:
        - Secondary A superficial aquifer;

        - Secondary (Undifferentiated) superficial aquifer; and
        - Secondary A bedrock aquifer.
    - Surface water:
        - Huddersfield Narrow Canal west section;
        - Diggle Brook; and
        - River Tame.
    - Property and Services:
        - On-site:
            - No on-site properties;
        - Off-site:
            - Commercial businesses; and
            - Residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health
    - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
    - Ingestion of contaminated soils, soil-derived dust and groundwater;
    - Dermal contact with soil, soil-derived dust and groundwater; and
    - Inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters:
    - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;

- Lateral and vertical migration through permeable deposits in Made Ground and bedrock (e.g. sandstone and/or highly fractured rock);
- Migration of groundwater to the Huddersfield Narrow Canal west section and the River Tame;
- Migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
- Surface water run-off.

- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - Potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires the potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 17-11 - Former Saddleworth Station site compound - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Historical development surrounding the site: Brownhill Quarry and clay pit. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future users of the site. Off-site: Human Health – Residents and occupiers of commercial/ industrial premises Users of public open space areas.	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is some potential for contaminants to be present in soil and groundwater on-site. The proposed use of the site is for a new laydown area and it is assumed no excavation work will be required to use the area. During operation, site users will be transient through the site and are unlikely to be exposed to contaminants in soil or groundwater. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).	Property and Services – Commercial businesses and residential properties.	Unlikely	Medium	**Low Risk** Made Ground is not recorded on-site, however is expected to be present as a result of the historical on-site quarry. However the degree of risk posed will be dependent on the type and the thickness of the Made Ground. The site does not require any confined or indoor spaces therefore accumulation of ground gas is unlikely. As the site is being used as an additional laydown area for the railway line, there is minimal time for any exposure to occur.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk**

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					As there are no previous buildings on-site it is unlikely that asbestos will be present. The proposed use of the site is for a new laydown area and it is assumed no excavation work will be required to use the area. During operation, site users will be transient through the site and are unlikely to be exposed to contaminants in soil including asbestos. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer Superficial secondary A aquifer Superficial secondary Undifferentiated aquifer	Low	Medium	**Moderate/low risk** The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as medium for the bedrock aquifer and low for the superficial aquifer. Potential Made Ground on-site could result in a potential for leaching of contaminants into groundwater in the bedrock aquifer. The site is predominantly covered by soft landscaping , therefore infiltration from precipitation will be possible which will in turn increase the mobilisation of leachate by rainwater. There are no superficial deposits underlying the site; therefore, Made Ground directly overlays bedrock. It is likely that contaminants would be able to leach directly down into the aquifer.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal west section Diggle Brook	Low	Medium	**Moderate/low risk** Given the distance between the site and the River Tame, it is possible that contaminants originating on-site could reach the river. The Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the south-west, towards the River Tame. The site is predominantly covered by soft landscaping , therefore infiltration from precipitation will be possible which will in turn increase the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical developments surrounding the site: Tanks;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Future users of the area Property and services: Access road	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is possible for future site users to come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Railway station and sidings; Electricity substations; Sawmills; Lime Kiln; Unspecified quarry; Stone Bottom woollen mills;	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings that have now been demolished. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Unspecified works; Mill pond; Sewage works; and Victoria works. Current developments surrounding the site:	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** There is the potential for off-site contamination to migrate towards the site and impact the secondary A bedrock aquifer given the distance of the potentially contaminative off-site land uses. Furthermore, no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site.
Gas governor station; Electricity substation; Water pumping station; and Lime Kiln. Historical landfill: Unknown landfill [210 m north] Pollution incidents: Atmospheric pollutants [66 m north-west]. Possible contaminants include: *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon*	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** There is one historical landfill within 250 m of the site. However, given the distance from the site it is unlikely to pose a risk. No coal seams are found around the site. There are no new service installations as part of the proposed development. As the proposed development is a laydown area for construction materials, there will be no excavation required and no buildings will be installed, therefore the risk from gas is low.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
dioxide, hydrogen sulphide or carbon monoxide)					

17.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

18. BASELINE FOR DIGGLE RAIL HUB COMPOUND WORKS

18.1 Site history

Table 18-1 provides a summary of the historical development at the site and the surrounding area within 250 m of the site. The history of the site and surrounding area (within 250 m of the site) has been determined principally by reference to historical maps obtained from Groundsure[26].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 18-1 - Diggle Rail Hub Compound works - Summary of historical development

Feature	Date	Distance from the site boundary	Direction from the site boundary
Cuttings	1904	0 m	on-site
Railway building	1890-1951	0 m	on-site
Railway sidings	1890-1951	0 m	on-site
Refuse heap	1890	0 m	on-site
Unspecified tank	1951-1965	0 m	on-site
Railway line	1893-present	5 m	west
Railway sidings	1890-1951	12 m	north-west
Unspecified mills	1890-1980	15 m	north-west
Railway station	1890	18 m	north-east
Refuse heaps	1890-1904	18 m	north-west
Unspecified ground workings	1933-1951	28 m	north-west
Ceramic Works	1904-1951	33 m	east
Railway building	1890-1948	43 m	north-east
Diggle Mill	1890	56 m	east
Unspecified pit	1904-1948	56 m	north-west
Unspecified works	1933-1980	59 m	east

[26] Groundsure 2024, Enviro + Geo Insight (GS-TUD-B38-6YS-G9T)

Feature	Date	Distance from the site boundary	Direction from the site boundary
Railway building	1890	62 m	east
Unspecified ground workings	1951	64 m	south-east
Refuse heap	1890-1904	71 m	south-east
Refuse heap	1890-1951	88 m	north-west
Railway building	1890-1951	99 m	north-east
Electricity substation	1951	121 m	north-west
Warth Mills	1893-1988	121 m	west
Unspecified tank	1893-1965	134 m	north-west
Mill pond (infilled)	1890-1948	138 m	west
Mill ponds	1890-1951	159 m	east
Unspecified disused mill	1890-1948	161 m	north
Loom Works	1933-1980	175 m	south-west
Railway building	1890-1951	191 m	north-east
Tunnels	1890-1980	202 m	north-east
Unspecified tanks	1933-1988	209 m	south-west
Mill pond (present day: Marsh pond)	1933-1951	219 m	north
Unspecified mill	1890-1904	224 m	south-west

18.2 Published geology

A summary of the published geology relevant to the Diggle Rail Hub Compound Works site is provided below. The data has been sourced from Groundsure[28] and British Geological Society GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is recorded in the southern half of the site and also off-site within 250 m of the site. Made Ground may be associated with historical development including railway buildings, refuse heaps, unspecified tanks, unspecified mills, electricity substations and mill ponds, if infilled.

Superficial deposits

The 1:10,000 scale published geology maps indicate that Alluvium is recorded in the north of the site. The remainder of the site is not underlain by superficial deposits. Devensian Till is recorded 66 m west of the site.

Bedrock

The 1:10,000 scale published geology indicates there is Shale Grit recorded on-site. There is one other bedrock geology designation within 250 m of the site. A summary of the bedrock geology recorded on-site and within 250 m of the site boundary is provided in Table 18-2. Figure 19-1 presents bedrock formations up to 250 m from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 18-2 - Diggle Rail Hub Compound works - Bedrock geology summary

Description	Distance from the site boundary	Direction from the site boundary	Additional details
Shale Grit	0 m	on-site	Sandstone
Hebden Formation	152 m 221 m	west south-west	Mudstone and siltstone
Shale Grit	241 m 244 m	south east	Sandstone

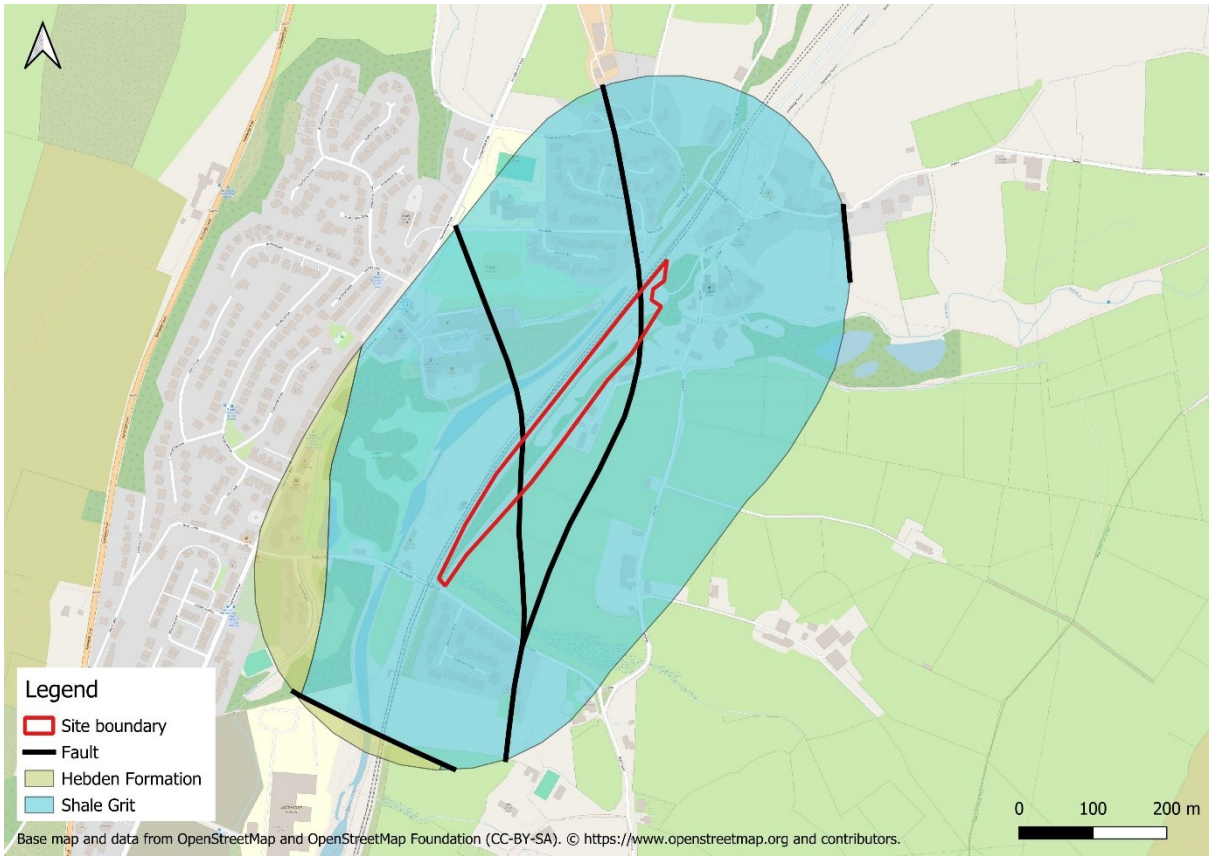

Figure 18-1 - Diggle Rail Hub Compound works - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there are two bedrock faults on-site. There are two other bedrock faults within 250 m of the site. A summary is provided in Table 18-3 and faults are visible in Figure 19-1.

Table 18-3 - Diggle site compound works - Summary of bedrock faults

Category	Description	Orientation	Distance from the site boundary	Direction from the site boundary
Fault	Normal fault, inferred	north to south	0 m	on-site
Fault	Normal fault, inferred	north to south	0 m	on-site
Fault	Normal fault, inferred	north-west to south-east	221 m	south-west
Fault	Normal fault, inferred	north to south	245 m	north-east

18.3 Hydrogeology

Superficial aquifers

The data from Groundsure[28] indicates that there is one designated superficial aquifer on-site, a secondary A superficial aquifer in the north of the site. The majority of the site is not underlain by a superficial aquifer. There is a secondary (Undifferentiated) superficial aquifer 45 m south-west of the site.

Secondary A aquifers are defined by the Environment Agency as “permeable layers capable of supporting water supplies at a local rather than strategic scale; and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.”

Secondary (Undifferentiated) aquifers are defined as “where it is not possible to attribute either category A or B to a rock type. In general, these layers have previously been designed as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.”

Bedrock aquifers

The data from Groundsure[28] indicates the presence of a secondary A bedrock aquifer underlying the site and surrounding area.

Groundwater vulnerability

Groundsure[28] data indicates that the groundwater vulnerability is high for the bedrock aquifer and the superficial aquifer. A high classification is assigned to areas which are "able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits."

Groundwater source protection zones

The data from Groundsure[28] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[28] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[28] indicates there are no licensed discharges to groundwater features on-site or within 250 m of the site.

18.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[28] as the River Tame, located on-site. A summary of all surface watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 18-4.

Table 18-4 - Diggle Rail Hub Compound works - Surface watercourses

Name of watercourse	Type	Flow Direction	Distance from site	Direction from site	WFD overall classification
Tame (Source to Chew Brook)	River	South	0 m	on-site	Moderate
Diggle Brook	Underground watercourse	West	0 m	on-site (north)	-
Unnamed watercourse	On ground surface watercourse	West	0 m	on-site (south)	-
Huddersfield Narrow Canal	Canal	-	16 m	north-west	Moderate

Name of watercourse	Type	Flow Direction	Distance from site	Direction from site	WFD overall classification
summit section					

Surface water discharge consents

The data from Groundsure[28] indicates there are no licensed discharge to surface water features on-site. There are three licensed discharges to surface water features within 250 m of the site. A summary of all surface water discharge consents within 250 m of the site has been provided in Table 18-5. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 18-5 - Diggle Rail Hub Compound works - Surface water discharge consents

Permit number	Address	Effluent Type	Receiving water	Distance from site	Direction from site	Effective date
016993370	Settlement Lagoon, Standedge Tunnel Portal, Huddersfield Narrow Canal, Diggle, Oldham	Trade discharges – unspecified	The Huddersfield Narrow Canal	94 m	north-west	08/03/2000
01OLD0015	Hanging Gate Diggle SSO, Oldham, Greater Manchester	Sewage discharges – sewer storm overflow – water company	Diggle Brook	201 m	west	09/02/1993

Surface water abstractions

The data from Groundsure[28] indicates there are no surface water abstractions within 250 m of the site.

18.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[28] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bg m^{-3}.

18.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[28] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 18-6.

Table 18-6 - Diggle Rail Hub Compound works - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 scale maps and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal mining areas	There are no coal mining areas on-site.
Non-coal mining features	There is one non-coal mining area on-site. There is one other non-coal mining area within 250 m of the site. They are both for vein mineral. Underground mine workings are uncommon, although the geology is similar to that worked elsewhere. Potential for difficult ground conditions are unlikely and are at a level where they need not be considered.
British pits (active or closed surface and underground mineral workings)	There are no brit pits on-site or within 250 m of the site.
Surface ground workings	There are three surface ground workings features on-site. There are 13 other surface ground workings features within 250 m of the site. Details are provided in Table 18-7.
Underground workings	There are no underground workings on-site. There is one underground working within 250 m of the site, located 202 m north-east. The underground working is associated with the construction of a railway tunnel and is shown on maps dating from 1890 to 1951.
Historical mineral planning areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 18-7 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 18-7 - Diggle Rail Hub Compound works - Surface ground workings

Name	Distance from site	Direction from site	Date
Cuttings	0 m	on-site	1904
Pond	0 m	on-site	1904
Refuse Heap	0 m	on-site	1890
Pond	7 m	east	1890-1980
Canal	14 m	north-west	1890-1951
Refuse Heap	25 m	north-west	1890-1951
Pond	27 m	north-west	1948
Unspecified Pit	56 m	north-west	1904-1948
Refuse Heap	75 m	south-east	1890-1951
Pond	78 m	north-west	1890-1948
Refuse Heap	88 m	north-west	1904-1951
Mill Pond	141 m	west	1890-1951
Mill Ponds	159 m	east	1951
Mill Ponds	211 m	east	1890-1980
Mill Pond	219 m	north	1890-1980

The Mining Remediation Authority viewer[6] indicates that the site is not within a high-risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[28] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 18-8. However, all licence details have not been provided by Groundsure.

Table 18-8 - Diggle Rail Hub Compound works - Landfill and waste summary

Category	Site name or Address	Description of waste	Distance from site	Direction from site
Historical landfill	Land At Warth Mills	-	65 m	north-west
Historical landfill	Land At Ward Lane	-	137 m	west

Category	Site name or Address	Description of waste	Distance from site	Direction from site
Historical landfill	Land Off Huddersfield Road	-	250 m	south-west
Waste Exemptions	Npa - Lee Side Diggle Oldham Ol3 5jy	Deposit of waste from dredging of inland waters	108 m	north-east
Waste Exemptions	-	Use of waste in construction	132 m	south-east
Waste Exemptions	-	Use of mulch	215 m	north-east
Waste Exemptions	-	Use of waste in construction	215 m	north-east
Waste Exemptions	Sunfield Stables Diglea Oldham OL3 5LA	Use of waste for a specified purpose	223 m	east
		Deposit of waste from dredging of inland waters		
		Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising		
		Burning of waste as a fuel in a small appliance		
		Burning waste in the open		
		Spreading waste on agricultural land to confer benefit		
		Use of mulch		
		Treatment of kitchen waste in a wormery		
		Treatment of sheep dip for disposal		
		Treatment of waste in a biobed or biofilter		
		Use of waste in construction		
		Spreading of plant matter to confer benefit		
		Incorporation of ash into soil		
		Use of waste derived biodiesel as fuel		

Category	Site name or Address	Description of waste	Distance from site	Direction from site
		Pig and poultry ash		
		Spreading waste on agricultural land to confer benefit		

18.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

18.8 Sensitive land uses

The data from Groundsure[28] indicates there are no sensitive land uses, including sites of special scientific interest (SSSIs), Ramsar or areas of conservation within 250 m of the site. The site is located within a SSSI impact zone.

18.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There are eight pollution incidents reported by Groundsure[28] within 250 m of the site and a summary has been provided in Table 18-9.

Table 18-9 - Diggle Rail Hub Compound works - Pollution incidents

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Pollutant not identified	69 m	north-west	Category 4 (no impact)	Category 4 (no impact)	Category 3 (minor)	18-06-2001
Sewage materials – crude sewage	83 m	east	Category 4 (no impact)	Category 3 (minor)	Category 3 (minor)	28-07-2003
Sewage materials – sludge	128 m	south-east	Category 3 (minor)	Category 4 (no impact)	Category 3 (minor)	12-05-2001

Type	Distance from site	Direction from site	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
General biodegradable materials and wastes, construction and demolition materials and wastes, soils and clay,	168 m	north-west	Category 4 (no impact)	Category 3 (minor)	Category 4 (no impact)	12-04-2001
Oils and fuel	183 m	west	Category 4 (no impact)	Category 4 (no impact)	Category 2 (significant)	24-08-2001

Pollution prevention and controls

The data from Groundsure[28] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. A summary of the number and location of these applications has been provided in Table 18-10.

Table 18-10 - Diggle Rail Hub Compound works - Pollution controls overview

Pollution prevention and control category	Summary
Pollution inventory substances	There are no pollution inventory substances on-site or within 250 m of the site.
Licensed pollutant release (part 2A)/B)	There are no licensed pollutant release part 2A and B features on-site. There is one licensed pollutant release part 2A and B features within 250 m of the site. Details are provided in Table 18-11.
Historical licensed industrial activities	There are no historical licensed industrial activities on-site or within 250 m of the site.
Licensed industrial activities (part A(1))	There are no licensed industrial activities on-site or within 250 m of the site.

Further detail of pollution prevention and controls on-site and within 250 m are given in Table 18-11.

Table 18-11 - Diggle Rail Hub Compound works - Pollution prevention and controls detailed summary

Type	Site	Description	Distance from site	Direction from site	Status
Licensed Pollutant Release (Part A(2)/B)	L Foster & Formack Ltd, Warth Mill, Huddersfield Rd, Oldham, OL3 5PJ	Timber Manufacture	200 m	north-west	Historical permit (Part B)

Planning hazardous substance consents

The data from Groundsure[28] indicates there are Control of Major Accident Hazards (COMAH) sites or planning hazardous substance consents within 250 m of the site. A summary has been provided in Table 18-12.

Table 18-12 - Diggle Rail Hub Compound works - Planning hazardous consents

Type	Site	Description	Distance from site	Direction from site	Status
List 2 dangerous substances	Amalgamated Construction Company Ltd, Po Box 1, Whaley Road	Copper, iron, lead, zinc	94 m	north-west	Not Active

Radioactive substances

The data from Groundsure[28] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[28] indicates there are two recent industrial land uses on-site, both related to telecommunication masts. There are 15 recent industrial land uses within 250 m of the site. A summary has been provided in Table 18-13.

Table 18-13 - Diggle Rail Hub Compound works - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site	Direction from site

Mast (Telecommunication) (2no.)	Infrastructure and facilities	Telecommunications features	0 m	on-site
Idec Drilling Engineers Ltd	Construction services	Cutting, drilling and welding services	88 m	north-west
Alt Engineering	Engineering services	Industrial engineers	123 m	north-west
Diggle Motor Services Ltd	Repair and servicing	Vehicle repair, testing and servicing	123 m	north-west
L K Cars	Motoring	Second hand vehicles	123 m	north-west
S P S Substructure Protection Ltd	Engineering services	Civil engineers	123 m	north-west
Saddleworth Traditional Sash Windows	Industrial products	Glass	123 m	north-west
Shepley Yarns	Industrial products	Textiles, fabrics, silk and machinery	123 m	north-west
Woolyknit	Industrial products	Textiles, fabrics, silk and machinery	123 m	north-west
Dene Garage Greenfield Ltd	Repair and servicing	Vehicle repair, testing and servicing	130 m	north-west
Simply Signs Ltd	Industrial products	Signs	130 m	north-west
Business Park	Industrial features	Business parks and industrial estates	131 m	north-west
Electricity Substation	Infrastructure and facilities	Electrical features	201 m	north-west
Tank	Industrial features	Tanks (generic)	218 m	south-west
Factory	Industrial features	Unspecified works or factories	224 m	north-west
Gas Governor Station	Infrastructure and facilities	Gas features	239 m	west

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[28].

Contaminated land designations

According to Groundsure[28], there are no sites designated as contaminated land on-site under Part 2A of the Environmental Protection Act 1990. There are no sites designated as contaminated land within 250 m of the site.

18.10 Site area reconnaissance

A site walkover was undertaken on 28 October 2024 by two AtkinsRéalis environmental scientists. A summary of the observations made during the visit is provided as follows.

Table 18-14 – Diggle Rail Hub Compound works - Site walkover record

Item	Description
Location	The site is located on third party (non-Network Rail) land in Diggle, Greater Manchester. The site is off-track with national grid reference SE 00583 07838 and What3Words of steam.incomes.alarm. At the time of the walkover, permissions had not been granted for land access. Photos were therefore taken from Lee Side Road (of the site entrance) and a public footpath above the site. The northernmost area of the site could not be observed. The compound covers an area of approximately 1.98 Ha. There is a dirt road running parallel to the railway, which bounds the site to the west. The road is located on a relatively flat area; a steep embankment is located east of the road, going up from the site. The north section changes elevation by approximately 6.0 m from the railway to the top of the embankment. Further south this embankment is not as steep and reduces to approximately 1.0 m. Ward Lane bounds the site to the south. A stone wall with a public footpath and fields bounds the site to the south-east, and private residences to the north-east.
Description of current use/ activities	The site comprises a dirt/gravel roadway running parallel to the railway. There was evidence of some materials storage between the roadway and the railway (an IBC, stacked bags of unidentified materials). Otherwise, the site was unused and vegetated.
Fuel/chemical storage	No fuel storage was in evidence on the areas of the site that could be observed. There was some evidence of materials storage next to the railway/roadway.
Evidence of land contamination	No evidence of land contamination was observed. Minor littler / fly tipping was observed in the south-east of the site of plastic bags and plastic sheeting and a wood sheet.

Item	Description
Invasive Species	None observed.
Surface coverage	The site comprises a dirt/gravel roadway running parallel to the railway forming approx. 30% of the site and a vegetated embankment (shrubs, trees) forming approximately 70% of the site.
Boundary Types	The site is accessed from the north via a double locked palisade gate approximately 2.0 m tall by 6.0 m wide, off Lee Side Road. A single-width road then enters the site. A wooden gate and fence approximately 2.0 m tall is located next to the entrance; a guard on the gate reported that this used to also be a site entrance but was now not in use. A palisade fence approx. 2.0 m tall bounds the site to the west, with the railway beyond. The embankment rises on the east of site, which is bounded by a stone wall approximately 1.0 m tall. The wall is in disrepair in many areas and livestock fencing has been placed over fallen areas. A Public Footpath is located adjacent to the east of the wall for much of the length of the site. The site is open to the south below the Ward Lane Bridge (access to the site is not possible from Ward Lane).
Surface Water Features	A stream was observed running approximately east-west on the field adjacent to the south east boundary, assumed to be a tributary of the River Tame. There was no evidence of the stream continuing onto the site, however a large drain/cover could be seen in the approximate location indicating that the stream may become culverted onto site. Diggle Brook flows beneath the north of the site; a bridge was observed from the site entrance which is likely to be over the brook.

18.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeology and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site and future use of the site as a construction compound. It is assumed that the

compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Made Ground associated with former developments on-site:
        - Railway buildings; and
        - Railway sidings.
    - Historical on-site uses including:
        - Refuse heaps; and
        - Unspecified tanks.
- Off-site:
    - Historical features surrounding the site including:
        - Railway sidings;
        - Railway line;
        - Unspecified mills;
        - Diggle station;
        - Diggle Mill;
        - Refuse heaps;
        - Ceramic works;
        - Unspecified pit;
        - Unspecified works;
        - Unspecified tanks;
        - Mill ponds;

- Loom Works;
- Tunnels; and
- Electricity substations.

- Current features surrounding the site including:
  - Telecommunication features;
  - Construction services;
  - Industrial engineers;
  - Vehicle repairs;
  - Textiles and machinery;
  - Electrical substations;
  - Tanks;
  - Factory; and
  - Gas governor station.
- Historical landfills:
  - Land at Warth Mills [65 m north-west];
  - Land at Ward Lane [137 m west]; and
  - Land off Huddersfield Road [250 m south-west].
- Pollution incidents:
  - Unidentified pollutants [69 m north-west]; and
  - Sewage materials [83 m east].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated

biphenyls (PCBs), volatile and semi volatile organic compounds (VOCs/SVOCs); and

- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future site users.
  - Off-site:
    - Residents and occupiers of commercial/ industrial premises; and
    - Users of public open space areas.
- Controlled Waters:
  - Groundwater:
    - Bedrock secondary A aquifer; and
    - Superficial secondary A aquifer.
  - Surface Water:
    - River Tame [on-site]; and
    - Huddersfield Narrow Canal summit section [16 m north-west].
- Property and Services:
  - On-site: construction compound buildings (offices, welfare, canteen, stores, etc.); and
  - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health:
  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters:
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.
- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction

Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 18-15 - Diggle Rail Hub Compound works - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following on-site sources: Made Ground associated with former developments on-site: Railway building; and Railway sidings Historical on-site uses including: Refuse heaps; and Unspecified tank Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	On-site: Human Health – Construction workers Future site users. Property – Compound related facilities Off-site: Human Health – Residents and occupiers of commercial/ industrial premises, use of public open spaces. Property and Services – Commercial businesses	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. During the site's use as a construction compound it is expected that the site surface will be predominately gravel cover or hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. It is also unlikely that significant excavation will take place on-site as it will be used for temporary welfare/offices and storage. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. However, there are businesses in the north/north-west area of the site. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The site is unlikely to be used after construction of the railway is complete and it is assumed that the site will be reinstated to its original condition. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and		Low	Medium	**Moderate/low risk** Made Ground is present on the site, which may be a source of ground gas.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
PCBs *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	accumulation (explosion). Inhalation of ground gas (asphyxiation).	and residential properties			Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site. Welfare cabins are likely to have a void between the floor and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Former buildings on-site increase the likelihood of asbestos being present from demolition of these structures. Based on the potential presence of asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The majority of the site, while in use as a compound, will be covered in hardstanding or gravel therefore it is unlikely that contact with the Made Ground or infilled ground will occur. Some of the site is already in use as a storage compound, underlain by gravel. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/Low Risk** The level of risk will be dependent on the potential for contaminants to migrate through the Made Ground and infilled ground on-site. Made Ground is recorded in the south of the site, resulting in Made Ground directly overlaying bedrock, as superficial deposits are only found in the

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Superficial secondary A aquifer			north of the site, increasing the potential migration of contaminants to bedrock over the majority of the site. As the site is being used as a storage compound, it is possible that new services (i.e. drainage) being installed for potential welfare cabins will create new preferential pathways. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as high for the bedrock aquifer and for the superficial aquifers If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal summit section	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to the surface waters located on-site. The Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. The hydraulic gradient is assumed to be towards the north, towards the River Tame, which also intersects with the site. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					reduced which will in turn reduce the mobilisation of leachate by rainwater. As the site may include welfare cabins and therefore require services (i.e. drainage), there is potential for the works to create preferential pathways to the controlled waters.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including: Railway sidings; Unspecified mills; Diggle station; Diggle Mill; Refuse heaps; Ceramic works; Unspecified pit;	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property – Compound related facilities	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Unspecified works; Unspecified tanks; Mill ponds; Loom Works; Tunnels; and	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Electricity substations.					industrialised areas is covered in hardstanding and/or vegetation.
Current features surrounding the site including: Telecommunication features; Construction services; Industrial engineers; Vehicle repairs; Textiles and machinery; Electrical substations; Tanks; Factory; and	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/Low Risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. As there are numerous sources of contamination close to the site, there is potential for contaminants to migrate to the site, via the hydraulic gradient. As the watercourses intersect the site, it is likely that any nearby contaminants would be able to reach the site. Superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
Gas governor station. Historical landfill: Land at Warth Mills [65 m north-west]; Land at Ward Lane [137 m west]; and Land off Huddersfield Road [250 m south-west]. Pollution incidents:	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/Low Risk** Historical landfills are located within 100 m of the site, which could be a potential source of ground gas. Due to the proximity of the historical landfill, migration to the site is possible. However, the landfill is underlain by cohesive superficial deposits and is also located on the other side of the Huddersfield Narrow Canal from the site, which will limit migration. No coal seams are located within 250 m of the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Unidentified pollutants [69 m north-west]; Sewage materials [83 m east]. *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*					

18.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If

risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge the relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

19. BASELINE FOR GRANDPA GREENE'S COMPOUNDS

19.1 Site history

Table 19-1 provides a summary of the historical development at the site and the surrounding area within 250 m of the site boundary which may represent potential sources of contamination. The history of the site and surrounding area (within 250 m of the site) has been determined principally by reference to historical maps obtained from Groundsure[28].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 19-1 – Grandpa Greene's compounds - Historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Cuttings	1904	0 m	on-site
Railway Sidings	1890-1951	0 m	on-site
Refuse Heaps	1890-1904	0 m	on-site
Unspecified Mills	1890-1980	11 m	north-west
Refuse heap	1890-1904	11 m	north-west
Unspecified Ground Workings	1933-1951	19 m	north-west
Railway Sidings	1890-1951	20 m	south-east
Warth Mill	1951	20 m	north-west
Unspecified Pit	1933-1951	20 m	north-west
Unspecified Tank	1951-1965	21 m	south-east
Railway Building	1890	22 m	south-east
Unspecified Ground Workings	1933-1951	24 m	south-west
Railway Sidings	1890-1951	28 m	south
Refuse Heap	1890	34 m	south-east
Electricity Substation	1951	74 m	north-west
Unspecified Tank	1893	75 m	north-west
Railway Building	1948	94 m	south-west
Refuse Heap	1890-1904	101 m	north
Tanks	1904-1906	101 m	north
Railway Sidings	1890-1951	116 m	south-west
Mill Pond	1890-1948	124 m	west

Feature	Date	Distance from site boundary	Direction from site boundary
Mill Pond	1890-1948	125 m	west
Mill Pond	1890-1948	181 m	south-west
Unspecified Pit	1904-1948	183 m	north
Ceramics Works	1904-1951	200 m	east
Railway Sidings	1890-1951	206 m	north-east
Unspecified Works	1933-1980	223 m	east
Unspecified Mill	1890	224 m	east
Refuse Heap	1890-1951	230 m	east
Railway Building	1904-1951	236 m	north-east

19.2 Published geology

A summary of the published geology relevant to the Grandpa Greene's Compounds site is provided below. The data has been sourced from Groundsure[28] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is not present on-site. Made Ground is recorded within 250 m of the site.

Superficial deposits

The 1:10,000 scale published geology maps indicated that there are no superficial deposits on-site. Till deposits are recorded 23 m north-west of the site, and Alluvium is recorded 55 m north-west.

Bedrock

The 1:10,000 scale published geology maps indicate there is one bedrock geology designated on-site. There is one other bedrock geology designation within 250 m of the site.

A summary of the bedrock geology encountered on-site and within 250 m of the site boundary is provided in Table 19-2. Figure 20-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 19-2 - Grandpa Greene's compounds - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional Details
Shale Grit	0 m 122 m	on-site south-east	Sandstone
Hebden Formation	137 m	west	Mudstone And Siltstone

Figure 19-1 - Grandpa Greene's compounds - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there is one bedrock fault on-site. There is one fault within 250 m of the site. Details are provided in Table 19-3 and faults are visible in Figure 20-1.

Table 19-3 - Grandpa Greene's compound - Bedrock fault summary

Description	Distance from site boundary	Direction from site boundary

Normal fault, inferred; crossmarks on downthrow side	0 m	on-site
Normal fault, inferred; crossmarks on downthrow side	122 m	south-east

19.3 Hydrogeology

Superficial aquifers

The data from Groundsure[28] indicates that there are no designated superficial aquifers underlying the site. A secondary (Undifferentiated) superficial aquifer is located 12 m south-west, and a secondary A superficial aquifer is located 67 m north-west.

The Environment Agency describes a secondary (Undifferentiated) superficial aquifer as “Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor or non-aquifer in different locations due to the variable characteristics of the rock type”.

Secondary A aquifers are described as “permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers”

Bedrock aquifers

The data from Groundsure[28] indicates that the site and surrounding area is underlain by a secondary A bedrock aquifer.

Groundwater vulnerability

Groundsure[28] data indicates that the groundwater vulnerability is high for the bedrock aquifer. A high classification is assigned to areas which are “able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits”.

Groundwater source protection zones

The data from Groundsure[28] and MAGIC website[4] both indicate that the site is not 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[28] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[28] indicates there are no licensed discharges to groundwater features on-site or within 250 m of the site.

19.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[28] as the Huddersfield Narrow Canal summit section, located 5 m north-west. A summary of all surface watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 19-4.

Table 19-4 - Grandpa Greene's compounds - Surface watercourses

Name of Watercourse	Type	Distance from Site	Direction from Site	WFD Overall Classification
Huddersfield Narrow Canal summit section	Canal	5 m	north-west	Moderate
Tame (Source to Chew Brook)	River	87 m	north	Moderate
Diggle duck pond	Pond	141 m	south-west	

Surface water discharge consents

The data from Groundsure[28] indicates there are no licensed discharge to surface water features on-site. There are three licensed discharges to surface water features within 250 m of the site. A summary of all surface water discharge consents within 250 m of the site has been provided in Table 19-5. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Table 19-5 - Grandpa Greene's compounds - Surface water discharge consents

Permit Number	Address	Receiving Water	Distance from Site	Direction from Site	Effective Date
016993370	Settlement Lagoon, Standedge Tunnel Portal,	Huddersfield Narrow Canal	27 m	north-west	08/03/2000

	Huddersfield Narrow Canal, Diggle, Oldham				
016982527	Hanging Gate Diggle SSO, Oldham, Greater Manchester	Diggle Brook	211 m	south-west	09/02/1993

Surface water abstractions

The data from Groundsure[28] indicates there are no surface water abstractions within 250 m of the site.

19.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[28] indicates that the maximum radon potential is 1-3 %. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above Action Level of 200 Bg m^{-3}.

19.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[28] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 19-6.

Table 19-6 - Grandpa Greene's compounds - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is not located within a coal mining area.
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral. There are no other non-coal mining areas within 250 m of the site.
British Pits (active or closed surface and	There are no brit pits on-site or within 250 m of the site.

Category	Summary
underground mineral workings)	
Surface Ground Workings	There are three surface ground workings features on-site. There are 15 other surface ground workings features within 250 m of the site. Details are provided in Table 19-7.
Underground Workings	There are no underground workings on-site or within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 19-7 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 19-7 - Grandpa Greene's compounds - Surface ground workings

Name	Distance from site	Direction from site	Date
Canal	0 m	north-west	1890-1951
Cuttings	0 m	on-site	1904
Refuse Heap	0 m	on-site	1890-1904
Unspecified Ground Workings	19 m	north-west	1933-1951
Unspecified Ground Workings	24 m	south-west	1933-1951
Pond	34 m	north-west	1890-1948
Refuse Heap	34 m	south-east	1890
Refuse Heap	41 m	north-east	18901904
Unspecified Heap	41 m	north-west	1951
Pond	93 m	north	1948
Refuse Heap	101 m	north	1904
Mill Pond	124 m	west	1890-1951
Pond	167 m	south-west	1933
Mill Pond	181 m	south-west	1890
Unspecified Pit	183 m	north	1904-1948
Pond	222 m	north-east	1890-1904
Refuse Heap	230 m	east	1890-1904

Name	Distance from site	Direction from site	Date
Unspecified Ground Workings	230 m	east	1951

The Mining Remediation Authority viewer[6] indicates that the site is not within a high-risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[28] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 19-8. However, no licence details have been provided by Groundsure.

Table 19-8 - Grandpa Greene's compounds - Landfill and waste summary

Category	Site Name or Address	Description of Waste	Distance from site	Direction from site	Licence Issue Date	Licence Status
Historical Landfill	-	-	23 m	north-west	-	-
Historical Landfill	-	-	170 m	south-west	-	-
Waste Exemptions	-	Use of waste in construction	196 m	south-east	-	-

19.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

19.8 Sensitive land uses

The data from Groundsure[28] indicates there are no sensitive land uses, including sites of special scientific interest (SSSIs), Ramsar or areas of conservation within 250 m of the site. The site is located within an SSSI impact zone.

19.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section emphasis on those activities within 250 m.

Pollution incidents

There are five pollution incidents reported by Groundsure[28] within 250 m of the site and a summary has been provided in Table 19-9.

Table 19-9 - Grandpa Greene's compounds - Pollution incidents

Type	Distance from site	Direction from site	Category of Incident: Air	Category of Incident: Land	Category of Incident: Water	Date of Incident
Pollutant not identified	99 m	south-west	Category 4 (No Impact)	Category 4 (No Impact)	Category 3 (Minor)	18/06/2001
Inert Materials and Wastes: Inert Materials and Wastes: General Biodegradable Materials and Wastes	177 m	north	Category 4 (No Impact)	Category 3 (Minor)	Category 4 (No Impact)	12/04/2001
General Biodegradable Materials and Wastes	177 m	north	Category 4 (No Impact)	Category 3 (Minor)	Category 4 (No Impact)	12/04/2001
Sewage materials	179 m	south-east	Category 3 (Minor)	Category 4 (No Impact)	Category 3 (Minor)	12/05/2001
Oils and Fuel	211 m	south-west	Category 4 (No Impact)	Category 4 (No Impact)	Category 2 (Significant)	24/08/2001

Pollution prevention and controls

The data from Groundsure[28] indicates there are Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site. There is one historical licensed pollutant release (Part 2A/B) located 131 m north-west of the site.

Planning hazardous substance consents

The data from Groundsure[28] indicates there is one Control of Major Accident Hazards (COMAH) site/planning hazardous substance within 250 m of the site. A summary has been provided in Table 19-10.

Table 19-10 - Grandpa Greene's compounds - Planning hazardous consents

Type	Site	Description	Distance from site	Direction from site	Status
List 2 Dangerous Substances		Copper, Iron, Lead, Zinc	27 m	north-west	Not Active

Radioactive substances

The data from Groundsure[28] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[28] indicates there are no recent industrial land uses on-site. There are 13 recent industrial land uses within 250 m of the site. A summary has been provided in Table 19-11.

Table 19-11 - Grandpa Greene's compounds - Contemporary trade directory

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Mast (Telecommunication)	Infrastructure and Facilities	Telecommunications Features	27 m	south-east
Business Park	Industrial Features	Business Parks and Industrial Estates	68 m	north-west
Alt Engineering	Engineering Services	Industrial Engineers	85 m	north
Diggle Motor Services Ltd	Repair and Servicing	Vehicle Repair, Testing and Servicing	85 m	north
L K Cars	Motoring	Secondhand Vehicles	85 m	north
S P S Substructure Protection Ltd	Engineering Services	Civil Engineers	85 m	north
Saddleworth Traditional Sash Windows	Industrial Products	Glass	85 m	north
Shepley Yarns	Industrial Products	Textiles, Fabrics, Silk and Machinery	85 m	north
Woolyknit	Industrial Products	Textiles, Fabrics, Silk and Machinery	85 m	north
Dene Garage Greenfield Ltd	Repair and Servicing	Vehicle Repair, Testing and Servicing	95 m	north
Electricity Substation	Infrastructure and Facilities	Electrical Features	145 m	north-west

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Factory	Industrial Features	Unspecified Works Or Factories	162 m	north-west
Mast (Telecommunication)	Infrastructure and Facilities	Telecommunications Features	172 m	north-east

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[28].

Contaminated land designations

According to Groundsure[28], there are no sites designated as contaminated land on-site or within 250 m under Part 2A of the Environmental Protection Act 1990.

19.10 Site area reconnaissance

A site walkover was undertaken on 17 March 2025 by a AtkinsRéalis environmental scientists. A summary of the observations made during the visit is provided as follows.

Table 19-12 - Grandpa Greene's compounds - Site walkover summary

Item	Description
Location	The site is located on third party land in Diggle, Oldham. The site is off-track with national grid reference SE 00388 07691 and What3Words of dictation.panther.gushes. The site is located via the canal towpath or through a dirt access track adjacent to the Grandpa Greene's ice cream parlour on Ward Lane. The compound covers an area of approximately 0.7 ha. Warth Mill is located to the north of the site, the Huddersfield Narrow Canal bounds the compound to the west, the railway track is to the west and commercial properties are located to the south.
Description of current use/ activities	The site comprises of unused vegetated land.
Fuel/chemical storage	There is no evidence of fuel storage on-site.

Item	Description
Evidence of land contamination	No evidence of land contamination was observed.
Invasive Species	No invasive species were observed during the walkover.
Surface coverage	The site comprised entirely of vegetation cover, made up of grass, trees and shrubbery. The site is relatively flat across the area, with a slight slope from the canal in the west up to the centre of the site.
Boundary Types	A low stone wall is located on the western boundary, fencing is located in the south associated with the ice cream parlour. There are no separating boundaries along the northern boundary. The eastern boundary is unknown from PRoW viewpoint, however from viewpoint on Ward Lane it is assumed that dense trees and potential fencing runs along the eastern boundary.
Surface Water Features	The Huddersfield Narrow Canal runs adjacent to the western boundary, down slope from the site.

19.11 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeology and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site and future use of the site as a construction compound. It is assumed that the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical developments on the site including:
        - Railway sidings; and
        - Refuse heaps.
- Off-site:
    - Historical developments surrounding the site including:
        - Unspecified mills;
        - Tanks;
        - Railway building and sidings;
        - Electricity substation;
        - Refuse heaps;
        - Mill ponds;
        - Unspecified ground workings; and
        - Ceramic works.
    - Current land uses surrounding the site including:
        - Engineers;
        - Garages;
        - Electricity substations; and
        - Factory.
    - Historical landfills:
        - 23 m north-west; and
        - 170 m south-west.
    - Pollution incidents:
        - Unidentified pollutant [90 m south-west];
        - Inert materials and wastes [177 m north];

- General biodegradable materials and waste [177 m north];
- Sewage materials [179 m south-east]; and
- Oils and fuels [211 m south-west].

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi-volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future site users.
  - Off-site:
    - Residents and occupiers of commercial/ industrial premises; and
    - Users of public open space areas.
- Controlled Waters:
  - Groundwater:
    - Bedrock secondary A aquifer.
  - Surface Water:
    - River Tame;

- Diggle duck pond; and
- Huddersfield Narrow Canal summit section.

- Property and Services:
  - On-site: construction compound buildings (offices, welfare, canteen, stores, etc.); and
  - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health:
  - Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
  - ingestion of contaminated soils, soil-derived dust and groundwater;
  - dermal contact with soil, soil-derived dust and groundwater; and
  - inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.
- Controlled Waters:
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.
- Property and Services:

- Ground gas migration and build up within confined spaces; and
- potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment

Table 19-13 - Grandpa Greene's compounds - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Historical developments surrounding the site including: Railway sidings; and Refuse heaps. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	<u>On-site: Human Health</u> – Construction workers Future site users. <u>Property</u> – Compound related facilities <u>Off-site: Human Health</u> – Residents and occupiers of commercial/ industrial premises, use of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is some potential for contaminants to be present in soil and groundwater on-site. During the site's use as a construction compound it is expected that the site surface will be predominately gravel cover or hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. It is also unlikely that significant excavation will take place on-site as it will be used for temporary welfare/offices and storage. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. However, there are businesses to the south of the site. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The site is unlikely to be used after construction of the railway is complete and it is assumed that the site will be reinstated to its original condition. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** Made Ground is not recorded on the site, however may still be present, which may be a source of ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					Welfare cabins are likely to have a void between the floor and ground, therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** There are no former buildings on-site reducing the likelihood of asbestos being present underlying the site. The majority of the site, while in use as a compound, will be covered in hardstanding or gravel therefore it is unlikely that contact with the Made Ground or infilled ground will occur. Some of the site is already in use as a storage compound, underlain by gravel. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through potential Made Ground and infilled ground on-site. There are no superficial deposits recorded on the site, increasing the potential migration of contaminants to bedrock over the site. As the site is being used as a storage compound, it is possible that new services (i.e. drainage) being installed for potential welfare cabins will create new preferential pathways. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					vulnerability is classed as high for the bedrock aquifer. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – River Tame Huddersfield Narrow Canal summit section Diggle duck pond	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is likely that leachable contaminants will migrate to the surface waters located on-site. The Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. As the site may include welfare cabins and therefore require services (i.e. drainage), there is potential for the works to create preferential pathways to the controlled waters.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical features surrounding the site including:	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property – Compound related facilities	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Historical developments surrounding the site including: Unspecified mills; Tanks;					The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Railway building and sidings; Electricity substation; Refuse heaps; Mill ponds; Unspecified ground workings; and Ceramic works.	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
Current land uses surrounding the site including: Engineers; Garages; Electricity substations; and Factory. Historical landfills: 23 m north-west; and 170 m south-west. Pollution incidents:	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. As there are numerous sources of contamination close to the site, there is potential for contaminants to migrate to the site, via the hydraulic gradient. As the watercourses intersect the site, it is likely that any nearby contaminants would be able to reach the site. Superficial deposits present between the Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses, or private water supplies are recorded within 250 m of the site.
	Migration of gases into confined		Low	Medium	**Moderate/low risk**

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Unidentified pollutant [90 m south-west]; Inert materials and wastes [177 m north]; General biodegradable materials and waste [177 m north]; Sewage materials [179 m south-east]; and Oils and fuels [211 m south-west]. *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).				Historical landfills are located within 100 m of the site, which could be a potential source of ground gas. Due to the proximity of the historical landfill, migration to the site is possible. However, the landfill is underlain by cohesive superficial deposits and is also located on the other side of the Huddersfield Narrow Canal from the site, which will limit migration. No coal seams are located within 250 m of the site.

19.12 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

20. BASELINE FOR SAM ROAD COMPOUND

20.1 Site history

Table 20-1 provides a summary of the historical development at the site and the surrounding area within 250 m of the site boundary which may represent potential sources of contamination. The history of the site and surrounding area (within 250 m of the site) has been determined principally by reference to historical maps obtained from Groundsure[28].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 20-1 – Sam Road Compound - Historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Railway Sidings	1890-1951	0 m	on-site
Refuse Heap	1890-1904	0 m	on-site
Unspecified Mill	1951	0 m	on-site
Unspecified Mills	1890-1980	0 m	on-site
Railway Sidings	1890-1951	2 m	south-east
Unspecified Ground Workings	1933-1951	17 m	west
Unspecified Pit	1904-1948	20 m	north-west
Railway Building	1890-1951	26 m	south-east
Refuse Heap	1890-1904	27 m	south-west
Railway Building	1890	30 m	north-east
Railway Sidings	1890-1951	38 m	south-east
Ceramics Works	1904-1951	76 m	south-east
Railway Building	1890-1951	92 m	east
Unspecified Mill	1890	100 m	south-east
Unspecified Works	1933-1980	100 m	south-east
Railway Building	1890	108 m	north-east
Unspecified Ground Workings	1951	116 m	south-east
Refuse Heap	1890-1904	125 m	south-east

Feature	Date	Distance from site boundary	Direction from site boundary
Unspecified Tank	1951-1965	130 m	north-east
Unspecified Disused Mill	1890-1948	135 m	north-east
Railway Sidings	1890-1951	142 m	south-west
Refuse Heap	1890-1904	143 m	south-west
Warth Mill	1951	150 m	south-west
Unspecified Tanks	1904-1906	166 m	west
Railway Building	1890-1951	176 m	north-east
Tunnels	1890-1980	185 m	north-east
Mill Pond	1933-1951	195 m	north-east
Refuse Heaps	1890	195 m	south-west
Cuttings	1904	199 m	south-west
Mill Ponds	1951	199 m	south-east
Electricity Substation	1951	203 m	south-west

20.2 Published geology

A summary of the published geology relevant to the Sam Road Compound site is provided below. The data has been sourced from Groundsure[28] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is not present on-site. Made Ground is recorded within 250 m of the site; the closest instance is recorded as 6 m west of the site.

Superficial deposits

The 1:10,000 scale published geology maps indicate that there is Alluvium at the south boundary of the site. Superficial deposits are not recorded underlying the rest of the site.

Bedrock

The 1:10,000 scale published geology maps indicate there is one bedrock geology designation on-site, Shale Grit. There are no other bedrock geology designation within 250 m of the site.

Bedrock formations up to 250 m away are present in Figure 21-1; beyond the 250 m buffer, no bedrock information is included in this report.

Figure 20-1 - Sam Road Compound – Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there is one bedrock fault on-site. There is one fault within 250 m of the site. Details are provided in Table 20-2 and faults are visible in Figure 21-1.

Table 20-2 - Sam Road Compound - Bedrock fault summary

Description	Distance from site boundary	Direction from site boundary
Normal fault, inferred; crossmarks on downthrow side	0 m	on-site
Normal fault, inferred; crossmarks on downthrow side	178 m	west

20.3 Hydrogeology

Superficial aquifers

The data from Groundsure[28] indicates that a secondary A superficial aquifer underlies the south of the site.

Bedrock aquifers

The data from Groundsure[28] indicates that the site and surrounding area is underlain by a secondary A bedrock aquifer.

Groundwater vulnerability

Groundsure[28] data indicates that the groundwater vulnerability is high for the bedrock aquifer and the superficial aquifer. A high classification is assigned to areas which are “able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits”.

Groundwater source protection zones

The data from Groundsure[28] and MAGIC website[4] both indicate that the site is not 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[28] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The data from Groundsure[28] indicates there are no licensed discharges to groundwater features on-site or within 250 m of the site.

20.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[28] as the Huddersfield Narrow Canal summit section, located on-site. A summary of all surface watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site has been provided in Table 20-3.

Table 20-3 - Sam Road Compound - Surface watercourses

Name of Watercourse	Type	Distance from Site	Direction from Site	WFD Overall Classification
Huddersfield Narrow Canal summit section	Canal	0 m	on-site	Moderate
Diggle Brook	River	30 m	south	-
Unnamed watercourse	On ground surface watercourse	250 m	west	-

Surface water discharge consents

The data from Groundsure[28] indicates there are no licensed discharge to surface water features on-site or within 250 m of the site. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Surface water abstractions

The data from Groundsure[28] indicates there are no surface water abstractions within 250 m of the site.

20.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[28] indicates that the maximum radon potential is 1-3 %. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above Action Level of 200 Bg m^{-3}.

20.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure [1] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 20-4.

Table 20-4 - Sam Road Compound - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is not located within a coal mining area.

Category	Summary
Non-Coal Mining Features	There is one non-coal mining area on-site, for vein mineral. There are no other non-coal mining areas within 250 m of the site.
British Pits (active or closed surface and underground mineral workings)	There are no brit pits on-site or within 250 m of the site.
Surface Ground Workings	There are two surface ground workings features on-site. There are 15 other surface ground workings features within 250 m of the site. Details are provided in Table 20-5.
Underground Workings	There are no underground workings on-site. There is one underground working within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 20-5 provides further detail on each mineral exploitation feature and the relative distance and direction from the site boundary.

Table 20-5 - Sam Road Compound - Surface ground workings

Name	Distance from site	Direction from site	Date
Canal	0 m	on-site	1890-1951
Refuse Heap	0 m	on-site	1890
Unspecified Ground Workings	17 m	west	1933-1951
Pond	18 m	south-east	1904
Refuse Heap	27 m	south-west	1904
Pond	30 m	south-west	1948
Pond	44 m	south-east	1890-1951
Refuse Heap	64 m	south-west	1904
Unspecified Ground Workings	116 m	south-east	1951

Name	Distance from site	Direction from site	Date
Refuse Heap	129 m	south-east	1890-1904
Refuse Heap	143 m	south-west	1890
Pond	181 m	south-west	1890-1948
Tunnels	185 m	north-east	1890-1980
Mill Pond	189 m	north-east	1890-1951
Refuse Heaps	195 m	south-west	1890
Cuttings	199 m	south-west	1904
Mill Ponds	199 m	south-east	1951

The Mining Remediation Authority viewer[6] indicates that the site is not within a high-risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[28] records landfills/waste management facilities within 250 m of the site. A summary of all historical and current landfills and waste sites has been provided in Table 20-6. However, no licence details have been provided by Groundsure.

Table 20-6 - Sam Road Compound - Landfill and waste summary

Category	Site Name or Address	Description of Waste	Distance from site	Direction from site	Licence Issue Date	Licence Status
Historical Landfill		-	174 m	south-west	-	-
Waste Exemptions	Npa - Lee Side Diggle Oldham Ol3 5jy	Deposit of waste from dredging of inland waters	93 m	north-east	-	-
Waste Exemptions	-	Use of waste in construction	202 m	north-east	-	-
		Use of mulch				
Waste Exemptions	Sunfield Stables Diglea Oldham OL3 5LA	Burning waste in the open	226 m	east		
		Use of waste for a specified purpose	226 m	east		
		Burning of waste as a fuel	226 m	east		

Category	Site Name or Address	Description of Waste	Distance from site	Direction from site	Licence Issue Date	Licence Status
		in a small appliance				
		Spreading waste on agricultural land to confer benefit	226 m	east		
		Use of mulch	226 m	east		
		Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising	226 m	east		
		Deposit of waste from dredging of inland waters	226 m	east		
		Spreading of plant matter to confer benefit	238 m	east		
		Incorporation of ash into soil	238 m	east		
		Pig and poultry ash	238 m	east		
		Treatment of sheep dip for disposal	238 m	east		
		Treatment of kitchen waste in a wormery	238 m	east		
		Treatment of waste in a biobed or biofilter	238 m	east		
		Use of waste in construction	238 m	east		
		Use of waste derived biodiesel as fuel	238 m	east		

20.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

20.8 Sensitive land uses

The data from Groundsure[28] indicates there are no sensitive land uses, including sites of special scientific interest (SSSIs), Ramsar or areas of conservation within 250 m of the site. The site is located within an SSSI impact zone.

20.9 Regulatory information

Regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 1 km search area was generally adopted; this section emphasis on those activities within 250 m.

Pollution incidents

There are three pollution incidents reported by Groundsure[28] within 250 m of the site and a summary has been provided in Table 20-7.

Table 20-7 - Sam Road Compound - Pollution incidents

Type	Distance from site	Direction from site	Category of Incident: Air	Category of Incident: Land	Category of Incident: Water	Date of Incident
Sewage Materials	124 m	south-east	Category 4 (No Impact)	Category 3 (Minor)	Category 3 (Minor)	28/07/2003
General Biodegradable Materials and Wastes	157 m	west	Category 4 (No Impact)	Category 3 (Minor)	Category 4 (No Impact)	12/04/2001
Inert Materials and Wastes	157 m	west	Category 4 (No Impact)	Category 3 (Minor)	Category 4 (No Impact)	12/04/2001

Pollution prevention and controls

The data from Groundsure[28] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[28] indicates there are no Control of Major Accident Hazards (COMAH) sites/planning hazardous consents within 250 m of the site.

Radioactive substances

The data from Groundsure[28] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[28] indicates there are no recent industrial land uses on-site. There are nine recent industrial land uses within 250 m of the site. A summary has been provided in Table 20-8.

Table 20-8 - Sam Road Compound - Contemporary trade directory

Site	Industrial Land Use Category	Description	Distance from site	Direction from site
Mast (Telecommunication)	Infrastructure and Facilities	Telecommunications Features	53 m	south
Dene Garage Greenfield Ltd	Repair and Servicing	Vehicle Repair, Testing and Servicing	188 m	west
Alt Engineering	Engineering Services	Industrial Engineers	191 m	south-west
Diggle Motor Services Ltd	Repair and Servicing	Vehicle Repair, Testing and Servicing	191 m	south-west
L K Cars	Motoring	Secondhand Vehicles	191 m	south-west
S P S Substructure Protection Ltd	Engineering Services	Civil Engineers	191 m	south-west
Saddleworth Traditional Sash Windows	Industrial Products	Glass	191 m	south-west
Shepley Yarns	Industrial Products	Textiles, Fabrics, Silk and Machinery	191 m	south-west
Woolyknit	Industrial Products	Textiles, Fabrics, Silk and Machinery	191 m	south-west

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[28].

Contaminated land designations

According to Groundsure[28], there are no sites designated as contaminated land on-site or within 250 m under Part 2A of the Environmental Protection Act 1990.

20.10 Initial conceptual site model

Through a review of available historical and published information (e.g. geological, hydrogeology and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of existing site and future use of the site as a construction compound. It is assumed that the compound will be returned to the current site condition following construction works.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical developments on the site including:
        - Railway sidings;
        - Refuse heap; and
        - Unspecified mills.
- Off-site:
    - Historical developments surrounding the site including:

        - Railways buildings and sidings;
        - Refuse heaps;
        - Ceramics works;
        - Unspecified mills;
        - Unspecified works;
        - Tanks;
        - Mill ponds;
        - Tunnels; and
        - Electricity substation.
    - Current land uses surrounding the site including:
        - Garages; and
        - Engineers.
    - Historical landfills:
        - 174 m south-west.
    - Pollution incidents:
        - 124 m south-east;
        - 157 m west.

Potential contaminants associated with the above sources include:

- Inorganics including metals and metalloids, asbestos, cyanide, sulphate, ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), polychlorinated biphenyls (PCBs), volatile and semi-volatile organic compounds (VOCs/SVOCs); and
- ground and landfill gases.

Potential receptors

The following receptors have been identified at the site based on a future public open space end use and during construction works:

- Human Health:
  - On-site:
    - Construction workers associated with the construction of the site; and
    - Future site users.
  - Off-site:
    - Residents and occupiers of commercial/ industrial premises; and
    - Users of public open space areas.
- Controlled Waters:
  - Groundwater:
    - Bedrock secondary A aquifer; and
    - Superficial secondary A aquifer.
  - Surface Water:
    - Diggle Brook;
    - Huddersfield Narrow Canal summit section; and
    - Unnamed watercourse.
- Property and Services:
  - On-site: construction compound buildings (offices, welfare, canteen, stores, etc.); and
  - Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

- Human Health:

- Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
- ingestion of contaminated soils, soil-derived dust and groundwater;
- dermal contact with soil, soil-derived dust and groundwater; and
- inhalation of organic vapours (e.g. from fuel spills) and ground/landfill gas.

- Controlled Waters:
  - Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
  - lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
  - migration of groundwater to the Huddersfield narrow canal west section and the River Tame;
  - migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
  - surface water run-off.

- Property and Services:
  - Ground gas migration and build up within confined spaces; and
  - potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during

the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment

Table 20-9 - Sam Road Compound - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Historical developments surrounding the site including: Railway sidings; Refuse heap; and Unspecified mills. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *PCBs* *Volatile organic compounds (VOCs)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	<u>On-site: Human Health</u> – Construction workers Future site users. <u>Property</u> – Compound related facilities <u>Off-site: Human Health</u> – Residents and occupiers of commercial/industrial premises, use of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is the potential for contaminants to be present in soil and groundwater on-site. During the site's use as a construction compound it is expected that the site surface will be predominately gravel cover or hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. It is also unlikely that significant excavation will take place on-site as it will be used for temporary welfare/offices and storage. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. However, there are businesses in the north/north-west area of the site. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The site is unlikely to be used after construction of the railway is complete and it is assumed that the site will be reinstated to its original condition. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion).		Unlikely	Medium	**Low Risk** Made Ground is not present on the site, reducing the potential for ground gas. Installation of new services (e.g. drainage) has the potential to introduce new migration pathways to enclosed spaces on the site.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	Inhalation of ground gas (asphyxiation).				Welfare cabins are likely to have a void between the floor and ground; therefore ingress of gas is unlikely to be sufficient to pose an unacceptable risk.
	Inhalation of asbestos fibres.		Low	Severe	**Moderate risk** Former buildings on-site increase the likelihood of asbestos being present from demolition of these structures. Based on the potential presence of asbestos in made ground, that is associated with potential former building demolitions, additional ground investigation is required to substantiate or discount this potential risk. The majority of the site, while in use as a compound, will be covered in hardstanding or gravel therefore it is unlikely that contact with the Made Ground or infilled ground will occur. Some of the site is already in use as a storage compound, underlain by gravel. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer Superficial secondary A aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through potential Made Ground and infilled ground on-site. Superficial deposits are only recorded in the south of the site, increasing the potential for migration of contaminants to bedrock over the site. As the site is being used as a storage compound, it is possible that new services (i.e. drainage) being installed for potential welfare cabins will create new preferential pathways. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					vulnerability is classed as high for the bedrock aquifer and for the superficial aquifers If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Surface Water Controlled Waters – Huddersfield Narrow Canal summit section Diggle Brook Unnamed watercourse	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable contaminants will migrate to the surface waters located on-site. The Huddersfield Narrow Canal west section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater. As the site may include welfare cabins and therefore require services (i.e. drainage), there is potential for the works to create preferential pathways to the controlled waters.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical developments	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property – Compound related facilities	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation.

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
surrounding the site including: Railways buildings and sidings; Refuse heaps; Ceramics works;					The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
Unspecified mills; Unspecified works; Tanks; Mill ponds; Tunnels; and Electricity substation.	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
Current land uses surrounding the site including: Garages; and Engineers. Historical landfills: 174 m south-west. Pollution incidents: 124 m south-east; 157 m west. *Possible contaminants include:* *Asbestos* *Metals* *PAHs*	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. As there are numerous sources of contamination close to the site, there is potential for contaminants to migrate to the site. As the watercourse intersects the site, it is likely that any nearby contaminants would be able to reach the site. Superficial deposits present between potential Made Ground and bedrock will limit migration of contaminants. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
	Migration of gases into confined spaces/buildings and		Low	Medium	**Moderate/low risk** Historical landfills are located within 250 m of the site, which could be a potential source of ground

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Petroleum hydrocarbons *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	accumulation (explosion). Inhalation of ground gas (asphyxiation).				gas. Due to the proximity of the historical landfill, migration to the site is not likely. The landfill is underlain by cohesive superficial deposits which will limit migration. No coal seams are located within 250 m of the site.

20.11 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

Based on the initial conceptual site model, there are potential risks to future site users and this should be mitigated through ground investigation and further assessment. Following further ground investigation, an interpretative report including risk assessments (human health, controlled waters and gas, where applicable) will be undertaken to assess and confirm the potential impacts from contamination and to identify further mitigation measures that have not already been identified. Further recommendations will also be provided to allow the redevelopment of the site. If, following ground investigation and further assessment, there are remaining unacceptable risks, further mitigation may be required which could include remediation of contamination hot spots or provision of clean, capping layers in soft landscaping.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If

risk is identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

21. BASELINE FOR DIGGLE ACCESS AND DIVERSION ROUTE

21.1 Site history

Table 21-1 provides a summary of the historical development at the Diggle site and the surrounding 250 m buffer area which may represent potential sources of contamination. The history of the site and the surrounding 250 m area has been determined principally by reference to historical maps obtained from Groundsure[27].

Historical development categorised as historical industrial land use was derived from 1:10,000 and 1:10,560 historical Ordnance Survey (OS) maps. All other historical development data, including tanks, energy features, petrol stations, and garages, were derived from 1:2,500 and 1:1,250 scale historical maps. Military land features are derived from these small-scale maps in addition to a variety of pertinent sources, including National Archives, Local Authority records, and Ministry of Defence Records.

Table 21-1 – Diggle Access and Diversion Route - Historical development

Feature	Date	Distance from site boundary	Direction from site boundary
Tunnels	1890-1980	0 m	on-site
Railway Sidings	1890--1951	4 m	north-west
Mill Pond	1890-1948	12 m	south-west
Railway Building	1890-1951	17 m	north-west
Unspecified Mill	1890, 1904, 1948	27 m	north-east
Unspecified Tank	1951-1965	47 m	south-west
Railway Station	1904-1951	49 m	south-west
Unspecified Heap	1890-1951	50 m	north-west
Disused Grove Mill	1933-1951	52 m	north
Unspecified Disused Mill	1890-1980	65 m	west
Railway Building	1890	74 m	south-west
Mill Pond	1904-1951	79 m	north-west
Old quarry	1890	82 m	north-west
Railway Building	1890-1951	88 m	south-west
Mitchell Mill (woolen)	1951	91 m	south-west
Railway Sidings	1890-1951	96 m	south-west

[27] Groundsure 2025, Enviro + Geo Insight (GS-2FF-J4C-8W8-RF2)

Feature	Date	Distance from site boundary	Direction from site boundary
Tanks	1904-1993	111 m	north-west
Railway Building	1890	127 m	south-west
Harrop Court Mill (woollen)	1893-1995	145 m	west
Unspecified Mills	1951-1980	187 m	south-west
Ceramic Works	1904-1980	204 m	south-west
Refuse Heap	1904-1948	220 m	north-east
Railway Building	1904-1951	226 m	south-west
Refuse Heap	1933-1951	233 m	south-east
Mill Ponds	1890-1951	235 m	south
Diggle Mill (paper)	1890-1951	242 m	south-west

21.2 Published geology

A summary of the published geology relevant to the Diggle Access and Diversion Route is provided below. The data has been sourced from Groundsure[29] and the British Geological Survey (BGS) GeoIndex[3].

Artificial geology

The 1:10,000 scale published geology maps indicate that Made Ground is not recorded on-site. Made Ground is recorded within 250 m of the site, the closest instance is recorded as 9 m north-west.

Superficial deposits

The 1:10,000 scale published geology maps indicate that there are no superficial deposits underlying the site. Alluvium is recorded 173 m south of the site.

Bedrock

The 1:10,000 scale published geology indicates there are two bedrock geology designations on the site. There are no additional bedrock formations recorded within 250 m of the site.

A summary of the bedrock geology encountered on-site is provided in Table 21-2. Figure 22-1 presents bedrock formations up to 250 m away from the site; beyond the 250 m buffer, no bedrock information is included in this report.

Table 21-2 - Diggle Access and Diversion Route - Bedrock geology summary

Description	Distance from site boundary	Direction from site boundary	Additional details
Hebden Formation	0 m	on-site	Mudstone And siltstone
Shale Grit	0 m 207 m	on-site west	Sandstone

Figure 21-1 - Diggle Access and Diversion Route - Summary of bedrock and linear features

Faults and linear features

The 1:10,000 scale published geology indicates there are three bedrock fault on the site and one other within 250 m of the site. Details are provided in Table 21-3 and faults are visible in Figure 22-1.

Table 21-3 - Diggle Access and Diversion Route - Faults and linear features

Description	Distance from site boundary	Direction from site boundary
Normal fault, inferred; crossmarks on downthrow side	0 m	on-site
Normal fault, inferred; crossmarks on downthrow side	207 m	west

21.3 Hydrogeology

Superficial aquifers

The data from Groundsure[29] indicates there are no designated superficial aquifers on-site. A secondary A aquifer is located 172 m south of the site.

The Environment Agency describes a secondary A aquifer as “Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.”

Bedrock aquifers

The data from Groundsure[29] indicates that the site and surrounding area is underlain by a secondary A bedrock aquifer.

Groundwater vulnerability

Groundsure[29] data indicates that the groundwater vulnerability is medium for the bedrock aquifer. Medium vulnerability indicates that the groundwater is an intermediate between high (areas easily able to transmit pollution to groundwater) and low (areas that provide the greatest protection from pollution).

Groundwater source protection zones

The data from Groundsure[29] and MAGIC website[4] both indicate that the site is not within 250 m of a Groundwater Source Protection Zone.

Groundwater abstractions

The data from Groundsure[29] indicates that there are no groundwater abstraction licenses within 250 m of the site.

Groundwater discharge consents

The date from Groundsure[29] indicates there are no licensed discharge consents to groundwater on-site or within 250 m of the site.

21.4 Hydrology

Surface watercourses

The nearest surface watercourse is recorded by Groundsure[29] as the Huddersfield Narrow Canal summit section, which is located on-site. A summary of all surface watercourses (rivers, lakes, canals, and coastal and transitional waters) within 250 m of the site have been provided in Table 21-4.

Table 21-4 - Diggle Access and Diversion Route - Surface watercourses

Name of watercourse	Type	Distance from site boundary (m)	Direction from site boundary	WFD overall classification
Huddersfield Narrow Canal summit section	Canal	0 m	on-site	Moderate
Unnamed watercourse	On ground surface watercourse	10 m	north-west	-
Tame (Source to Chew Brook)	River	215 m	south	Moderate

Surface water discharge consents

The data from Groundsure[29] indicates there are no licensed discharge to surface water features on-site or within 250 m of the site. In addition, there are no pollutant release to surface water features on-site or within 250 m of the site.

Surface water abstractions

The data from Groundsure[29] indicates there are no surface water abstractions on-site or within 250 m of the site.

21.5 Radon

Information from the BGS National Geoscience Information Service provided by Groundsure[29] indicates that the maximum radon potential is 1-3%. The UK Radon Map[5] indicates that this results in a 1-3% chance of a house having a radon concentration at or above the Action Level of 200 Bq m^{-3}.

21.6 Quarrying, mining and landfilling

Mines and mineral deposits

The data from Groundsure[29] records sites of coal mining, mineral exploitation, and other non-coal related activities within 250 m of the site. A summary of the mineral exploitation is provided in Table 21-5.

Table 21-5 - Diggle Access and Diversion Route - Mineral exploitation summary

Category	Summary
Coal seams (derived from 1:10,000 and 1:50,000 scale maps)	There are no coal seams on the site or within 250 m of the site.
Coal Mining Areas	The site is not located within a coal mining area.
Non-Coal Mining Features	There are two non-coal mining areas on-site, for vein mineral. There are no other non-coal mining areas within 250 m of the site.
British Pits (active or closed surface and underground mineral workings)	There are no brit pits on-site or within 250 m of the site.
Surface Ground Workings	There are no surface ground workings features on-site. There are nine other surface ground workings features within 250 m of the site. Details are provided in Table 21-6.
Underground Workings	There is one underground workings on-site. There are no other underground workings within 250 m of the site.
Historical Mineral Planning Areas	There are no historical mineral planning areas on-site or within 250 m of the site.

Table 21-6 provides further details on surface ground workings and the relative distance from the site boundary.

Table 21-6 - Diggle Access and Diversion Route - Surface ground workings

Name	Distance from site boundary	Direction from site boundary	Date
Tunnels	0 m	on-site	1890-1980
Mill Pond	12 m	south-west	1890-1948
Unspecified Heap	50 m	north-west	1890-1951
Pond	75 m	north	1890-1980
Unspecified Pit	82 m	north-west	1890
Pond	122 m	south-west	1890-1980
Refuse Heap	220 m	north-east	1904-1951
Mill Ponds	243 m	south	1933-1951
Unspecified Ground Workings	243 m	south-west	1933-1951
Pond	246 m	south-west	1890

The Mining Remediation Authority[6] viewer indicates the site is not within a high risk development area.

Historical and current landfills and waste management facilities

The data from Groundsure[29] records no landfills/waste management facilities within 250 m of the site. There are waste exemptions within 250 m of the site. A summary of all waste exemptions has been provided in Table 21-7.

Table 21-7 - Diggle Access and Diversion Route - Landfill and waste summary

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary
Waste Exemptions	-	Use of mulch	5 m	north-west
		Use of waste in construction		
Waste Exemptions	Sunfield Stables, Diglea, Diggle, Oldham, OL3 5LA	Incorporation of ash into soil	63 m	south-east
		Use of waste in construction		
		Burning of waste as a fuel in a small appliance		
		Treatment of waste wood and		

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary
		waste plant matter by chipping, shredding, cutting or pulverising		
		Deposit of waste from dredging of inland waters		
		Pig and poultry ash		
		Use of waste derived biodiesel as fuel		
		Spreading of plant matter to confer benefit		
		Spreading waste on agricultural land to confer benefit		
		Use of mulch		
		Treatment of sheep dip for disposal		
		Treatment of waste in a biobed or biofilter		
		Burning waste in the open		
		Treatment of kitchen waste in a wormery		
Waste Exemptions	Npa - Lee Side Diggle Oldham OL3 5JY	Deposit of waste from dredging of inland waters	98 m	south-west
Waste Exemptions	Ridge Farm, Ridge Lane, Diggle, Oldham, Ol3 5lr	Storage of waste in secure containers	200 m	north-west
		Use of waste for a specified purpose		
		Treatment of waste wood and		

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary
		waste plant matter by chipping, shredding, cutting or pulverising		
		Spreading of plant matter to confer benefit		
		Burning waste in the open		
		Spreading waste on agricultural land to confer benefit		
		Use of waste in construction		
		Burning of waste as a fuel in a small appliance		
		Storage of sludge		
		Storage of waste in a secure place		
		Spreading waste on agricultural land to confer benefit		
Waste Exemptions	Thurstons Farm, Ridge Lane, Diggle, Oldham, Ol3 5lr	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice	246 m	north-west
		Disposal by incineration		
		Use of waste in construction		
		Burning of waste as a fuel in a small appliance		
		Cleaning, washing, spraying or coating relevant waste		

Category	Site name or address	Description of waste	Distance from site boundary	Direction from site boundary
		Burning waste in the open		
		Cleaning, washing, spraying or coating relevant waste		
		Use of waste for a specified purpose		
		Deposit of waste from a portable sanitary convenience		
		Screening and blending of waste		
		Aerobic composting and associated prior treatment		
		Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising		
		Deposit of waste from dredging of inland waters		

21.7 Unexploded bombs (UXB)

According to freely available online risk maps[8], there is a low risk of UXB on the site.

21.8 Sensitive land uses

The data from Groundsure[29] indicates that there are no sites of special scientific interest (SSSIs), Ramsar sites, areas of conservation within 250 m of the site. The site is located within a SSSI impact zone.

21.9 Regulatory information

Regulated activities within 250 m of the Order Scheme Boundary could, depending upon their nature, represent potential off-site sources of

contamination. Whilst a 1 km search area was generally adopted; this section places emphasis on those activities within 250 m.

Pollution incidents

There is one pollution incident reported by Groundsure[29] within 250 m of the site and a summary has been provided in Table 21-8.

Table 21-8 - Diggle Access and Diversion Route - Pollution incidents

Type	Distance from site boundary	Direction from site boundary	Category of incident: air	Category of incident: land	Category of incident: water	Date of incident
Sewage Materials	229 m	south	Category 4 (No Impact)	Category 3 (Minor)	Category 3 (Minor)	28/07/2003

Pollution prevention and controls

The data from Groundsure[29] indicates there are no Local Authority Pollution Prevention and Controls (LAPPC) applications, including pollution prevention substances, licensed pollutant release, historical and current licensed industrial activities, within 250 m of the site.

Planning hazardous substance consents

The data from Groundsure[29] indicates there are no Control of Major Accident Hazards (COMAH) sites or planning hazardous substance consents within 250 m of the site.

Radioactive substances

The data from Groundsure[29] indicates there are no radioactive substance authorisation features on-site or within 250 m of the site.

Recent industrial land uses

The data from Groundsure[29] indicates there are no recent industrial land uses on-site. There are two recent land uses within 250 m of the site. A summary has been provided in Table 21-9.

Table 21-9 - Diggle Access and Diversion Route - Contemporary trade directory

Site	Industrial land use category	Description	Distance from site boundary	Direction from site boundary
Tank	Industrial Features	Tanks (Generic)	117 m	north-west
Tank	Industrial Features	Tanks (Generic)	119 m	north-west

Active and current petrol stations

There are no fuel stations recorded within 250 m of the site indicated by Groundsure[29].

Contaminated land designations

According to Groundsure[29], there are no sites designated as contaminated land under Part 2A of the Environment Protection Act 1990 on-site or within 250 m of the site.

21.10 Initial conceptual site model

Through a review of historical and published information (e.g. geological, hydrogeological and hydrological information), potential sources of contamination and associated contaminants were identified and/or discounted. Those sources/contaminants that are not discounted are then considered in relation to potential receptors that may be harmed by the source, and potential pathways that may link the sources to the receptors, i.e. source-pathway-receptor relationship.

A number of historical and current land uses have been identified on-site and within 250 m of the site which may have given rise to contamination.

The risk assessment has been undertaken in consideration of the existing land use and future use of the site as a diversion route.

Potential sources

Based on the review of available information, the following key potentially contaminative sources have been identified within the site boundary and in close proximity to the site.

- On-site:
    - Historical developments including:

        - Tunnel

- Off-site:
    - Historical development surrounding the site including:
        - Railway buildings and sidings;
        - Mill ponds;
        - Tanks;
        - Woollen mills;
        - Old quarry;
        - Refuse heaps; and
        - Ceramic works.
    - Current features surrounding the site including:
        - Tanks
    - Pollution incidents:
        - 229 m south.

Potential contaminants associated with the above sources include:

- inorganics including metals and metalloids, asbestos, cyanide, sulphate and ammonia;
- organics including phenols, total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, and xylenes (BTEX), volatile and semi-volatile organic compounds (VOCs/SVOCs); and
- ground gases

Potential receptors

The following receptors have been identified at the site based on an open space end use:

Human Health

- On-site:

  - Construction workers associated with the construction of the site; and
  - Future users of the site.
- Off-site:
  - Resident and occupiers of commercial/industrial premises; and
  - Users of open space areas.

Controlled Waters

- Groundwater:
  - Secondary A bedrock aquifer
- Surface water:
  - Unnamed watercourse;
  - River Tame; and
  - Huddersfield Narrow Canal summit section

Property and Services

- Off-site: commercial businesses and residential properties.

Potential pathways

Considering the identified receptors, a number of pathways are considered plausible based on the information gathered to date.

Human Health

- Inhalation of soil and soil-derived dust, asbestos and soil and groundwater deposits;
- ingestion of contaminated soils, soil-derived dust and groundwater;

- dermal contact with soil, soil-derived dust and groundwater; and
- inhalation of organic vapours (e.g. from fuel spills) and ground gas.

Controlled Waters

- Leaching or dissolution of contaminants in unsaturated soils and subsequent migration;
- lateral and vertical migration through permeable deposits in made ground and bedrock (e.g. sandstone and/or highly fractured rock);
- migration via preferential pathways e.g. existing and historical pipes and services, shallow worked coal seams; and
- surface water run-off.

Property and Services

- Ground gas migration and build up within confined spaces; and
- potable water pipes.

It should be noted that under current health and safety legislation, construction and maintenance workers are required to carry out appropriate risk assessments and instigate appropriate mitigating measures to protect themselves, other human receptors and the environment from contamination which may be present. Such risks must be adequately mitigated by the measures required under current legislation, specifically the Construction Design Management (CDM) Regulations[9] which requires that potential risks to human health and the environment from construction activities are appropriately identified and all necessary steps taken to eliminate/manage that risk. On this basis, it has been assumed that personal protective equipment (PPE) and health and safety best practices will be adopted during the construction works and acute risks to construction workers/site visitors have therefore not been considered as part of this assessment.

Table 21-10 - Diggle Access and Diversion Route - Initial conceptual site model

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Potential contaminants in soil/groundwater on-site, originating from the following <u>on-site</u> sources: Historical developments surrounding the site including: Tunnel. Possible contaminants include: *Asbestos* *Metals* *Polycyclic aromatic hydrocarbons (PAHs)* *Petroleum hydrocarbons* *Volatile organic compounds (VOCs)* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*	Inhalation, ingestion and dermal contact with contaminants in soil and soil derived dust.	<u>On-site: Human Health</u> – Construction workers Future of the site. <u>Off-site: Human Health</u> – Residents and occupiers of commercial/ industrial premises, use of public open spaces. <u>Property and Services</u> – Commercial businesses and residential properties	Low	Medium	**Moderate/low risk** Based on the site history and recent land use, there is limited potential for contaminants to be present in soil and groundwater on-site. During the site's use as diversion route it is expected that the site surface will be hardstanding, therefore the likelihood of exposure to underlying Made Ground is low. Significant excavation may be required on-site in order to position the access route. It is considered unlikely that the public will have access to the area during construction providing the appropriate controls are put in place. Dust suppression measures may be required to minimise the migration of dust off-site during construction. The Contractor has a duty under health and safety legislation to assess the risks posed to its workforce from contamination/asbestos and will implement the appropriate mitigation measures, which should minimise the potential risks.
	Inhalation of vapours. Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Unlikely	Medium	**Low Risk** Made Ground is not present on the site, reducing the potential for ground gas. The proposed works do not require the installation of any new services therefore, no new migration pathways will be introduced.
	Inhalation of asbestos fibres.		Unlikely	Severe	**Moderate/low risk** As there are no former buildings on-site, it is unlikely that asbestos will be present in the soils underlying the site. The majority of the site will be covered in hardstanding or gravel therefore it is unlikely that

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
					contact with the Made Ground or infilled ground will occur. It is assumed that future construction/maintenance workers will wear appropriate PPE and that they will have conducted a safety risk assessment including consideration of ground conditions which will reduce the risk to human health. If dust control measures are implemented correctly (in line with industry good practice) when Made Ground is disturbed, the risk to off-site receptors should be negligible
	Leaching or dissolution of contaminants in unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock. Migration via preferential pathways e.g. existing drainage, foul sewer, proposed service pipes/trenches, piled foundations.	Groundwater Controlled Waters – Bedrock secondary A aquifer	Low	Medium	**Moderate/low risk** The level of risk will be dependent on the potential for contaminants to migrate through potential Made Ground and infilled ground on-site. There are no superficial deposits recorded on the site, increasing the potential for migration of contaminants to bedrock over the site. No new services (i.e. drainage) are being installed, therefore there will be no preferential pathways for the migration of contaminants. The site is not located within a Groundwater Source Protection Zone (SPZ). The groundwater vulnerability is classed as medium for the bedrock aquifer. If significant Made Ground is present, there is potential for leaching of contaminants into groundwater in the superficial deposits and bedrock aquifer. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
	Leaching or dissolution of contaminants in	Surface Water Controlled Waters –	Low	Medium	**Moderate/low risk** Due to the distance between the site and the surface water bodies, it is possible that leachable

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
	unsaturated soils and subsequent migration Lateral and vertical migration through Made Ground, superficial deposits and bedrock Surface water run-off. Migration of contaminated water in drainage ditches to controlled surface waters.	Huddersfield Narrow Canal summit section River Tame Unnamed watercourse			contaminants will migrate to the surface waters located on-site. The Huddersfield Narrow Canal summit section is likely to be sealed with puddle-clay, which would restrict the ingress of groundwater. Where hardstanding will be present in the proposed development, the infiltration from precipitation will be reduced which will in turn reduce the mobilisation of leachate by rainwater.
Potential contaminants in soil/groundwater on-site, originating from the following off-site sources: Historical development surrounding the site including: Railway buildings and sidings; Mill ponds; Tanks; Woollen mills; Old quarry; Refuse heaps; and Ceramic works.	Inhalation, ingestion and dermal contact with contaminants in soil derived dust.	On-site: Human Health – Construction workers Property – Compound related facilities	Unlikely	Medium	**Low Risk** Based on the off-site history and recent land use, there is the potential for contaminants to be present in soils and groundwater off-site. It is unlikely that there will be future site users once construction is complete therefore it is unlikely that people will come into contact with contaminants via windblown dust where there are areas immediately off-site not covered with hardstanding, buildings or vegetation. The site is surrounded by residential and commercial properties that my also come into contact with windblown dust if appropriate dust suppression measures are not utilised. It is assumed that site construction/maintenance workers will wear appropriate PPE and a safety risk assessment will be conducted.
	Inhalation of airborne asbestos fibres.		Unlikely	Severe	**Moderate/low risk** Asbestos may have been present in former off-site structures/buildings. Therefore, there is the potential for asbestos to be present within Made Ground near the site. However, it is unlikely that the contaminants

Sources	Pathway	Receptor	Probability	Consequence	Classification of Risk
Current features surrounding the site including: Tanks Pollution incidents: 229 m south. *Possible contaminants include:* *Asbestos* *Metals* *PAHs* *Petroleum hydrocarbons* *VOCs* *PCBs* *Ground gases (methane, carbon dioxide, hydrogen sulphide or carbon monoxide)*					would migrate onto site within windblown dust as the majority of the surrounding current and historical industrialised areas is covered in hardstanding and/or vegetation.
	Leaching of contaminants from soil and migration to groundwater, followed by lateral migration beneath the site.		Low	Medium	**Moderate/low risk** A low likelihood of off-site contamination migrating towards the site and impacting the secondary A bedrock aquifer is considered appropriate given the distance of the potentially contaminative off-site land uses. As there are numerous sources of contamination surrounding the site, there is potential for contaminants to migrate to the site. As the watercourse intersects the site, it is likely that any nearby contaminants would be able to reach the site. Furthermore, no groundwater abstraction licenses or private water supplies are recorded within 250 m of the site.
	Migration of gases into confined spaces/buildings and accumulation (explosion). Inhalation of ground gas (asphyxiation).		Low	Medium	**Moderate/low risk** There are no historical landfills located within 250 m of the site, reducing the potential for ground gas. No coal seams are located within 250 m of the site.

21.11 Summary of mitigation, control measures and recommendations

During construction, standards to mitigate the impact to construction and maintenance workers from contamination, good practice health and safety measures will be implemented including a site-specific risk assessment and the use of personal protective equipment.

The potential risk associated with ground gas generation associated with Made Ground will be mitigated through compliance with confined space legislation during construction. Before construction works start, a health and safety risk assessment will be carried out in accordance with current health and safety regulations.

Dust generation will be kept to a minimum and it is assumed that this will be required to be in compliance with the CoCP and any Nuisance Management Plan, once produced. It is assumed that compliance with the CoCP will also mitigate the potential risk to controlled waters.

To mitigate the impacts to development infrastructure from contamination in soil and groundwater, ground conditions will be assessed and appropriate design of concrete and service pipes to mitigate against aggressive ground conditions will be undertaken.

Given the potential for material to be excavated, soil and/or rock materials arising from construction activities will be sampled, tested and assessed with the aim of re-use either at the originating site or at a suitable receiving site in accordance with CL:AIRE Definition of Waste Development Industry Code of Practice (DOWCOP). It is likely that appropriate re-use criteria will need to be devised to ensure the re-use of material is in line with the DOWCOP suitability for use requirement. Any materials that do not meet the suitable for re-use criteria and that require disposal off-site will be sampled, tested, assessed and characterised in line with BS EN 14899:2005.

If unexpected contamination is identified, further ground investigation to determine its extent (and accompanying risk assessment) will be required. If risk if identified, and remediation strategies are required, the Designer/Contractor shall conduct an Options Appraisal and the relevant Local Authority will be consulted to agree a remedial strategy, and a copy of the remediation strategy and verification reports will be provided to discharge relevant planning conditions. Any required remediation must be carried out in accordance with the approved remediation strategy, with evidence collated for inclusion in a verification report to demonstrate the remediation has been completed.

As the risk to future site users is low, there is no specific mitigation required to reduce the impact to human health for the site.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: NR14 ENVIRONMENT REPORT VOLUME 3 APPENDIX 12A – WATER FRAMEWORK DIRECTIVE ASSESSMENT

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CONTENTS

EXECUTIVE SUMMARY i

Surface water (construction and operation) i

Groundwater (construction and operation) ii

1. INTRODUCTION **0**

1.1 Overview 0

1.2 The Water Framework Directive – Legislative background 0

1.3 Background to the WFD 2

1.4 Consultation 4

1.5 Figures 4

2. METHODOLOGY **5**

2.1 Approach to the WFD Assessment 5

2.2 Stage 1 – WFD Screening 5

2.3 Stage 2 – WFD Scoping 5

2.4 Stage 3 – WFD Impact Assessment 6

2.5 Data Sources 7

2.6 Report Structure 7

2.7 Assumptions 8

3. STAGE 1 (WFD SCREENING) **10**

3.1 WFD Screening 10

3.2 Screening summary 21

4. STAGE 2 (WFD SCOPING) **22**

4.1 Scoping of work components 22

4.2 Surface water baseline 23

4.3 Groundwater baseline 33

5. STAGE 3 (WFD IMPACT ASSESSMENT) **37**

5.1 Surface water character 37

5.2 Groundwater character 52

5.3 Scoping of Works components 59

5.4 Mitigation..... 66

5.5 Surface water impact assessment 69

5.6 Groundwater impact assessment..... 74

5.7 Cumulative effects 77

5.8 Risk of derogation 78

6. CONCLUSIONS AND RECOMMENDATIONS 79

ANNEX A - WFD IMPACT ASSESSMENT MATRICES 80

EXECUTIVE SUMMARY

A Water Framework Directive (WFD) compliance assessment has been undertaken in line with the proposed outlined in Volume 1, Chapter 1 of this Report [**NR14**] for the 'Stalybridge to Diggle (Saddleworth) Enhancements' Order (referred to as "the Order Scheme") forming part of the TransPennine Route Upgrade project. As per the Planning Inspectorate (PINS) guidance[1], this WFD compliance assessment has been completed in three phases:

- Stage 1 (WFD Screening).
- Stage 2 (WFD Scoping); and
- Stage 3 (WFD Impact Assessment).

Stage 1 (WFD Screening) identified WFD water bodies within a Zone of Influence (ZoI) to be considered at subsequent stages of this WFD compliance assessment. Stage 2 (WFD Scoping) identified activities associated with the Order Scheme which may affect the water environment and established a baseline for each of the WFD water bodies identified in Stage 1 (WFD Screening). Stage 3 (WFD Impact Assessment) included identification of individual Order Scheme works components and the affected receptors, and field surveys (undertaken September 2024) to further assess the character of the affected receptors. A matrix-based approach to the WFD impact assessment was then used to assess the effect of each individual works component, on each of the individual WFD Quality Elements, for a water body.

The Screening identified that the Order Scheme has the potential to impact the following five WFD surface water bodies and one groundwater body (Figures 12A.3.1 & 3.2 in Volume 2 of the Environmental Report [**NR14**]):

- Three WFD river water bodies:
  - Tame (Source to Chew Brook) GB112069064741
  - Tame (Chew Brook to Swineshaw Brook) GB112069061111
  - Tame (Swineshaw Brook to Mersey) GB112069061112
- Two WFD canal water bodies:
  - Huddersfield Narrow Canal west section GB71210268
  - Huddersfield Narrow Canal summit section GB70410520
- One WFD groundwater body:

[1] Planning Inspectorate (PINS) guidance: Procedural Guide: Planning appeals – England - GOV.UK

- Manchester and East Cheshire Carboniferous Aquifers GB41202G102900

The work components of the Order Scheme affecting the water environment include:

Surface water (construction and operation)

- Relocation of Mossley Station and introduction of new drainage to an unnamed culverted watercourse (Ordnance Survey National Grid Reference (OS NGR): SD 97530 02537).
- Potential interaction with unnamed ordinary watercourse associated with Wrights Overbridge works (MVL3/23) (OS NGR: SD 98109 04139).
- Uppermill Viaduct works (MVL3/31) (OS NGR: SD 99569 06285).
- Reconstruction of existing overbridge superstructure on Ward Lane (MVL3/36) (OS NGR: SE 00280 07551).
- Diggle Road Overbridge and Utilities Bridge Works (MVL3/39) (OS NGR: SE 00711 08065).
- Standedge Canal Tunnel (MVL3/39A) (OS NGR: SE 00680 08021).
- Standedge Canal Tunnel Bywash Underbridge Replacement (MVL3/39B (OS NGR: SD 98109 04139).
- Construction of various temporary compounds which are in close proximity to water bodies namely Plevins site compound (OS NGR: SD 97757 01536), Scout Spoil point compound (OS NGR: SD 97331 01196), Manchester Road Scout West (OS NGR: SD 97448 01241), Ward Lane site compound (OS NGR: SE 00300 07517), Grandpa Greens site compound 2 (OS NGR: SE 00370 07697), Sam Road car park compound (OS NGR: SE 00621 07970) and Diggle Welfare, rail hub and office compound (OS NGR: SE 00598 07868).

Stage 2 (WFD Scoping) identified several watercourses and pond/ lake features that the Order Scheme has the potential to impact:

- Diggle Brook – Tame (Source to Chew Brook).
- River Tame – Tame (Source to Chew Brook, Chew Brook to Swineshaw Brook and Swineshaw Brook to Mersey).
- Huddersfield Narrow Canal - Huddersfield Narrow Canal (Summit Section and Western Section).
- Unnamed watercourse near Standedge Canal Tunnel - Tame (Source to Chew Brook).
- Unnamed watercourse (OW 7) - Tame (Source to Chew Brook).
- Unnamed watercourse (OW 13) – Tame (Chew Brook to Swineshaw Brook).

- Unnamed watercourse (OW 14) - (Chew Brook to Swineshaw Brook).
- Diggle Duck Pond - Tame (Source to Chew Brook).
- Pond (Low Grove Lane) - Tame (Chew Brook to Swineshaw Brook).
- Pond (East of Well-Hole Road) - Tame (Chew Brook to Swineshaw Brook).
- Pond (West of Well-Hole Road) - Tame (Chew Brook to Swineshaw Brook).

Groundwater (construction and operation)

- Installation of rock anchors during the Stalybridge Tunnel works (MVL3/3) (OS NGR: SJ 96657 98929) and Scout Tunney (OS NGR: SD 97328 01330).
- Wrights Overbridge Works (MVL3/23) (OS NGR: SD 98109 04139).
- Manchester Road Footbridge Reconstruction (MVL3/10A) (OS NGR: SD 97238 00715).
- Diggle Road Overbridge Reconstruction (MVL3/39) (OS NGR: SE 00711 08065).
- Relocation of Mossley Station.
- Mossley Cottages Works (OS NGR: SD 97374 01921).
- Reconstruction of Oldham Road Overbridge (MVL3/28) (OS NGR: SD 99191 04720).
- New Oldham Road Footbridge Works (MVL3/28A) (OS NGR: SD 99191 04720).
- Standedge Canal Tunnel Bywash Underbridge Replacement (MVL3/39B) (SD 98109 04139).
- Diversion of utilities bridge into Stamford Road Bridge (OS NGR: SD 97352 02000).
- Stamford Road Bridge Works (MVL3/13) (OS NGR: SD 97355 01846).
- Various temporary compounds which have long term storage of materials or where below ground works will be taking place. Some compounds may be in place for several years and have therefore been considered as permanent works components of the Order Scheme for the purposes of this assessment.

Stage 2 (WFD Scoping) identified one groundwater body that the Order Scheme has the potential to impact:

- Manchester and East Cheshire Carboniferous Aquifers GB41202G102900.

Stage 3 (WFD Impact Assessment) concluded that the implementation of embedded mitigation, best practice guidance and site-specific mitigation measures were sufficient to maintain compliance under the WFD, without the need for further mitigation or water body derogation.

Representatives from AtkinsRéalis on behalf of Network Rail and the Environment Agency (EA) attended a conference call on the 23rd June 2025. During this call an overview of the Order Scheme was provided including initial findings of the various water environment assessments completed in relation to the Order Scheme (surface water, WFD and flood risk). Further consultation with the Environment Agency/Lead Local Flood Authority (LLFA) will be undertaken as the Scheme progresses through detailed design. This is considered to be good practice, even though it is likely that the Order Scheme design will materially remain unchanged.

1. INTRODUCTION

1.1 Overview

1.1.1 This chapter presents the Water Framework Directive (WFD) assessment for the proposed 'Stalybridge to Diggle (Saddleworth) Enhancements' Order, (hereafter referred to as "the Order Scheme"). This document provides an assessment of likely significant effects of the Order Scheme in accordance with requirements of the WFD and considers opportunities for betterment to help meet WFD objectives (to protect the water environment) where appropriate.

1.1.2 A detailed description of the Order Scheme is provided in Table 1-1, Volume 1 of the Environmental Report [**NR14**] and a summary of the proposed works is provided in section 4.1 on this document.

1.1.3 All Figures and Appendices associated with this document are provided in Volumes 2 and 3, Environment Report [**NR14**] respectively. Any associated relevant consultation responses linked to the WFD are provided in the Consultation Report [**NR07].**

1.2 The Water Framework Directive – Legislative background

1.2.1 The Water Framework Directive (WFD) originates from the European Union (EU) but has been retained in UK law via The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017[2] (the Regulations), as amended. For the purposes of this assessment, the legislation will be referred to as the WFD throughout this document, with the assessment of the Order Scheme in relation to the Water Environment Regulations referred to as a WFD Assessment[3].

1.2.2 The framework for delivering the WFD is through a series of River Basin Management Plans (RBMPs), which requires surface waterbodies to achieve both Good Chemical Status (GCS) and Good Ecological Status (GES), and for groundwater bodies to achieve both Good Chemical Status (GCS) and Good Quantitative Status (GQS). The RBMPs outline the actions required to enable natural water bodies to achieve this. Artificial and Heavily Modified Water Bodies (A/HMWB) are surface water bodies that may be prevented from reaching GES due to the modifications necessary to maintain their function for essential human uses, such as flood defence, navigation or drinking water supply. They are, however, required to achieve

[2] Water Environment (Water Framework Directive) (England and Wales) Regulations 2017: https://www.legislation.gov.uk/uksi/2017/407

[3] Some industry practitioners may start referring to it as a Water Environment Regulations Assessment

Good Ecological Potential (GEP), through the implementation of a series of mitigation measures outlined in the RBMP.

1.2.3 New activities and projects that affect the water environment may adversely impact biological, hydromorphological, physico-chemical and/or chemical Quality Elements (WFD Quality Elements), leading to a deterioration in water body status. They may also render proposed improvement measures ineffective, leading to the water body failing to meet its objectives for GES/GEP. Under the WFD, activities and projects must not cause deterioration in water body status or prevent a water body from meeting GES/GEP by invalidating improvement measures.

1.2.4 Under the WFD, any activity or project with the potential to have an impact directly or indirectly on water body ecology will require a 'WFD Assessment'. A WFD Assessment will consider whether the activity or project has the potential to cause deterioration in the ecological status or ecological potential of that surface water body or adjacent surface water bodies. It will also consider the biological, physico-chemical and hydromorphological qualities of a surface water body. The assessment will consider potential impacts to groundwater quality and quantity as a result of the Order Scheme. The WFD also applies to all coastal and estuarine waters, to a distance of 1 nautical mile (nm).

1.2.5 In addition to protecting and improving water bodies, the WFD also requires that a register of 'Protected Areas' is developed. These are "all areas lying within each River Basin District which have been designated as requiring special protection under specific [European] Community legislation for the protection of their surface water, and groundwater, or for the conservation of habitats and species directly depending on water". In the UK, these Protected Areas are:

- Drinking Water Protected Areas.
- Shellfish Waters.
- Bathing Waters.
- Nutrient Sensitive Areas.

1.2.6 The potential impacts of new activities and projects on these protected areas must also be considered in order to ensure compliance with the overall requirements of the Regulations.

1.3 Background to the WFD

1.3.1 A summary of key WFD concepts are presented below and includes a definition of what a water body is in relation to this assessment.

WFD Objectives

1.3.2 The WFD is a European Directive transposed into UK law which sets out a strategic planning process for the purposes of managing, protecting and improving the water environment. The main objectives[2] of the WFD are to:

- Prevent deterioration in the status of aquatic ecosystems, protect them and improve the ecological condition of waters.
- Aim to achieve at least 'Good Status' for all waters by 2015 (2021 or 2027) where fully justified within an extended deadline under Article 4.4.
- Promote sustainable use of water.
- Conserve habitats and species that depend directly on water.
- Progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment.
- Progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; and
- Help reduce the effects of floods and droughts.

WFD Classification

1.3.3 The WFD classification for a defined surface water body is produced by the assessment of a wide variety of different 'elements'[2] which includes:

- 'Biological elements' such as fish, invertebrates, phytobenthos (which includes plants, macro-algae, phytoplankton).
- 'Supporting elements' that include chemical measurements such as ammonia, dissolved oxygen, pH, phosphate, copper, zinc and temperature; and
- 'Supporting conditions' (sometimes referred to as hydromorphology) that assess the physical attributes of the water body such as 'quantity and dynamics of flow' and 'morphology'.

1.3.4 The WFD classification for a defined groundwater body is produced by the assessment of elements which include;

- Groundwater quantitative status considering saline or other intrusions of poor-quality water due to groundwater abstraction, the impact on the ecological status of surface water bodies, the impact on the condition of groundwater dependent terrestrial ecosystems, and the impact on the groundwater body water balance.
- Groundwater chemical status including pollution concentration and their trends, quality impact on groundwater abstractions, impact on the chemical & ecological status of surface water bodies, nutrient concentration impact on GWDTEs, Drinking Water Protected Areas and a General quality assessment.

1.3.5 The assessment given for each element is also accompanied by a measure of certainty in the result. The status classification is published in the RBMP and provides a baseline condition against which compliance and future improvements can be measured.

WFD Compliance

1.3.6 There are three key objectives against which the impacts of proposed works on a water body need to be assessed to determine compliance with the overarching objectives of the WFD:

- Objective 1: The Scheme will not cause a deterioration in any element of water body classification.
- Objective 2: The Scheme will not prevent the WFD status objectives from being reached within the water body or other downstream water bodies.
- Objective 3: The Scheme will contribute to the delivery of the relevant WFD objectives. In this case, it will be what contribution the Scheme can make towards the water body reaching its objective GEP through planned RBMP mitigation measures.

1.3.7 Objective 1 and Objective 2 must be met to avoid infraction of the WFD. The delivery of the third objective is central to the implementation of the WFD, where it can be supported through its operational activities. If it is considered that the Scheme is likely to cause deterioration in water body status or prevent a water body from meeting its ecological objectives, then an assessment would need to be made against the conditions listed in Article 4.7 of the WFD. Article 4.7 can be invoked if:

- ‘New modifications’ are of overriding public interest and/ or,
- The environmental and social benefits of achieving the WFD objectives are outweighed by the benefits of the new modifications to human health, safety and sustainable development,

- There are no significantly better environmental options that are technically feasible or not disproportionately costly, and
- All practicable steps for mitigation have been taken.

1.4 Consultation

1.4.1 Representatives from AtkinsRéalis on behalf of Network Rail and the Environment Agency (EA) attended a conference call on the 23rd June 2025. During this call an overview of the Scheme was provided. Further consultation with the EA and the Lead Local Flood Authority (LLFA) will be undertaken as the Scheme progresses through detailed design. This is considered to be good practice, even though our understanding is that the Scheme design will materially remain unchanged.

1.4.2 Additionally, the scheme has undertaken several rounds of consultation with the public and relevant stakeholders, as detailed within the consultation report [**NR07**].

1.5 Figures

1.5.1 In Volume 2 of the Environmental Report [**NR14**], the following figures provide relevant background information and can be referred to in the context of this document:

- Figure 12A.3.1 WFD surface water bodies within the ZoI of the Order Scheme.
- Figure 12A.3.2 Pond/ lake features within the ZoI of the Order Scheme
- Figure 12A.3.3 Groundwater bodies within the ZoI of the Order Scheme.
- Figure 12A.4.1 Watercourses and lake/ pond features scoped in for further assessment.
- Figure 12A.5.1 Superficial geology and bedrock geology of ZoI of the Order Scheme
- Figure 12 A.5.2 Groundwater Dependant Terrestrial Ecosystems within the ZoI of the Order Scheme.

2. METHODOLOGY

2.1 Approach to the WFD Assessment

2.1.1 The methodology used for this WFD assessment closely follows the Planning Inspectorate Advice Note 18 on the WFD, supplemented with the EA Position Statement 488_10 where appropriate[4],[5]. Although the Planning Inspectorate guidance has been produced specifically for the assessment of Nationally Significant Infrastructure Projects (NSIPs) it is still appropriate guidance to follow for assessing WFD compliance for a range of Proposed Developments, such as the TransPennine Route Upgrade project. The methodology for the WFD assessment is split into three stages:

- Stage 1 – WFD Screening.
- Stage 2 – WFD Scoping; and,
- Stage 3 – WFD Impact Assessment.

2.1.2 The requirements of each of the three stages of WFD assessment are detailed below. Depending on the outcome of each stage, it is not always appropriate to complete all three stages of assessment (for example, if the Screening stage determines that no further steps are required).

2.2 Stage 1 – WFD Screening

2.2.1 An initial Screening assessment is undertaken to determine the study area of the Order Scheme and the potentially affected WFD water bodies. Assessment is made to determine if there are any components associated with the Order Scheme that no longer require further consideration; for example, components which have been ongoing since before the current RBMP cycle and have thus formed part of the baseline. Where there is a high confidence of no impact to water bodies, they are then screened out from any subsequent detailed investigation.

2.3 Stage 2 – WFD Scoping

2.3.1 For the WFD Scoping stage, a desk study is undertaken to understand the baseline characteristics of each WFD water body using the EA's Catchment Data Explorer and the RBMP[6],[7]. This includes current classification status for all elements, pressures affecting the water body, its sensitivity to change and identification of watercourses within each water body. A desk study is completed to characterise the water bodies

[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/522426/LIT_10445.pdf

[5] https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-18/

[6] https://environment.data.gov.uk/catchment-planning/

[7] https://www.gov.uk/guidance/north-west-river-basin-district-river-basin-management-plan-updated-2022

within the surface water bodies potentially affected by the Order Scheme (as identified in Stage 1 Screening).

2.3.2 An assessment is also undertaken to identify the mechanisms of impact from the Order Scheme to the surface water and groundwater receptors within the study area based on the relevant water bodies identified during the Stage 1 Screening. The mechanisms of impact to the water receptors are identified through a review of the available design information for the Order Scheme.

2.4 Stage 3 – WFD Impact Assessment

2.4.1 A "Red, Amber, Yellow, Green, Blue" (RAYGB) coding system is used to assign the relative WFD risk of each component of the Order Scheme against each Quality Element of each water body screened in during Stage 1. Definitions for the colour coding are assigned to indicate the level of risk of objective non-compliance within each water body and include a) mitigation already "embedded" into the preliminary design and b) additional mitigation to be integrated into later phases of the design. The definitions used are provided in Table 2-1.

Table 2-1 Definitions of the colour coding system used to determine WFD compliance risks within Stage 3 – WFD impact assessment (post implementation of mitigation).

Type of impact	Impact on WFD water body	Outcome
Moderate Beneficial	Impacts in combination with others have the potential to lead to the improvement in the WFD status of the water body.	Increase in status class for that water body.
Minor / localised beneficial	Impacts in combination with others have the potential to lead to a minor localised or temporary improvement that does not affect the overall WFD status of the water body.	Localised improvement, no change in status of WFD water body.
Green (no impact)	No measurable change to any Quality Elements.	No change
Yellow – Localised/ temporary adverse impact	Impacts in combination with others have the potential to lead to a minor localised or temporary impact on the WFD elements. Consideration will be given to habitat creation measures.	No change in status of WFD water body when balanced against mitigation embedded in the Proposed Development.
Amber – adverse widespread or prolonged impact	Impacts in combination with others have the potential to have an adverse impact on the WFD water body. The current WFD risk category will be considered when assessing these combined impacts. Consideration will be given to habitat creation measures.	Adverse impact but risk of status change needs to be considered with any additional mitigation and considering the level of confidence.

Type of impact	Impact on WFD water body	Outcome
Red – adverse impact on an individual Quality Element and/or overall status of water body	Impacts in combination with others have the potential to have an adverse impact on the WFD water body and change its status. The current WFD risk category will be considered when assessing these combined impacts. Consideration will be given to habitat creation measures.	Decrease in status of WFD water body when balanced against additional mitigation. Outcome is considered to be certain.

2.5 Data Sources

2.5.1 A number of surveys and assessments have been carried out to inform the Order Scheme. Where relevant, the details of these have been used to inform this WFD assessment. Online sources of information have also been used. The key data sources that have informed this assessment are:

- EA's Catchment Data Explorer[8]
- Magic Map Application[9]
- British Geological Survey mapping (1:50,000 and 1:625,000).[10]

2.5.2 Additionally, walkover surveys were undertaken in September 2024 to provide further updated characterisation of the watercourses present within the ZoI of the Order Scheme. Surveys were however constrained by access permission in several locations and as such not all watercourses were visited.

2.6 Report Structure

2.6.1 The structure of this report is summarised in Table 2-2.

Table 2-2 Structure and Content of this Report

Section	Title	Content and Steps
2	Methodology	Describes the legislative context to the assessment and the overall approach including guidance and data sources
3	Stage 1 (WFD Screening)	Identification of the Works components that may impact on the Quality Elements of WFD water bodies and identification

[8] England | Catchment Data Explorer

[9] Magic Map Application

[10] https://geologyviewer.bgs.ac.uk/ [accessed 16/07/2025]

Section	Title	Content and Steps
		of water bodies that are relevant to the Order Scheme.
4	Stage 2 (WFD Scoping)	Presentation of the baseline conditions for the relevant Quality Elements of each water body screened in for assessment, and consideration of the potential risk of deterioration from Works components. Components which have the potential to cause deterioration are screened if for further assessment.
5	Stage 3 (WFD Impact Assessment)	A RAYGB coding system is used to assign the relative WFD risk of each Works component against each Quality Element of each water body screened in during Stage 1. This section of the assessment considers embedded and additional mitigation.
6	Conclusion	A summary of the conclusions drawn by the WFD Assessment.

2.7 Assumptions

2.7.1 The following assumptions have been used when undertaking this assessment:

- This assessment is based on the latest version of the Order Scheme boundary (defined the individual boundaries of both the works component areas subject to deemed planning permission and all those associated temporary works) in addition to the latest constructability reports.
- During construction best practice environmental management measures (embedded mitigation) will be implemented on site.
- It is assumed that all below ground works have been designed, and will be undertaken, in accordance with relevant guidance and industry best practice including incorporating site specific geological and hydrogeological information such as groundwater levels.
- Temporary construction compounds: The operational duration of construction compounds is unknown, and all compounds are considered to have potential for permanent impacts to the water

bodies. It is assumed that all compounds may be used for storage of materials.

- There will be like for like replacement or improvements to drainage design.
- Outfalls and culverts: Works will be undertaken using best practice and appropriate mitigation measures. Changes to culvert designs will either be like for like or improved (taking into account any downstream flood risk receptors).
- Discharges and abstractions: All discharges and abstractions will be undertaken in accordance with regulatory requirements and as such will not cause deterioration to the impacted receptors.

3. STAGE 1 (WFD SCREENING)

3.1 WFD Screening

3.1.1 A Screening exercise was completed to identify water bodies that are relevant to the Order Scheme. A study boundary also known as the ZoI was set for the Screening assessment. For surface water this was any water body which intersects with the Order Scheme, or any water bodies immediately upstream or downstream of these water bodies. For groundwater, this was any groundwater body that directly intersects the Order Scheme, plus a 1 km buffer area from the Order Scheme (referred to as the ZoI).

3.1.2 The Order Scheme is within the North West River Basin District (RBD) and the management strategies for the district are stated within the North West RBMP(River Basin Management Plan). The proposed works fall within the Mersey Upper Management Catchment, Goyt Etherow Tame Operational Catchment.

Surface Water Bodies

3.1.3 In the North West RBD, the following surface water bodies are classified within the ZoI (Refer to Figure 12A.3.1 in Volume 2 of the Environmental Report [**NR14**]).

- Tame (Source to Chew Brook) GB112069064741
- Chew Brook GB112069061300
- Tame (Chew Brook to Swineshaw Brook) GB112069061111
- Tame (Swineshaw Brook to Mersey) GB112069061112
- Huddersfield Narrow Canal summit section GB70410520
- Huddersfield Narrow Canal west section GB71210268

The Tame (Source to Chew Brook)

3.1.4 The Tame (Source to Chew Brook) is a designated river water body approximately 25.4 km in length. It flows from its headwaters located in the West Pennine Moors to discharge to the Chew Brook and Tame (Chew Brook to Swineshaw Brook) in Greenfield Village, Greater Manchester. The River Tame (Source to Chew Brook) is currently classified as ‘Moderate’ overall.

Chew Brook

3.1.5 Chew Brook is a designated river water body approximately 4.4 km in length. It flows from its source within Yeoman Hey Reservoir to join the

Tame in Greenfield Village. Chew Brook is currently classified as 'Moderate' overall.

Tame (Chew Brook to Swineshaw Brook)

3.1.6 The Tame (Chew Brook to Swineshaw Brook) is a designated river water body approximately 17.4 km in length. It flows from the confluence in Greenfield in a southerly direction to become the Tame (Swineshaw Brook to Mersey) in Stalybridge. Tame (Chew Brook to Swineshaw Brook) is currently classified as 'Moderate' overall.

Tame (Swineshaw Brook to Mersey)

3.1.7 Tame (Swineshaw Brook to Mersey) is a designated river water body approximately 26.3 km in length. It generally flows in a southerly direction from Stalybridge, before discharging to the River Mersey, north of Stockport. Tame (Swineshaw Brook to Mersey) is currently classified as 'Moderate' overall.

Huddersfield Narrow Canal summit section

3.1.8 Huddersfield Narrow Canal summit section is a designated canal water body approximately 6.3 km in length. It is situated between Marsden, West Yorkshire and Diggle, Greater Manchester. The majority (5.2 km) of the Huddersfield Narrow Canal summit section is tunnelled, named Standedge Canal Tunnel (canal tunnel). The canal tunnel is the longest and deepest canal tunnel in the UK; the water body is only an open channel in the village of Diggle. It is currently classified as 'Good' overall.

Huddersfield Narrow Canal west section

3.1.9 Huddersfield Narrow Canal west section is a designated canal water body approximately 14.7 km in length. It stretches from Diggle Village to Dukinfield where it becomes the Ashton Canal and Peak Forest Canal. Huddersfield Narrow Canal west section is currently classified as 'Moderate' overall.

3.1.10 The Order Scheme is in close proximity and could be hydrologically connected to all the above-mentioned water bodies. Therefore, there is potential for direct impacts to the Quality Elements of these watercourses. As a result, they have been screened in for further assessment.

3.1.11 There are no WFD lake water bodies within the ZoI. WFD lake water bodies have, therefore, been screened out of any further assessment.

3.1.12 Twenty-eight other non-reportable lake/ pond water features are located within the ZoI and outlined in Table 3-1 and Figure 12A.3.2 in Volume 2 of the Environmental Report [**NR14**]. Four of these ponds were screened in for further assessment.

Table 3-1 non-reportable lake and pond features

Water body name/ID	Water body type	Easting	Northing	Screening (in/out)	Justification for Screening in/out
East of Standedge Road	Pond	400649	409156	Out	Screened out as upstream of any construction works.
West of Dean Head Lane	Pond	400930	409368	Out	Screened out as upstream of any construction works.
Standedge Canal Tunnel	Pond	401636	409150	Out	Screened out as upstream of any construction works.
East of Diggle Mill	Pond	401812	408024	Out	Screened out as upstream of any construction works.
1 of 3 South of Diggle Brook	Pond	400997	407836	Out	Screened out as upstream of any construction works.
2 of 3 South of Diggle Brook	Pond	400931	407814	Out	Screened out as upstream of any construction works.

Water body name/ID	Water body type	Easting	Northing	Screening (in/out)	Justification for Screening in/out
3 of 3 South of Diggle Brook	Pond	400901	407843	Out	Screened out as upstream of any construction works.
Diggle Duck Pond	Pond	400196	407613	**In**	**Screened in as the pond is downstream of a proposed working area with hydrological connectivity to an unnamed watercourse.**
South of Barmeadow	Pond	398871	406704	Out	Screened out as upstream of any construction works.
Willowbank Pond	Pond	399878	405798	Out	Screened out as upstream of any construction works.
South of Fur Lane	Pond	400184	404697	Out	Screened out as upstream of any construction works.
Chew Brook Drive	Pond	399816	404205	Out	Screened out as upstream of any construction works.
West of Well-Hole Road	Pond	398475	404107	**In**	**Screened in: potential hydrological**

Water body name/ID	Water body type	Easting	Northing	Screening (in/out)	Justification for Screening in/out
					connectivity to the River Tame and downstream of construction areas.
East of Well-Hole Road	Pond	398604	404191	**In**	**Screened in: potential hydrological connectivity to the River Tame and downstream of construction areas.**
West of High Grove Lane	Pond	398202	404264	Out	Screened out as upstream of any construction works.
Low Grove Lane	Pond	398070	404021	**In**	**Screened in as the pond is downstream of a proposed working area with potential hydrological connectivity to an unnamed watercourse.**
South Micklehurst Road	Pond	397894	401924	Out	Screened out as upstream of any construction works.

Water body name/ID	Water body type	Easting	Northing	Screening (in/out)	Justification for Screening in/out
1 of 2 Crow i'th Wood	Pond	397741	400468	Out	Screened out as upstream of any construction works.
2 of 2 Crow i'th Wood	Pond	397716	400330	Out	Screened out as upstream of any construction works.
1 of 2 Stalybridge Country Park	Pond	398079	399339	Out	Screened out as upstream of any construction works.
2 of 2 Stalybridge Country Park	Pond	397999	399258	Out	Screened out as upstream of any construction works.
Printworks Road	Lake	397311	399831	Out	Screened out as no obvious hydrological connection with the River Tame and does not intersect any of the known construction works.
Sprout Brook Road	Pond	396822	400222	Out	Screened out as upstream of any construction works.

Water body name/ID	Water body type	Easting	Northing	Screening (in/out)	Justification for Screening in/out
1 of 2 Primrose Wood	Pond	396771	399802	Out	Screened out as upstream of any construction works.
2 of 2 Primrose Wood	Pond	396826	399762	Out	Screened out as upstream of any construction works.
Stamford Park	Lake	395651	399374	Out	Screened out as upstream of any construction works.
Stamford Park 2	Lake	395701	399584	Out	Screened out as upstream of any construction works.
Mottram Road	Pond	396877	398124	Out	Screened out as upstream of any construction works.

3.1.13 A summary of the screened in surface water bodies and their WFD classification is provided in Table 3-2

Table 3-2 Summary Screening of WFD surface water bodies

Water body name / ID	Water body type	Ecological status (Cycle 3, 2022)[11]	Heavily modified status	Screening (in/out)	Justification for Screening in/out
Tame (Source to Chew Brook) GB112069064741	River	Moderate*	Heavily modified	**In**	**Screened in as Order Scheme works are within this water body catchment**
Chew Brook GB112069061300	River	Moderate	Heavily modified	Out	Screened out as Order Scheme works are downstream of this water body catchment
Tame (Chew Brook to Swineshaw Brook) GB112069061111	River	Moderate	Heavily modified	**In**	**Screened in as Order Scheme works are within this water body catchment**
Tame (Swineshaw Brook to Mersey) GB112069061112	River	Moderate	Heavily modified	**In**	**Screened in as Order Scheme works are within this water body catchment**
Huddersfield Narrow Canal west section (GB71210268)	Canal	Moderate*	Artificial	**In**	**Screened in as Order Scheme works are within**

[11] Note Overall status provided for WFD groundwater body.

Water body name / ID	Water body type	Ecological status (Cycle 3, 2022)[11]	Heavily modified status	Screening (in/out)	Justification for Screening in/out
					this water body catchment
Huddersfield Narrow Canal summit section (GB70410520)	Canal	Good	Artificial	**In**	**Screened in as Order Scheme works are within this water body catchment**
*Cycle 3, 2019					

Groundwater Bodies

3.1.14 The ZoI is underlain by the following groundwater bodies (See Figure 12A.3.3 Volume 2 of the Environmental Report [**NR14**]):

- Manchester and East Cheshire Carboniferous Aquifers GB41202G102900
- Northern Manchester Carboniferous Aquifers GB41202G101800

Manchester and East Cheshire Carboniferous Aquifers

3.1.15 The Manchester and East Cheshire Carboniferous Aquifers groundwater body covers an area of 758,000 ha and is currently classified as Poor overall status. As the Order Scheme boundary is within the boundary of this groundwater body, and includes below ground works, the Manchester and East Cheshire Carboniferous Aquifers have been screened **in** for further assessment.

Northern Manchester Carboniferous Aquifers

3.1.16 The Northern Manchester Carboniferous Aquifers groundwater body covers an area of 62,900 ha and is currently classified as Poor overall status. A small section of the groundwater body falls within the defined ZoI for groundwater but as the works components are not within this groundwater body (See Figure 12A.3.3 Volume 2 of the Environmental Report [**NR14**]) the Northern Manchester Carboniferous Aquifers water body has been screened **out** of further assessment.

3.1.17 A summary of the screened groundwater bodies and their WFD classification is provided in Table 3-3 below. The location of the Order Scheme in relation to WFD groundwater bodies is shown in Figure 12A.3.3 Volume 2 of the Environmental Report [**NR14**]

Table 3-3 Summary Screening of WFD groundwater bodies

Water body name / ID	Water body type	Overall water body status (Cycle 3, 2022)[12]	Screening (in/out)	Justification for Screening in/out
Manchester and East Cheshire Carboniferous Aquifers GB41202G102900	Groundwater	Poor*	**In**	**Scheme Order works are within the boundary of this groundwater body.**
Northern Manchester Carboniferous Aquifers GB41202G101800	Groundwater	Poor*	Out	Not hydraulically connected to the works.
*Cycle 3, 2019				

[12] Note Overall status provided for WFD groundwater body.

3.2 Screening summary

3.2.1 There are no WFD surface water transfer water bodies within the ZoI. WFD surface water transfer water bodies have, therefore, been screened out of any further assessment.

3.2.2 There are no WFD coastal water bodies within the ZoI. WFD coastal water bodies have, therefore, been screened out of any further assessment.

3.2.3 There are no WFD transitional water bodies within the ZoI. WFD transitional water bodies have, therefore, been screened out of any further assessment.

3.2.4 The Screening summary (Stage 1) exercise has identified three WFD river water bodies, two WFD canal water bodies and one WFD groundwater body which have been screened in for further assessment:

- Three WFD river water bodies:
  - Tame (Source to Chew Brook) GB112069064741
  - Tame (Chew Brook to Swineshaw Brook) GB112069061111
  - Tame (Swineshaw Brook to Mersey) GB112069061112
- Two WFD canal water bodies:
  - Huddersfield Narrow Canal west section GB71210268
  - Huddersfield Narrow Canal summit section GB70410520
- One WFD groundwater body:
  - Manchester and East Cheshire Carboniferous Aquifers GB41202G102900

3.2.5 These six water bodies will be taken forward to Stage 2 (Scoping) in section 4 of this report.

4. STAGE 2 (WFD SCOPING)

4.1 Scoping of work components

4.1.1 The relevant works components proposed for the Order Scheme are provided in Table 1-1 of Chapter 1, Volume 1 of the Environmental Report [**NR14**].

Surface water (construction and operation)

4.1.2 Specific Order Scheme components which may cause impacts to the surface water receptors identified in Stage 1 (WFD Screening) include the following:

- Relocation of Mossley Station and introduction of new drainage to the River Tame, via an unnamed culverted watercourse (Ordnance Survey National Grid Reference (OS NGR): SD 97530 02537).
- Potential interaction with unnamed ordinary watercourse associated with Wrights Overbridge works (MVL3/23) (OS NGR: SD 98109 04139).
- Uppermill Viaduct works (MVL3/31) (OS NGR: SD 99569 06285).
- Reconstruction of existing overbridge superstructure on Ward Lane (MVL3/36) (OS NGR: SE 00280 07551).
- Diggle Road Overbridge and Utilities Bridge Works (MVL3/39) (OS NGR: SE 00711 08065).
- Standedge Canal Tunnel (MVL3/39A) (OS NGR: SE 00680 08021).
- Standedge Canal Tunnel Bywash Underbridge Replacement (MVL3/39B) (SD 98109 04139).
- Construction of various temporary compounds which are in close proximity to water bodies namely Plevins site compound (OS NGR: SD 97757 01536), Scout Spoil point compound[13] (OS NGR: SD 97331 01196), Manchester Road Scout West[14] (OS NGR: SD 97448 01241), Ward Lane site compound (OS NGR: SE 00300 07517), Grandpa Greens site compound 2 [15](OS NGR: SE 00370 07697), Sam Road car park compound[16] (OS NGR: SE 00621 07970) and Diggle Welfare, rail hub and office compound (OS NGR: SE 00598 07868).

[13] Consented as part of Scout Compounds Works as described in Chapter 1, Table 1.1 of the Environmental Report [NR14]

[14] Consented as part of Scout Compounds Works as described in Chapter 1, Table 1.1 of the Environmental Report [NR14]

[15] Consented as part of Ward Lane Site Compound Works as described in Chapter 1, Table 1.1 of the Environmental Report [NR14]

[16] Consented as part of Diggle Site Compound Works as described in Chapter 1, Table 1.1 of the Environmental Report [NR14]

Groundwater (construction and operation)

4.1.3 Potential impacts to groundwater arising from the Order Scheme a generally associated with works components which involve deep foundations (piling) and retaining walls (associated with new structures and/or the refurbishment/partial reconstruction of existing structures), earthworks, and storage of materials in temporary construction compounds. Specific Order Scheme components which may cause impacts to groundwater receptors identified in Stage 1 (WFD Screening) include the following:

- Stalybridge Tunnel (MVL3/3) (OS NGR: SJ 96657 98929) and Scout Tunnel (OS NGR: SD 97328 01330) Ground Stabilisation Works
- Wrights Overbridge Works (MVL3/23) (OS NGR: SD 98109 04139).
- Manchester Road Footbridge Reconstruction (MVL3/10A) (OS NGR: SD 97238 00715).
- Diggle Road Overbridge Reconstruction (MVL3/39) (OS NGR: SE 00711 08065).
- Relocation of Mossley Station.
- Mossley Cottages Works (OS NGR: SD 97374 01921).
- Reconstruction of Oldham Road Overbridge (MVL3/28) (OS NGR: SD 99191 04720).
- New Oldham Road Footbridge Works (MVL3/28A) (OS NGR: SD 99191 04720).
- Standedge Canal Tunnel Bywash Underbridge Replacement (MVL3/39B) (SD 98109 04139).
- Diversion of utilities bridge into Stamford Road Bridge (OS NGR: SD 97352 02000).
- Stamford Road Bridge Works (MVL3/13) (OS NGR: SD 97355 01846).
- Construction of various temporary compounds which have below groundworks or will be used for storage of materials. Compounds may be in place for several years and have been assessed as permanent works components of the Order Scheme.

4.1.4 The risks associated with these components are considered further in Stage 3 (WFD Impact Assessment) in direct relation to the WFD water body or bodies which they may affect.

4.2 Surface water baseline

4.2.1 The following four WFD river water bodies (as identified in Table 4-1) are included in this Scoping:

- Tame (Source to Chew Brook) GB112069064741.

- Chew Brook GB112069061300.
- Tame (Chew Brook to Swineshaw Brook) GB11206906111.
- Tame (Swineshaw Brook to Mersey) GB112069061112.

4.2.2 The following two WFD canal water bodies (as identified in Table 4-2) are included in this Scoping:

- Huddersfield Narrow Canal west section GB71210268.
- Huddersfield Narrow Canal summit section GB70410520.

4.2.3 All WFD river water bodies are designated as Heavily Modified Water Bodies (HMWBs), indicating that they have been substantially altered from their original character.

4.2.4 Both WFD canal water bodies are designated as Artificial Water Bodies (AWBs), which have been created where no natural water body existed previously.

4.2.5 None of the protected areas detailed in section 1.2.5 were identified with the ZoI of the Order Scheme. Potential impacts on protected areas resulting from the works components are therefore considered negligible.

4.2.6 The current (2019/2022, Cycle 3) status for the WFD river water bodies are provided in Table 4-1 along with objectives, designations, reasons for not achieving good (RNAG) status and linked protected areas.

Table 4-1 Summary of WFD information for the four scoped in river water bodies

Water Body Name	Tame (Source to Chew Brook)	Chew Brook	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)
Water Body ID	GB112069064741	GB112069061300	GB112069061111	GB112069061112
Hydromorphological Designation	Heavily modified	Heavily modified	Heavily modified	Heavily modified
Cycle 3 2019 or 2022	2019	2022	2019	2022
Classification	Moderate	Moderate	Moderate	Moderate
Objectives	Good by 2027	Good by 2027	Moderate by 2015	Moderate by 2015
Ecological	Moderate	Moderate	Moderate	Moderate
Supporting elements (surface water)	Moderate	Moderate	Moderate	Moderate
Mitigation Measures Assessment	Moderate or less	Moderate or less	Moderate or less	Moderate or less
Biological Quality Elements	Moderate	Poor	Moderate	Poor
Macrophytes and Phytobenthos	Good	Not assessed	Not assessed	Moderate
Fish	Moderate	Poor	Not assessed	Poor
Invertebrates	Good	Poor	Moderate	Poor
Hydromorphological supporting elements	Not assessed	Not assessed	Not assessed	Not assessed

Water Body Name	Tame (Source to Chew Brook)	Chew Brook	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)
Physico-chemical Quality Elements	Moderate	High	Moderate	High
Acid Neutralising Capacity	Not assessed	Not assessed	High	High
Ammonia (Phys-Chem)	High	High	Moderate	Good
Biochemical Oxygen Demand (BOD)	Not assessed	Not assessed	High	High
Dissolved Oxygen	High	High	High	High
pH	High	High	High	High
Phosphate	Moderate	High	Poor	Poor
Temperature	High	High	High	High
Specific pollutants	Not assessed	Not assessed	High	High
Chemical	Fail	Does not require assessment	Fail	Does not require assessment
Priority substances	Fail	Does not require assessment	Fail	Does not require assessment
Other pollutants	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment
Priority hazardous substances	Fail	Does not require assessment	Fail	Does not require assessment

Water Body Name	Tame (Source to Chew Brook)	Chew Brook	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)
RNAG (2019)	Phosphate Water industry Urban & transport Mercury and Its Compounds Polybrominated diphenyl ethers (PBDE)	PBDE Fish Urban and transport Water industry	Perfluorooctane sulphonate (PFOS) PBDE Phosphate Mercury and Its Compounds Water industry Ammonia (Phys-Chem)	Invertebrates PBDE Urban and transport PFOS Phosphate Fish Ammonia (Phys-Chem) Macrophytes and Phytobenthos Combined Mercury and Its Compounds
Linked Protected Areas	South Pennine Moors (UK0030280) South Pennine Moors Phase 2 (UK9007022) Peak District Moors (South Pennine Moors Phase 1) (UK9007021)	South Pennine Moors (UK0030280) Peak District Moors (South Pennine Moors Phase 1) (UK9007021)	South Pennine Moors (UK0030280) Peak District Moors (South Pennine Moors Phase 1) (UK9007021) River Tame (UKENRI144)	River Tame (UKENRI144)

4.2.7 The WFD canal water bodies are within the North West RBD. Huddersfield Narrow Canal west section Water Body is in the Goyt, Etherow and Tame Canals Operational Catchment and Huddersfield Narrow Canal summit section is within the Calder Canals Operational Catchment.

4.2.8 The current (2019/2022, Cycle 3) status for the WFD canal water bodies[17] are provided in Table 4-2 along with objectives, designations, reasons for not achieving good (RNAG) status and linked protected areas.

Table 4-2 Summary of WFD information for the two scoped in canal water bodies

Water Body Name	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Water Body ID	GB71210268	GB70410520
Hydromorphological Designation	Artificial	Artificial
Cycle 3 2019 or 2022	2019	2019
Classification	Moderate	Good
Objectives	Good by 2027	Good by 2015
Ecological	Moderate	Good
Supporting elements (surface water)	Moderate	Good
Mitigation Measures Assessment	Moderate or less	Good
Chemical	Fail	Fail
Priority hazardous substances	Fail	Fail
Benzo(a)pyrene	Good	Good
Dioxins and dioxin-like compounds	Good	Good
Heptachlor and cis-Heptachlor epoxide	Good	Good
Hexabromocyclododecane (HBCDD)	Good	Good
Hexachlorobenzene	Good	Good
Hexachlorobutadiene	Good	Good

[17] A summary of the screened in surface water bodies and their WFD classification is provided in Table 3 2

Water Body Name	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Mercury and Its Compounds	Fail	Fail
Perfluorooctane sulphonate (PFOS)	Good	Good
Polybrominated diphenyl ethers (PBDE)	Good	Fail
Priority substances	Fail	Good
Fluoranthene	Good	Good
Other Pollutants	Does not require assessment	Does not require assessment
RNAG (2019)	Mercury and Its Compounds Polybrominated diphenyl ethers (PBDE)	Mercury and Its Compounds Polybrominated diphenyl ethers (PBDE)
Linked Protected Areas	N/A	N/A

4.2.9 Watercourses within each of the six WFD surface water bodies have been identified and are outlined in Table 4-3. The table highlights which watercourses are potentially impacted by the Order Scheme, this has been determined by:

- Whether the watercourse is crossed by the Order Scheme/ temporary working areas,
- If there are any outfalls to the watercourse,
- If the Order Scheme is in close proximity to a watercourse or,
- If the watercourse is downstream of any works.

Table 4-3 Watercourses which are potentially impacted by the Order Scheme.

Surface water receptor name	Water body type	Impacted by the Order Scheme?
Tame (Source to Chew Brook) GB112069064741		
Diggle Brook	Main River	Yes – WFD reportable watercourse and crossed by the Order Scheme.
River Tame	Main River	Yes – WFD reportable watercourse and crossed by the Order Scheme.
Unnamed watercourse - Uppermill Village	Main River	No – hydraulically connected but upstream of the Order Scheme.
Unnamed watercourse near Standedge Canal Tunnel	Ordinary Watercourse	Yes – crossed by the Scheme
Wall Hill Brook	Ordinary Watercourse	No – hydraulically connected but upstream of the Order Scheme.
White Brook	Ordinary Watercourse	
Pickhill Brook	Ordinary Watercourse	
Capper Clough	Ordinary Watercourse	
Golburn Clough	Ordinary Watercourse	
OW 1	Ordinary Watercourse	
OW 2	Ordinary Watercourse	
OW 3	Ordinary Watercourse	

Surface water receptor name	Water body type	Impacted by the Order Scheme?
OW 4	Ordinary Watercourse	
OW 5	Ordinary Watercourse	
OW 6	Ordinary Watercourse	
OW 7	Ordinary Watercourse	Yes – works undertaken immediately adjacent to watercourse.
Tame (Chew Brook to Swineshaw Brook) GB112069061111		
Staly Brook	Main River	No – hydraulically connected but upstream of the Order Scheme.
Unnamed river - Grasscroft Village	Main River	
Unnamed river - Stalybridge	Main River	
Swineshaw Brook	Ordinary Watercourse	
Micklehurst Brook	Ordinary Watercourse	
Acres Brook	Ordinary Watercourse	
OW 9	Ordinary Watercourse	
OW 11	Ordinary Watercourse	
OW 12	Ordinary Watercourse	
River Tame	Main River	Yes

Surface water receptor name	Water body type	Impacted by the Order Scheme?
OW 13	Ordinary Watercourse	Yes – crossed by the Order Scheme.
OW14	Ordinary Watercourse	Yes – surface water drainage will outfall to the watercourse
Chew Brook GB112069061300		
Chew Brook	Main River	No – hydraulically connected but upstream of the Order Scheme.
Warlow Brook	Ordinary Watercourse	
OW 8	Ordinary Watercourse	
OW 10	Ordinary Watercourse	
Tame (Swineshaw Brook to Mersey) GB112069061112		
River Tame	Main River	Yes – works immediately adjacent to watercourse
Huddersfield Narrow Canal	Ordinary Watercourse	Yes - crossed by the Order Scheme
Huddersfield Narrow Canal west section GB71210268		
Huddersfield Narrow Canal summit section GB70410520		
Huddersfield Narrow Canal	Ordinary Watercourse	Yes - crossed by the Order Scheme

4.2.10 The following watercourses, shown in Figure 12A.4.1 (Volume 2 of the Environmental Report [**NR14**]) will be assessed in Stage 3 (WFD Impact Assessment):

- Diggle Brook
- River Tame
- Huddersfield Narrow Canal
- Unnamed watercourse near Standedge Canal Tunnel
- Unnamed watercourse (OW 7)
- Unnamed watercourse (OW 13)
- Unnamed watercourse (OW 14).

4.2.11 Additionally potential impacts to the following non-reportable lake/ pond features identified in Figure 12A.4.1 (Volume 2 of the Environmental Report [**NR14**]) will be assessed in Stage 3 (WFD Impact Assessment). These lake/pond features are also listed below:

- Diggle Duck Pond
- Pond (Low Grove Lane)
- Pond (East of Well-Hole Road)
- Pond (West of Well-Hole Road).

4.3 Groundwater baseline

4.3.1 One WFD groundwater body is scoped into this assessment: Manchester and East Cheshire Carboniferous Aquifers (GB41202G102900). The baseline characteristics for this groundwater body are set out below.

Water body overview

4.3.2 The Manchester and East Cheshire Carboniferous Aquifers WFD groundwater body covers 758,000 ha of north-west England, stretching from Castleshaw Moor in the north of the catchment to Madely Park in the south. This groundwater body incorporates several bedrock formations with the Millstone Grit Group covering most of the groundwater body. The Pennine and South Wales Coal Measures and the Warwickshire Group are present in the west and south of the groundwater body.

WFD status

4.3.3 A summary of the current (Cycle 3, 2019) WFD classification for the groundwater body is summarised in Table 4-4[18]. The Manchester and

18 https://environment.data.gov.uk/catchment-planning/WaterBody/GB41202G102900 [accessed 09/01/2025]

East Cheshire Carboniferous Aquifers WFD water body is currently attaining Poor Overall status. The Quantitative status is currently Good, although the Chemical status is Poor as a result of the Chemical Drinking Water Protected Area element. All other elements are Good for this groundwater body.

Table 4-4 WFD status (2019) summary for Manchester and East Cheshire Carboniferous Aquifers

Water body name	Manchester and East Cheshire Carboniferous Aquifers
Water Body ID	GB41202G102900
Overall Classification	Poor
Objective	Good by 2027 – Low confidence (Disproportionately expensive: Disproportionate burdens)
Quantitative	Good
Quantitative status element	Good
Quantitative Saline Intrusion	Good
Quantitative Water Balance	Good
Quantitative Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good
Quantitative Dependent Surface Water Body Status	Good
Chemical (GW)	Poor
Chemical Status element	Poor (Fail on Chemical Drinking Water Protected Area)
Chemical Dependent Surface Water Body Status	Good
Chemical Drinking Water Protected Area	Poor
General Chemical Test	Good
Chemical Groundwater Dependent Terrestrial Ecosystems (GWDTEs) Test	Good
Chemical Saline Intrusion	Good
RNAG	• Point source, private sewage treatment (domestic general public),

Water body name	Manchester and East Cheshire Carboniferous Aquifers
	• Diffuse source, poor nutrient management (agriculture and rural land management) – Chemical Drinking Water protected area. • Diffuse source, poor nutrient management (agriculture and rural land management) – Trend Assessment • Diffuse source, poor livestock management (agriculture and rural land management) – Chemical Drinking Water protected area. • Diffuse source, septic tanks (domestic general public) – Trend Assessment • Diffuse source, poor livestock management (agriculture and rural land management) – Trend Assessment
Linked Protected Areas*	• River Weaver (Dane to Frodsham) Nitrate Vulnerable Zone (NVZ) Nitrates Directive • R Tern - conf R Roden to conf R Severn NVZ Nitrates Directive • East Shropshire Nitrates Directive • South Pennine Moors Phase 2 Special Protected Area (SPA) • South Pennine Moors Special Area of Conservation (SAC) • River Trent (source to confluence with Derwent) Nitrates Directive • Peak District Moors (South Pennine Moors Phase 1) SPA • North Staffordshire Nitrates Directive • Betley Mere Eutrophic Lake NVZ Nitrates Directive • Manchester and East Cheshire Carboniferous Aquifers Drinking Water Protected Area

* - Linked protected areas listed may not necessarily lie within the Order Scheme boundary.

5. STAGE 3 (WFD IMPACT ASSESSMENT)

5.1 Surface water character

5.1.1 Summary descriptions (hydromorphology, aquatic ecology and water quality) of each watercourse within the four WFD river water bodies and two WFD canal water bodies are provided in Table 5-1 and Table 5-2 respectively.

5.1.2 Descriptions of the characteristics of each of the watercourses are based on the findings of walkover surveys undertaken in the summer of 2024. Where available these observations are supplemented with historic EA monitoring data (ecology and water quality).

Table 5-1 Summary description for watercourses

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
Tame (Source to Chew Brook) GB112069064741 Tame (Chew Brook to Swineshaw Brook) GB112069061111 Tame (Swineshaw Brook to Mersey) GB112069061112	River Tame	Main River	The largest watercourse which flows within the Order Scheme boundary is the River Tame. The River Tame originates on Denshaw Moor in Greater Manchester (outside of the Order Scheme boundary), close to the border with West Yorkshire. The source is located in the moors above Denshaw, and the river flows generally south through the study area, through towns such as Uppermill, Mossley and Stalybridge, before joining the River Goyt in Stockport to form the River Mersey, approximately 9.2 km south-west of the study area. During the survey small sections of the River Tame (Source to Chew Brook) water body were observed however access to the channel was constrained due to dense vegetation and housing. Observations were therefore made from vantage points, such as road bridges where possible. The River Tame was observed to be shallow and fast flowing with a cobble/ gravel substrate and a wetted width of approximately 10 m (Plate 1). Both banks were generally well vegetated with a mixture of herbaceous plants, grasses and trees. The invasive non-native species Himalayan Balsam (*Impatiens glandulifera*) was also recorded.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			Plate 1: Selected photographs of the River Tame within the ZoI **EA Monitoring data (<5 Years old)** Historic fisheries data from the River Tame reveals that several species of conservation interest have been recorded in the catchment within the past 5 years. This includes brown trout (*Salmo trutta*), bullhead (*Cotus gobio*) and European eel (*Anguilla anguilla*). In the lower catchment (Tame (Swineshaw Brook to Mersey)) fish species diversity is notably greater when compared to the middle (Tame (Chew Brook to Swineshaw Brook)) and upper

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			catchment (Tame (Source to Chew Brook)). Differences in fish community composition may at least partly be attributed to known barriers to fish passage within the catchment, most notably Harrison's Weir in Reddish Vale Park (OS NGR: SJ 90628 91865). Historic aquatic macroinvertebrate metric data suggests that the macroinvertebrate communities are broadly similar across each of the three River Tame water bodies. Biological indices calculated from the data reveal that the communities are of moderate conversation value and are indicative of a fast flowing, moderate/ minimally sedimented environment. One notable macroinvertebrate species was returned in the data, namely the caddisfly *Potamophylax rotundipennis*. Phytonbenthos data (diatoms) for the Tame is available from two of the three Tame water bodies; Tame (Source to Chew Brook) water body and the Tame (Swineshaw Brook to Mersey) water body. Biological indices calculated from the data indicate the communities found are indicative of low to moderate levels of nutrient. No notable species of diatoms were returned in the data. No macrophyte survey data was available for the River Tame. EA water quality monitoring is available for the River Tame at several locations spanning the three WFD water bodies considered as part of this assessment. Water quality data indicates that High WFD status for BOD, temperature and dissolved oxygen at each of the three water bodies (BOD not assessed at Tame (Source to Chew Brook)). For ammonia, results were variable between water bodies with High WFD status reported at Tame (Source to Chew Brook) and Moderate and Good WFD status at Tame (Chew Brook to Swineshaw Brook) and Tame (Swineshaw Brook to Mersey) respectively.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
Tame (Source to Chew Brook) GB112069064741	Diggle Brook	Main River	Diggle Brook is a designated Main River located in the north of the study area. It flows in a south-westerly direction from Diggle Reservoir before crossing the Huddersfield trainline and Huddersfield Narrow Canal in Diggle village centre. At this point, the watercourse flows in a southerly direction, through the centre of the study area to join the River Tame at Brownhill Nature Garden. Only small sections of the watercourse were surveyed due to access restrictions. At the time of the walkover survey Diggle Brook was found to be shallow and fast flowing with a predominantly gravel and cobble substrate. The wetted width of the watercourse near to its confluence with the River Tame was estimated to be 5 m and both banks were well vegetated with a mixture of herbaceous plants, grasses and trees (Plate 2). The invasive non-native species Himalayan Balsam was also recorded.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			 Plate 2: Diggle Brook within the ZoI **EA Monitoring data (<5 Years old)** Fish survey data for Diggle Brook is available for 2023. The results of this survey returned two fish species: brown trout and stone loach (*Barbatula barbatula*). Both species favour shallow, fast flowing stoney watercourses such as the habitat observed during the walkover survey. No water quality, macroinvertebrate, diatom or macrophyte data was available for Diggle Brook however the habitat present is likely to be suitable for invertebrate, plant and diatom communities which favour fast flowing stoney environments.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
Tame (Source to Chew Brook) GB112069064741	Unnamed watercourse near Standedge Canal Tunnel	Ordinary Watercourse	Large section of the unnamed watercourse was culverted within the study area. Where the channel is exposed, the watercourse was shallow fast flowing with a boulder, cobble and gravel substrate. The wetted width was estimated to be 2m. **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for the unnamed watercourse near Standedge Canal Tunnel however the habitat present is likely to be suitable for fish, invertebrate, plant and diatom communities which favour fast flowing stoney environments.
Tame (Source to Chew Brook) GB112069064741	Unnamed watercourse (OW 7)	Ordinary Watercourse	The unnamed watercourse flows in a westerly direction draining an area of grazed pasture to the east of the Order Scheme boundary. The watercourse is culverted beneath the existing rail line and then passes above the Huddersfield Narrow canal, in an open piped structure, before entering a pond adjacent to Diggle Brook. The watercourse was shallow throughout much of the survey extent with a boulder cobble substrate (Plate 3). The watercourse averaged < 0.5 m in width and the invasive non-native species Himalayan Balsam was also recorded.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			Plate 3: Selected photographs of OW 7 within the ZoI **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for OW 7. The watercourse is not considered to provide suitable habitat for fish due to the limited flow and shallow water depth, and the significant modification of the channel (i.e. culverts). The watercourse is likely to support macroinvertebrates, aquatic plants and diatoms however these communities are

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			likely to be limited to due to the aforementioned habitat conditions/ anthropogenic modifications.
Tame (Chew Brook to Swineshaw Brook) GB112069061111	Unnamed watercourse (OW 13)	Ordinary Watercourse	The unnamed watercourse/spring OW 13 was not visited during the walkover surveys however aerial imagery/ Ordnance survey mapping suggests that the watercourse flows in a south-easterly direction draining an area of pasture/scrub. The watercourse then crosses a rail line presumably via a culvert. The hydrology downstream of this point is uncertain however it is likely that some of the flow feeds the pond adjacent to Low Grove Lane. **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for the unnamed watercourse OW 13.
Tame (Chew Brook to Swineshaw Brook) GB112069061111	Unnamed watercourse (OW 14)	Ordinary Watercourse	The unnamed watercourse OW 14 was not visited during the walkover surveys and is not currently marked on Ordnance Survey mapping. It is our understanding that the watercourse is culverted beneath ground through a 1500 mm diameter culvert beneath the proposed location for Mossley Station before out falling to the River Tame. **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for the unnamed watercourse OW 13.
Tame (Chew Brook to Swineshaw Brook) GB112069061111	Pond (Low Grove Lane)	Pond	The unnamed pond was not visited during the walkover surveys however aerial imagery suggests that the pond is likely fed by OW 13 a small watercourse/ spring. The pond is roughly 0.2 ha in size; is tree lined and is bordered by a rail line and an area of residential housing.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			EA Monitoring data (<5 Years old) No EA water quality, fisheries or ecology data was returned for the unnamed pond adjacent to Low Grove Lane however the habitat present is likely to be suitable for fish, invertebrate, plant and diatom communities which favour lentic environments.
Tame (Chew Brook to Swineshaw Brook) GB112069061111	Pond (West of Well-Hole Road).	Pond	The unnamed pond was not visited during the walkover surveys however aerial imagery suggests that the pond is hydrologically connected to the River Tame by a side channel to the main river. There also appears to be connectivity to the pond east of Well-Hole Road. The pond is roughly 1 ha in size, is lined with trees and borders an area of residential housing. **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for the unnamed pond however the habitat present is likely to be suitable for fish, invertebrate, plant and diatom communities which favour lentic environments.
Tame (Chew Brook to Swineshaw Brook) GB112069061111	Pond (East of Well-Hole Road).	Pond	The unnamed pond was not visited during the walkover surveys however aerial imagery suggests that the pond is hydrologically connected to the River Tame by a side channel to the main River. There also appears to be connectivity to the pond west of Well-Hole Road. The pond is roughly 0.1 ha in size; is tree lined and is bordered by two roads and an area of pasture. **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for the unnamed pond however the habitat present is likely to be suitable for fish, invertebrate, plant and diatom communities which favour lentic environments.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
Tame (Source to Chew Brook) GB112069064741	Diggle Duck Pond	Pond	Diggle Duck Pond is roughly 0.125 ha in size and is fringed by trees, herbaceous plants and emergent aquatic vegetation (Plate 4). The pond is bordered by a road and an area of residential housing. The pond is fed by OW7 and is suspected to outfall to Diggle Brook, although this was not conformed during the walkover surveys. **Plate 4: Diggle Duck pond photographed from western shoreline.** **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for the unnamed pond however the habitat present is likely to be suitable for fish, invertebrate, plant and diatom communities which favour lentic environments.

Table 5-2 Summary of baseline surface water character for WFD canal water bodies

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
Huddersfield Narrow Canal west section (GB71210268) Huddersfield Narrow Canal summit section (GB70410520)	Huddersfield Narrow Canal	Ordinary Watercourse - Canal	The Huddersfield Narrow Canal is an ordinary watercourse that stretches across the entire length of the study area. The northern section of the canal is tunnelled, this tunnel is identified as Standedge Canal Tunnels and it stretches from Marsden, located approximately 3.5 km north-east of the study area to Diggle Village in the north of the study area. From this point, Huddersfield Narrow Canal spans south through the centre of the study area before exiting the study area at Stalybridge. During the walkover several sections of the Huddersfield Narrow Canal were surveyed in the Western Section. The Summit Section was also observed where the canal enters Standedge Canal Tunnel. In terms of hydrological characteristic, the canal was broadly similar throughout the survey extent with an estimated wetted width of 10 m and water depths in excess of 1 m (Plate 5). Due to the artificial nature of the canal, there is limited geomorphological diversity.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			 Plate 5: Selected photographs of the Huddersfield Narrow Canal within the ZoI **EA Monitoring data (<5 Years old)** No EA water quality, fisheries or ecology data was returned for the Huddersfield Narrow Canal within the past 5 years. The habitat present is likely to provide habitat for mixed coarse fish species and plants and invertebrates which favour slow flowing/lentic environments.

WFD water body	Watercourse name	River Status	Watercourse description (hydromorphology, aquatic ecology, water quality)
			The Huddersfield Narrow Canal between Grasscroft and Dukinfield is designated as a Site of Special Scientific Interest (SSSI) as it supports rare aquatic flora such as floating water-plantain (*Luronium natans*), autumnal water-starwort (*Callitriche hermaphroditica*) and grass-wrack pondweed (*Potamogeton compressus*), as well as rare invertebrates including white-clawed crayfish (*Austropotamobius pallipes*).

5.2 Groundwater character

5.2.1 The following section summarises the character of the groundwater and geology underlying the ZoI. Further information can be found in Chapter 11 (Geo Environment) Volume 1 of the Environment Report[19].

Bedrock and superficial geology

5.2.2 The geology and hydrogeology within the ZoI is summarised in Table 5-3 and shown in Figures 12A.5.1 and 12A.5.2 (Volume 2, Environmental Report [**NR14**]). The ZoI is situated in the north-west of the groundwater body.

5.2.3 Mapped superficial deposits within the ZoI at 1:50,000[20] scale comprise till, glaciofluvial sheet deposits, alluvium and head. These are classified[21] as Secondary A aquifers (alluvium and glaciofluvial) and Secondary Undifferentiated (till) or Unproductive (head).

5.2.4 The mapped bedrock geology of the ZoI at 1:50,000[20] scale is comprised of the Millstone Grit (Shale Grit and Lower Kinderscout Grit) to the north-east of Mossley. The coal measures are located to the west of the ZoI and south of Mossley and include the Woodhead Hill Rock, Pennine Lower Coal Measures Formation, Rough Rock, Rossendale Formation, Huddersfield White Rock, Fletcher Bank Grit and Marsden Formation. The geology of the area is complex, and faulting is mapped throughout the ZoI, meaning groundwater flow will also be complex and highly localised.

Table 5-3 Geology and hydrogeology in the ZoI

Period	Parent unit	Formation	Lithological description[22]	EA aquifer designation[23]
Quaternary	N/A	Alluvium	Clay, silt, sand and gravel	Secondary A
	N/A	Head	Clay, silt, sand and gravel	Unproductive
	N/A	Glaciofluvial deposits - Devensian	Sand and gravel, locally with lenses of silt, clay or	Secondary A

[19] NR14 Environnent Report Volume 1, Chapoter 11 – Geo Environnent.

[20] https://www.bgs.ac.uk/datasets/bgs-geology-50k-digmapgb/ [accessed 20/06/2025]

[21] https://www.bgs.ac.uk/datasets/aquifer-designation-data/ [accessed 23/07/2025]

[22] https://webapps.bgs.ac.uk/lexicon/ [accessed 20/06/2025]

Period	Parent unit	Formation	Lithological description[22]	EA aquifer designation[23]
			organic material; characteristic 'sandur' (sheet) and valley train form; of glaciofluvial origin.	
	N/A	Till	Diamicton	Unproductive
Carboniferous	Millstone Grit Group	Lower Kinderscout Grit	Sandstone	Secondary A
		Shale Grit	Fine- to very coarse-grained and pebbly, feldspathic sandstone interbedded with grey siltstone and mudstone, with subordinate marine black shales, thin coals and seatearths.	Secondary A
		Marsden Formation	Fine- to very coarse-grained and pebbly feldspathic sandstone, interbedded with grey siltstone and mudstone, and subordinate marine black shales, thin coals and seatearths.	Secondary A

Period	Parent unit	Formation	Lithological description[22]	EA aquifer designation[23]
		Fletcher Bank Grit	Sandstone and pebbly sandstone, coarse-grained with angular grains, with quartz and quartzite pebbles, massive and current-bedded, and subordinate beds of mudstone and coal.	Secondary A
		Huddersfield White Rock	The Huddersfield White Rock is a medium- to coarse-grained, massive to flaggy, cross-bedded, micaceous sandstone.	Secondary A
		Rossendale Formation	A fine- to very coarse-grained and pebbly, feldspathic sandstone, interbedded with grey siltstone and mudstone, and subordinate marine black shales, thin coals and seatearths. Typically, the formation comprises a	Secondary A

Period	Parent unit	Formation	Lithological description[22]	EA aquifer designation[23]
			lower mudstone-dominated succession including two prominent marine shales, the Cancelloceras cancellatum and Cancelloceras cumbriense marine bands, and an upper sandstone-dominated succession, including the Rough Rock and Rough Rock Flags.	
	Rossendale Formation	Rough Rock	The base of the Rough Rock is sharp and erosional, in part underlain by mudstones with the Gastrioceras cumbriense Marine Band; locally present are fine-grained sandstones (Rough Rock Flags, Upper Haslingden Flags).	Secondary A
	Pennine Lower Coal Measures	Woodhead Hill Rock	Sandstone	Secondary A

Period	Parent unit	Formation	Lithological description[22]	EA aquifer designation[23]
		Old Lawrence Rock	Sandstone	Secondary A
	Pennine Coal Measures Group	Pennine Lower Coal Measures	Interbedded grey mudstone, siltstone and pale grey sandstone, commonly with mudstones containing marine fossils in the lower part, and more numerous and thicker coal seams in the upper part.	Secondary A

Aquifer designations

5.2.5 The superficial deposits are classified as Secondary A aquifers (alluvium and glaciofluvial) and Secondary Undifferentiated (till) or Unproductive (head). The bedrock throughout ZoI is classified as Secondary A aquifer. Secondary A aquifers are described as “permeable layers that can support local water supplies and may form an important source of base flow to rivers”.[23]

Groundwater levels

5.2.6 There is limited site-specific groundwater level information available for the groundwater body within the ZoI at this stage of design.

5.2.7 Due to the limited availability of groundwater level data, it is not possible to determine the groundwater flow direction or the depth to groundwater in the vicinity of the Order Scheme. In the absence of information, a conservative approach must be adopted. It is therefore assumed that groundwater is at surface. Intrusive site-specific ground investigation (GI)

[23] https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution#:~:text=secondary%20A%20aquifers%20comprise%20permeable,of%20base%20flow%20to%20rivers [Accessed on 11/12/2024]

is scheduled for the detailed design phase of the Order Scheme and will allow the groundwater flow direction and the depth to groundwater to be determined.

5.2.8 No groundwater was encountered during drilling 1 m deep boreholes at Mosely Station in February 201824.

Source Protection Zones

5.2.9 There are no groundwater Source Protection Zones[25] (SPZs) within the ZoI.

Groundwater abstractions

5.2.10 Licensed groundwater abstractions within 250 m of each works component of the Order Scheme are provided in Volume 3, Appendix 11A of this Report [**NR14**] which have been extracted from Groundsure reports produced by works component. Three works components have licenced groundwater abstractions within 250 m which are summarised in Table 5-4.

Table 5-4 Groundwater abstraction licences

Location	Detail of groundwater abstraction within 250 m of each individual works component
Printworks Main Compound[26]	This active licence, located 202 m south of the proposed Printworks Main Compound location, is operated by John Hargreaves (Collyhurst & Stalybridge) Ltd.
Plevins Compound[27]	There is one historical groundwater abstraction within 250 m of the site. A “spring fed catchpit at Kershaw Hey Farm, Mossley” located 199 m south, started 08/02/1966. No expiry date has been provided by Groundsure.

[24] TransPennine Route Upgrade Zone 2 SPO Add1.4-ABS Factual report on Ground Investigation October 2018. Report reference: 151667-TSA-05-MVL3-DM3-X-MF-700013

[25] Source Protection Zones are defined by the Environment Agency for groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities which may cause pollution in the area. The closer the activity, the greater the risk.

[26] Groundsure, “Enviro+Geo Insight (GS-J63-YFR-PCH-GFU),” 2024.

[27] Groundsure, “Enviro+Geo Insight (GS-7GY-VBF-9JS-IUR),” 2025.

Location	Detail of groundwater abstraction within 250 m of each individual works component
Wickers Underbridge (MVL3/29) [28]	Two groundwater abstraction licences within 250 m of the site. These are located 228 m north-west (one active, one historical) of the site, extracting for spray irrigation operated by Saddleworth Golf Club.

Groundwater dependant terrestrial ecosystems

5.2.11 There are three groundwater dependent terrestrial ecosystems (GWDTEs) which intersect the ZoI of the Order Scheme – refer to Table 5-5 below and Figure12A.5.2 (Volume 2 of the Environmental report)). The Dark Peak SSSI and the South Pennine Moors SSSI GWDTEs both intersect <0.1 km^2 of the northern margin of the ZoI and do not intersect the Order Scheme boundary. Therefore, they are not considered in the impact assessment.

5.2.12 Huddersfield Narrow Canal SSSI is located within the ZoI and is located along the course of the Huddersfield Narrow Canal west section (GB71210268) WFD water body which is classed as an artificial water body. Details of the WFD water body are provided in Table 5-2. The Huddersfield Narrow Canal is designated as a SSSI between the Portland Basin and Gas Work Lock, which is a relatively urban area. The main groundwater dependant habitats present within the SSSI are standing and running water, swamp, tall fen and fragmentary marginal vegetation.

5.2.13 The Huddersfield Narrow Canal SSSI intersects the Order Scheme boundary at one location where the canal flows beneath the existing Egmont Street bridge which is part of Plevins Compound.

Table 5-5 GWDTEs within ZoI

GWDTE name	Total area (km^2) of GWDTE	Area within ZoI (km^2)	Intersect Order Scheme boundary
Huddersfield Narrow Canal SSSI	0.12	0.09	Plevins Site Compound
The Dark Peak SSSI	318	0.07	Does not intersect order Scheme boundary
South Pennine Moors SSSI	209	<0.01	Does not intersect Order Scheme boundary

[28] Groundsure, "Enviro+Geo Insight (GS-KNT-M3C-RMA-6W2)," 2024.

5.3 Scoping of Works components

5.3.1 A Scoping exercise has been undertaken to identify the potential risks of each works component that was screened in for further assessment. The Scoping process has followed PINS guidance and has considered the risks of the various work components during construction and operation. WFD water bodies that could potentially be impacted by each works component are therefore scoped into the next stage of the assessment. All receptors that are not at risk from a particular works component are scoped out of the assessment at this stage.

5.3.2 The Scoping assessment has undertaken a review of the baseline information within the ZoI and has considered the works components which have the potential to impact on the screened in water bodies.

Surface Water

5.3.3 Works associated with the Order Scheme which are likely to affect surface watercourses and are considered as part of the WFD surface water assessment are summarised in Table 5-6.

5.3.4 The potential impacts of these works on surface water are considered in section 5.5.

Groundwater

5.3.5 Works components with the potential to affect the WFD groundwater body underlying the ZoI (Manchester and East Cheshire Carboniferous Aquifers) are detailed in Table 5-7 and can be summarised as:

- Deep foundations (piling) and retaining walls associated with new structures and/or the refurbishment/partial reconstruction of existing structures.
- Earthworks; and
- Storage of materials in temporary construction compounds.

5.3.6 The potential impact of the proposed works depends on the depth below ground of the works and whether the works would intersect with groundwater. There is currently no groundwater level and flow information available for the ZoI. Therefore, a conservative approach is taken, and it is assumed that groundwater levels are at surface.

5.3.7 The required duration for the various site compounds is not currently known. Therefore, a conservative approach to the assessment has been

undertaken and all compounds are considered as permanent works components of the Order Scheme.

5.3.8 The potential impacts on groundwater are considered in section 5.6.

Table 5-6 Summary of Order Scheme works directly affecting surface water.

Works component	Works component details	Scoping Decision				
		Tame (Source to Chew Brook)	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Mossley Station Relocation Works	Mossley station is being relocated approximately 300 m to the north of its current location on Manchester Road (A635). A positive drainage system shall be installed for the station access loop and accessible parking, link road, station building and platforms. The proposed drainage system will outfall to a 1500 mm diameter culverted watercourse that outfalls to the River Tame roughly 50 m from the proposed tie in point. The resulting surface water drainage will be attenuated using an attenuation tank.	No	Yes	Yes	No	No
Wrights Overbridge works (MVL3/23)	Parapet raising to 1.5 m at the Grade II Listed Wrights overbridge (MVL3/23) between Low Grove Lane and Mossley Road. Bridge arms will also be installed to the bridge underside deck	No	Yes	Yes	No	No
Uppermill Viaduct (MVL3/31)	To enable the electrification of the up and down lines, OLE portals are required to be installed over the viaduct.	Yes	Yes	Yes	Yes	No
Reconstruction of existing overbridge superstructure on Ward Lane (MVL3/36)	The existing overbridge superstructure is to be reconstructed as it does not have sufficient headroom to accommodate installation of OLE and is in poor condition. The overall form of the deck will be as per the	Yes	Yes	Yes	Yes	Yes

Works component	Works component details	Scoping Decision				
		Tame (Source to Chew Brook)	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
	standardised filler beam overbridge					
Diggle Road Overbridge and Utilities Bridge Works (MVL3/39)	Reconstruction of span 1 on the Diggle Road overbridge (MVL3/39) on Station Road in Diggle, approximately 90 m south of Standedge Canal Tunnel.	Yes	Yes	Yes	Yes	Yes
Standedge Canal Tunnel (MVL3/39A)	Concrete saddling to the masonry arch to strengthen the canal tunnel structure (MVL3/39A) for construction traffic.	No	No	No	Yes	Yes
Standedge Tunnel Bywash Underbridge Replacement (MVL3/39B)	Replacement of the existing Bywash underbridge (MVL3/39B) located adjacent to the Standedge Canal Tunnel western portal, with a box culvert system. This work will require the temporary dewatering and over pumping of an unnamed watercourse.	Yes	Yes	Yes	Yes	Yes
Plevins site compound	Main site compound involving substantial demolition of existing commercial buildings.	No	No	No	Yes	Yes
Scout Spoil Point Compound	Site compound for storage	No	Yes	Yes	No	No
Manchester Road, Scout West	Site compound works for storage	No	Yes	Yes	No	No
Ward Lane site compound	Site compound with associated access and earthworks.	No	No	No	Yes	Yes
Grandpa Green's Site Compound 2	Site compound with associated access and earthworks.	No	No	No	Yes	Yes

Works component	Works component details	Scoping Decision				
		Tame (Source to Chew Brook)	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Sam Road Car Park Compound	Site compound with associated access and earthworks.	No	No	No	Yes	Yes
Diggle Welfare, Rail hub and Office Compound	Site compound and associated earthworks.	Yes	Yes	Yes	No	No

Table 5-7 Summary of Order Scheme works directly affecting Manchester and East Cheshire Carboniferous Aquifers

Relevant Works Component	Scoping decision	Reason
Stalybridge Tunnel Works (MVL3/3)	Yes	Works component involves below ground works
Heyrod Hall Overbridge Works (MVL3/7)	No	Upgrading of existing structure with no notable below ground works or structures.
Works to Springbank Lane Footbridge (MVL3/8)	No	Upgrading of existing structure with no notable below ground works or structures.
Springbank Lane Overbridge Works (MVL3/9)	No	Upgrading of existing structure with no notable below ground works or structures.
Manchester Road Underbridge Works (MVL3/10)	No	Upgrading of existing structure with no notable below ground works or structures.
Manchester Road Footbridge Reconstruction (MVL3/10A)	Yes	Works component involves below ground works
Diversion of utilities bridge (MVL3/12)	Yes	Works component involves below ground works
Stamford Road Bridge Works (MVL3/13)	Yes	Works component involves below ground works
Scout Tunnel Works	Yes	Works component involves below ground works
Mossley Cottages Works	Yes	Works component involves below ground works
Mossley Station Relocation Works	Yes	Works component involves below ground works
Roughtown Road Overbridge Works (MVL3/17)	No	Works component does not include below ground works
Roughtown Road Footbridge Reconstruction (MVL3/18)	No	Upgrading of existing structure with no notable below ground works or structures.
Stockport Road Level Crossing Diversion	No	Works component does not include below ground works
Wright's Mill Overbridge Reconstruction (MVL3/20)	No	Reconstruction of existing structure with no notable below ground works or structures.
Wrights Overbridge Works (MVL3/23)	Yes	Works component involves below ground works
Royal George Underbridge Works (MVL3/25)	No	Refurbishment of existing structure with no notable below ground works or structures.
Oaklands Road Site Compound	Yes	Works component involves below ground works
Oldham Road Overbridge Reconstruction (MVL3/28)	Yes	Works component involves below ground works
New Oldham Road Footbridge Works (MVL3/28A)	Yes	Works component involves below ground works
Uppermill Viaduct Works (MVL3/31)	No	Works component does not include below ground works
Ravenstone Drive Footbridge Works (MVL3/35)	No	Works component does not include below ground works
Reconstruction of existing overbridge superstructure on Ward Lane (MVL3/36)	No	Reconstruction of existing structure with no notable below ground works or structures.
Diggle Road Overbridge Reconstruction (MVL3/39)	Yes	Works component involves below ground works
Standedge Canal Tunnel (MVL3/39A)	No	Refurbishment of existing structure with no notable below ground works or structures.
Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Yes	Works component involves below ground works
Printworks Road Main Compound[29]	Yes	Works component involves below ground works
Printworks Road Office Compound[29]	Yes	Works component involves below ground works
Wakefield Road Plant Access and Compound	Yes	Works component involves below ground works
Plevins site compound	Yes	Works component involves storage of spoil
Heyrod Hall Storage Compound	Yes	Works component involves below ground works

[29] Consented as part of Printworks Road Site Compounds as described in Volume 1, Chapter 1, Table 1.1 of the Environmental Report [NR14]

Relevant Works Component	Scoping decision	Reason
Scout West Ramp Compound[30]	Yes	Works component involves below ground works
Scout West Laydown Compound[30]	Yes	Works component involves below ground works
Scout Spoil Point Compound[30]	Yes	Works component involves storage of spoil
Manchester Road, Scout West Compound[30]	Yes	Works component involves below ground works
Scout East Ramp	Yes	Works component involves below ground works
Scout East Laydown Area[30]	Yes	Works component involves below ground works
Scout East Car Park Compound[30]	Yes	Works component involves below ground works
Scout East Access Compound[30]	Yes	Works component involves below ground works
Relocated Mossley Station West Site Compound[31]	Yes	Works component involves below ground works
Manchester Road, Mossley Site Compound[31]	Yes	Works component involves below ground works
Heron Lane Site Compound	Yes	Works component involves below ground works
Armit Road Site Compound	Yes	Works component involves below ground works
Lineside fencing access from Oldham Road	Yes	Works component involves below ground works
Drainage and lineside fencing canal side in Uppermill	Yes	Works component involves below ground works
Brownhill Lane Compound	Yes	Works component involves below ground works
Saddleworth Old Railway Tunnel site compound	Yes	Works component involves below ground works
Ward Lane site compound	Yes	Works component involves below ground works
Grandpa Green's Site Compound[32]	Yes	Works component involves below ground works
Grandpa Green's 2 Site Compound[32]	Yes	Works component involves below ground works
Sam Road Car Park Compound[33]	Yes	Works component involves below ground works
Diggle Welfare, Rail hub and Office Compound[33]	Yes	Works component involves below ground works
Diggle Access and Diversion Route	Yes	Works component involves below ground works

[30] Consented as part of Scout Site Compounds as described in Volume 1, Chapter 1, Table 1.1 1 of the Environmental Report [NR14]

[31] Consented as part of Mossley Station Relocation - Construction of New Station Works and Site Compounds as described in Volume 1, Chapter 1, Table 1.1 of the Environmental Report [NR14]

[32] Consented as part of Ward Lane Site Compounds as described in Volume 1, Chapter 1, Table 1.1 of the Environmental Report [NR14]

[33] Consented as part of Diggle Compound Works as described in Volume 1, Chapter 1, Table 1.1 of the Environmental Report [NR14]

5.4 Mitigation

5.4.1 Mitigation measures for the water environment are presented below and are also discussed in section 0 of this report.

Mitigation (design)

5.4.2 Best practice guidance (as outlined below) will be incorporated into the detailed design of any works components with the potential to impact upon a watercourse, its riparian zone or a groundwater body. Such mitigation aims to minimise the impact of the works associated with the Order Scheme on WFD Quality Elements, with a view to securing WFD compliance for the Order Scheme. Mitigation incorporated into the design of a development is generally referred to as embedded mitigation.

Drainage of run-off to surface water and groundwater

5.4.3 Sustainable Drainage Systems (SuDS) are the preferred approach to managing any potentially run-off and will be implemented where technically feasible. All drainage systems should be designed in accordance with industry standards, with particular emphasis on appropriate pollution prevention and control measures (CIRIA, 2015)[34].

5.4.4 As part of this assessment, it has been assumed that there will be like for like replacement or improvements to drainage design. Potential effects to water bodies as a result of changes to drainage are considered negligible.

5.4.5 The potential consequences of any pollution incidents will be dealt with via an environmental management and contingency planning process in order to prevent or mitigate for any potentially contaminated run-off being routed to surface water or groundwater.

Deep foundations and below ground structures

5.4.6 Below ground structures (including deep foundations and retaining walls), which extend below the groundwater table, may form a barrier to groundwater flow, depending on the groundwater flow direction. This can potentially reduce groundwater contributions to groundwater-dependant water features (e.g. water courses and any groundwater abstractions in the water body).

5.4.7 Where deep foundations extending beneath the groundwater table are required as part of the Order Scheme (e.g. piling, retaining walls), these will be designed in accordance with industry standards. Detailed designs will take into account the site-specific groundwater level monitoring data obtained from intrusive ground investigation for the Order Scheme. A

[34] Construction Industry Research and Information Association (CIRIA), 2015. The SuDS Manual (C753). https://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91

piling risk assessment will be carried out where required to ensure the selected piling method does not introduce contamination pathways into the aquifer.

Mitigation (construction)

5.4.8 Best practice guidance (as detailed below) will be incorporated into the construction of any works components with the potential to impact upon a watercourse, its riparian zone or a groundwater body. Such mitigation aims to minimise as far as reasonably practicable the temporary impact of the works associated with the Order Scheme on the water environment.

In-channel works

5.4.9 The design process has sought to minimise the requirement for in-channel working during the construction process. Where in-channel working cannot be eliminated entirely, such as at the unnamed watercourse near Standedge Canal Tunnel, the following measures will be implemented.

5.4.10 In-channel working should be timed during the summer months to avoid potential disturbance to fish spawning and should also ideally be undertaken during low flow periods (i.e. when flows are at or below the mean average to reduce the potential for sediment release and risk of scour). Appropriate measures will be in place to ensure any contaminants/ materials from construction activities do not enter the watercourse. Use isolation techniques such as dams/ over-pumping to create dry working areas e.g. during works on the unnamed watercourse near Standedge Canal Tunnel. Installation of silt curtains to minimize the propagation of fine sediment pollution in watercourses. during works on the Huddersfield Narrow Canal at Standedge Canal Tunnel, should also be undertaken. These measures will be detailed in a Pollution Prevention and Incident Control Plan (PPICP) which will be secured via the Code of Construction Practice (CoCP) Part B and submitted for approval to the relevant local authority. Additionally works with 16 m of a watercourse will be regulated and consented the relevant regulatory body such as the EA, Canal and Rivers Trust (CRT) and LLFA.

5.4.11 Where watercourses require temporary dewatering and/ or over-pumping to permit construction activities, fish will be removed by means of electrofishing and relocated prior to dewatering. Water flow/passage will be sufficiently maintained as to not result in the drying of habitats downstream areas.

5.4.12 The length of channel disturbed, and size of working corridor will be limited to a minimum. In addition, the length of tracking along the side of channels will be minimised as far as reasonably practicable to avoid the

creation of new flow paths and a buffer zone around the watercourse will be maintained where possible.

5.4.13 Noise, vibration and light spill will be minimised as far as reasonably practicable by working back from the watercourses where possible. Construction lighting will be angled away from the watercourse to reduce the potential for disturbance. Measures to minimise noise vibration and light spill will be captured via PPICP and the Code of Construction Practice Part B which will be submitted for approval to the relevant local authority.

5.4.14 Any vegetation clearance required for construction will be minimised as far as reasonably practicable and re-instated where practicable.

5.4.15 Where the erection of temporary structures is required for construction, e.g. dams, appropriate isolation techniques will be used. These measures will be in place for the minimum possible period of time in order to minimise disruption to flow, sediments and biota as far as reasonably practicable.

Disturbance of invasive non-native species

5.4.16 Construction activities in, over and adjacent to water bodies offer a significant increase in the risk of the spread of Invasive Non-Native Species (INNS) associated with aquatic and riparian habitats.

5.4.17 Any identified risks will need to be managed effectively during the construction period through the implementation of biosecurity control, such as the “check-clean-dry” procedures for plant, equipment and the workforce. The GB Non-Native Species Secretariat website[35] provides a key source of information for the identification of risks, appropriate control and management systems and disposal. Disturbance to INNS are discussed in further detail in Volume 1, Chapter 6: Ecology.

5.4.18 The EA will also be consulted to ascertain the status and distribution of invasive species in surface water bodies. Consideration will be given to the potential to create pathways for invasive species movement within/ between water bodies.

Groundwater dewatering

5.4.19 Should dewatering be required as part of construction, industry standard best practice mitigation should be followed, including integration of dewatering into the Construction Environment Management Plan (CEMP) which will be secured via the Code of Construction Practice Part B.

[35] Non-Native Species Secretariat, 2020. Available from: http://www.nonnativespecies.org

Run-off from construction sites to surface water and groundwater.

5.4.20 Construction can generate significant risk of pollution to surface water bodies and groundwater bodies. Any risks will need to be fully mitigated by suitable control of construction practices and will be incorporated into the Pollution Prevention and Incident Control Plan (PPICP) which will be secured via the Code of Construction Practice Part B and submitted for approval to the relevant local authority.

5.4.21 Construction works will adhere to environmental best practice such as guidance provided in Pollution Prevention Guidance (PPG) which will be secured via the Code of Construction Practice Part B which will be submitted to the relevant local authority for approval.

Vegetation management

5.4.22 There is often the requirement to manage vegetation (both riparian and aquatic) during construction activities in, over and adjacent to water bodies. Vegetation clearance will only be undertaken following an ecological constraints assessment of the potential for vegetated habitats to support protected species (e.g. nesting birds, reptiles) and to determine the intrinsic ecological value of the habitat, plus the risk posed by INNS. Further information about vegetation management is presented in Chapter 6 (Ecology) in the relevant Route Section Assessment in Volume 1 of the Environmental Statement **[NR14].** These measures will be detailed in a LEMP which will be submitted to the relevant local authority for approval.

Mitigation (operation)

5.4.23 No specific mitigation has been identified during operation. Specific drainage interventions are assumed to be like for like replacement or improvements of culverts and outfalls of existing drainage.

5.4.24 For groundwater, the mitigation implemented at construction stage in relation to deep foundations and below ground works is also applicable to the operation phase.

5.4.25 Implementation of best practice guidance in combination with site-specific mitigation measures detailed above are considered to be sufficient to maintain compliance under the WFD.

5.5 Surface water impact assessment

5.5.1 This section sets out WFD Impact Assessments for those WFD surface water bodies which are identified as having the potential to be affected

directly or indirectly by works associated with the Order Scheme. This includes the following:

- Three WFD river water bodies: River Tame (Source to Chew Brook), River Tame (Chew Brook to Swineshaw Brook) and River Tame (Swineshaw Brook to Mersey)
- Two WFD canal water bodies: Huddersfield Canal Summit Section and Huddersfield Canal Western Section.

5.5.2 Detailed WFD impact assessments for the five WFD surface water bodies are provided in Annex A of this document. A summary of each of the assessments are provided in turn, as follows.

River Tame (Source to Chew Brook)

Test A – Potential to cause deterioration of current WFD Ecological Potential

5.5.3 The proposed works on Uppermill Viaduct, Ward Lane Overbridge (MVL3/36) and the Diggle Road Overbridge and Utilities Bridge Works (MVL3/39) were all assessed to have minor localised effects to Biological Quality Elements, as a result of temporary noise and vibration, and negligible effects to water quality, assuming industry best practice is implemented with regards to pollution prevention control. These measures will be detailed in a Pollution Prevention and Incident Control Plan (PPICP) which will be secured via the Code of Construction Practice Part B and submitted for approval to the relevant local authority.

5.5.4 The proposed Diggle Welfare, rail hub and office compound was assessed to have minor localised effects to Biological Quality Elements as a result of noise and disturbance created during compound construction/operation and negligible effects to water quality and Hydromorphological Quality Elements assuming industry best practice is implemented with regards to pollution prevention control and surface water drainage is attenuated.

5.5.5 The proposed Bywash (MVL3/39B) were assessed to have minor localised effects to Biological, Physico-Chemical and Hydromorphological Quality Elements as a result of the temporary dewatering of the unnamed watercourse near Standedge Canal Tunnel required to facilitate the works.

5.5.6 The mitigation measures proposed included minimising the duration of works where possible, adherence to measures in CoCP Part B PPICP relating to surface water run-off, timing of instream works to avoid fish

spawning and undertaking fish rescues/translocations prior to any dewatering.

5.5.7 With the proposed mitigation measures in place, the Order is anticipated to have no effect on the current WFD water body status for the Tame (Source to Chew Brook) WFD surface water body.

Test B – Potential to prevent attainment of Good Ecological Potential

5.5.8 Whilst there are no measures specifically assigned to this water body, several wider area measure actions assigned to the water body such as structural modifications (e.g. improvements for fish passage) and operations and maintenance (treatment for INNS).. There is anticipated to be no effect from the Order Scheme upon the implementation of these measures assigned to the water body.

5.5.9 The Order Scheme is not anticipated to have any effect upon the future attainment of GEP within the water body (which is currently Moderate Overall and Moderate Ecological Potential).

River Tame (Chew Brook to Swineshaw Brook)

Test A – Potential to cause deterioration of current WFD Ecological Potential

5.5.10 The proposed works at Wrights Overbridge (MVL3/23), Scout Spoil Compound and Manchester Road Scout West Compound were all assessed to have minor localised effects to Biological Quality Elements, as a result of temporary noise and vibration.

5.5.11 The proposed works at Mossley Station (namely the construction of a new surface water outfall) were assessed to have minor localised effects to Biological Quality Elements as a result of temporary noise and vibration. Assuming industry best practice is implemented, with regards to pollution prevention control, and surface water drainage is insufficiently attenuated impacts to water quality and hydromorphology are considered negligible.

5.5.12 Assuming industry best practice is implemented with regards to pollution prevention control, the potential effects to WFD Quality Elements from works in upstream WFD water bodies e.g. Diggle Welfare, rail hub and

office compound , MLV3/39, MLV3/39A, MLV3/39B and Stalybridge are considered negligible.

5.5.13 The mitigation measures proposed include adherence to the site-wide mitigation strategies for surface water runoff detailed in CoCP Part B PPICP.

5.5.14 With the proposed mitigation measures in place, the Order Scheme is anticipated to have no effect on the current WFD water body status for the Tame (Chew Brook to Swineshaw Brook) WFD surface water body.

Test B – Potential to prevent attainment of Good Ecological Potential

5.5.15 Whilst there are no measures specifically assigned to this water body, several wider area measure actions assigned to the water body such as structural modifications (e.g. improvements for fish passage) and operations and maintenance (treatment for INNS). There is anticipated to be no effect from the Order Scheme upon the implementation of these measures assigned to the water body.

5.5.16 The Order Scheme is not anticipated to have any effect upon the future attainment of GEP within the water body (which is currently Moderate Overall and Moderate Ecological Potential).

River Tame (Swineshaw Brook to Mersey)

Test A – Potential to cause deterioration of current WFD Ecological Potential

5.5.17 No works components were identified that would potentially effect the River Tame (Swineshaw Brook to Mersey) WFD water body directly. Assuming industry best practice is implemented with regards to pollution prevention control, the potential effects to WFD Quality Elements from works in upstream WFD water bodies are considered negligible. The Order Scheme is therefore anticipated to have no effect on the current WFD water body status for the Tame (Swineshaw Brook to Mersey) WFD surface water body.

Test B – Potential to prevent attainment of Good Ecological Potential

5.5.18 Whilst there are no measures specifically assigned to this water body, several wider area measure actions are assigned to the water body such as structures and modifications. There is anticipated to be no effect from

the Order Scheme upon the implementation of these measures assigned to the water body.

5.5.19 The Order Scheme is not anticipated to have any effect upon the future attainment of GEP within the water body (which is currently Moderate Overall and Moderate Ecological Potential).

Huddersfield Narrow Canal (Western Section)

Test A – Potential to cause deterioration of current WFD Ecological Potential

5.5.20 The proposed works at MVL3/39A and MVL3/39B were all assessed to have minor localised effects to water quality both during construction (via sediment mobilisation). These impacts are however anticipated to be minor and localised in nature.

5.5.21 The mitigation measures proposed includes utilising silt curtains during in channel works to contain the dispersion of suspended solids (and associated impacts to water quality) and adherence to measures outlined in CoCP Part B PPICP relating to surface water run-off.

5.5.22 With the proposed mitigation measures in place, the Order Scheme is anticipated to have no effect on the current WFD water body status for the Huddersfield Narrow Canal (Western Section) WFD surface water body.

Test B – Potential to prevent attainment of Good Ecological Potential

5.5.23 Whilst there are no measures specifically assigned to this water body, several wider area measure actions are assigned to the water body such as structural modifications (e.g. improvements for fish passage) and operations and maintenance (treatment for INNS). There is anticipated to be no effect from the Order Scheme upon the implementation of these measures assigned to the water body.

5.5.24 The Order Scheme is not anticipated to have any effect upon the future attainment of GEP within the water body (which is currently Moderate Overall and Moderate Ecological Potential).

Huddersfield Narrow Canal (Summit Section)

Test A – Potential to cause deterioration of current WFD Ecological Potential

5.5.25 The proposed works at MVL3/39A and MVL3/39B were assessed to have minor localised effects to water quality both during construction (via sediment mobilisation) and during operation (as a result in localised

changes to drainage). These impacts are however anticipated to be minor and localised in nature.

5.5.26 The mitigation measures proposed includes utilising silt curtains during in channel works to contain the dispersion of suspended solids (and associated impacts to water quality) and to measures outlined in CoCP Part B PPICP relating to surface water run-off.

5.5.27 With the proposed mitigation measures in place, the Order Scheme is anticipated to have no effect on the current WFD water body status for the Huddersfield Narrow Canal (Summit Section) WFD surface water body.

Test B – Potential to prevent attainment of Good Ecological Potential

5.5.28 There are currently no measures assigned to this water body at the water body level but wider area measure actions are detailed for the Huddersfield Narrow Canal (Western Section) such as structural modifications (e.g. improvements for fish passage) and operations and maintenance (treatment for INNS). There is anticipated to be no effect from the Order Scheme upon the implementation of these measures.

5.5.29 The Order Scheme is not anticipated to have any effect upon the future maintenance of GEP within the water body (which is currently Good Overall and Good Ecological Potential).

5.6 Groundwater impact assessment

5.6.1 This section sets out a WFD Impact Assessment for the Manchester and East Cheshire Carboniferous Aquifers WFD groundwater body which is identified as having the potential to be affected directly or indirectly by proposed works associated with the Order Scheme.

5.6.2 A detailed WFD impact assessment for the WFD groundwater body is provided in Annex A of this document. A summary of the assessment is provided below.

Manchester and East Cheshire Carboniferous Aquifers

Potential effects – permanent works

5.6.3 The potential effects on the groundwater body of permanent components of the Order Scheme are summarised in Table 5-8. The impact assessment assumes that embedded mitigation is included in design, construction and operation.

Table 5-8 Summary of potential effects on the groundwater body of permanent works components

Order Scheme element	Potential effect
Deep foundations and retaining walls.	Assuming foundations and retaining walls extend below the water table into the bedrock aquifer, below ground structures can form a barrier to groundwater flow, depending on the groundwater flow direction. This can potentially reduce groundwater contributions to adjacent watercourses and any groundwater abstractions in the water body. Deep excavations may require temporary dewatering. This may locally reduce the groundwater table, and any contaminated discharge may adversely impact the surface and groundwater bodies.
Sheet piling	Assuming piling will extend below the water table and into the bedrock aquifer, deep piling through contaminated ground may create rapid vertical flow pathways into the groundwater body. The effect of sheet piling is dependent on site-specific conditions, structure design and construction depth. However, it may also cause a barrier to groundwater flow, potentially resulting in reduction in base flow to surface watercourses or GWDTEs.
Storage of materials	Storage of materials on construction compounds may cause contaminants to enter the groundwater body dependent on site-specific conditions. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body.

Potential effects – temporary works

5.6.4 Temporary effects that are addressed as part of the WFD impact assessment include the following:

- Polluted surface water runoff which may adversely impact water body quality through infiltration of the water body via contamination pathways.
- Below ground works which may increase the contamination pathways proximal to works.
- Temporary dewatering works which may decrease the local groundwater level, potentially reducing base flow to rivers, and increase the potential of groundwater contamination as a result of contaminated discharge to surface water.

5.6.5 The impact assessment assumes that embedded mitigation is included for all temporary effects.

Test A – Potential to cause deterioration of current WFD Ecological Potential

5.6.6 The construction of structures into the subsurface is assessed to have no affect at the WFD water body scale on the assumption that mitigation measures (section 5.4) for the Order Scheme will limit the overall effect of the works to no effect.

Test B – Potential to prevent attainment of Good Ecological Potential

5.6.7 None of the works components affecting the groundwater body are considered to prevent future attainment of GEP.

Overview

5.6.8 With the proposed mitigation measures (section 5.4) in place, works components potentially affecting Manchester and East Cheshire Carboniferous Aquifers groundwater body are considered compliant against with the requirements of the WFD. On this basis, the works components potentially affecting this water body are not considered to cause deterioration (thus passing Test A) and should not prevent future attainment of GEP (Test B).

5.7 Cumulative effects

Cumulative effects within the Order Scheme

5.7.1 Cumulative effects within the Order Scheme (i.e. intra-project) are considered as part of this WFD impact assessment for both surface water and groundwater.

5.7.2 In addition to the relevant works components of the Order Scheme it is acknowledged that additional works to be consented via Permitted Development Rights (PDRs) are being undertaken as part of the wider Scheme. Construction of these works will likely be undertaken concurrently with the relevant works components of the Order Scheme and therefore may give rise to cumulative effects both during the construction and operation phases of the Project.

5.7.3 The potential effects of the design, construction and operation of the works being undertaken by PDRs will be managed in accordance with the relevant clauses included within Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]). Further mitigation in relation to works being undertaken by PDR's will be secured via adherence to the control measures outlined with the COCP (Part A) and compliance with relevant Environmental Management Plans.

Surface water

5.7.4 This assessment has concluded that, in relation to the three River Tame water bodies, the proposed Order Scheme is likely to result in minor localised impacts to WFD Quality Elements. Providing the mitigation measures are adopted, as detailed in section 5.4, these impacts will primarily be restricted to the construction phase of the Order Scheme and thus be temporary in nature.

5.7.5 With regards to the two Huddersfield Canal water bodies, this assessment has concluded that, the proposed Order Scheme is likely to result in minor localised impacts to WFD Quality Elements. These potential impacts to WFD Quality Elements can however be reduced by implementing the mitigation measures recommended in section 5.4.

5.7.6 When considering the potential impacts of the Order Scheme collectively, which at worst have been assessed to be localised and minor in nature, the cumulative effect on each water body are considered to be minor and the proposed mitigation measures for each of the individual measures is considered to be sufficient to ensure compliance with the WFD.

Groundwater

5.7.7 This assessment has concluded that, in relation to the Manchester and East Cheshire Carboniferous Aquifers WFD groundwater body, the

proposed Order Scheme is likely to result in minor localised impacts to WFD Quality Elements.

5.7.8 The works associated with the Scheme which have the potential to affect groundwater are considered to be sufficiently localised that there is no cumulative effect on the Manchester and East Cheshire Carboniferous Aquifers WFD groundwater body.

5.8 Risk of derogation

5.8.1 This WFD compliance assessment has identified that at the current stage of design, the Works components affecting the five WFD surface water bodies and one groundwater body are not considered to cause deterioration (Test A) and should not prevent future attainment of GEP (Test B).

5.8.2 The works associated with the Scheme are localised in their extent and impact, resulting in a Negligible impact at the water body scale. Therefore, assuming the best practice guidelines outlined above for design and construction, and identified specific mitigation measures are adhered to, this WFD compliance assessment concludes that the Order Scheme is likely to be WFD-compliant.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1.1 This assessment has concluded that the implementation of the mitigation measures detailed in section 5.4 are considered to be sufficient to maintain compliance under the WFD without the need for further mitigation/derogation.

6.1.2 Should there be any subsequent minor design alterations to the Order Scheme, or further design details available, this WFD compliance assessment will need to be updated.

6.1.3 The best practice guidelines and mitigation measures identified will need integrating into the design and construction process. This will occur through liaison with the Order Scheme design team and design workshops.

6.1.4 Further consultation with the EA will be undertaken as the Order Scheme progresses through detailed design. This is considered to be good practice, given that the Order Scheme design will materially remain unchanged.

ANNEX A - WFD IMPACT ASSESSMENT MATRICES

The full WFD impact assessment matrices are presented in this annex for the following five WFD surface water bodies and one groundwater body:

- Tame (Source to Chew Brook)
- Tame (Chew Brook to Swineshaw Brook)
- Tame (Swineshaw Brook to Mersey)
- Huddersfield Narrow Canal Summit Section
- Huddersfield Narrow Canal Western Section
- Manchester and East Cheshire Carboniferous Aquifers

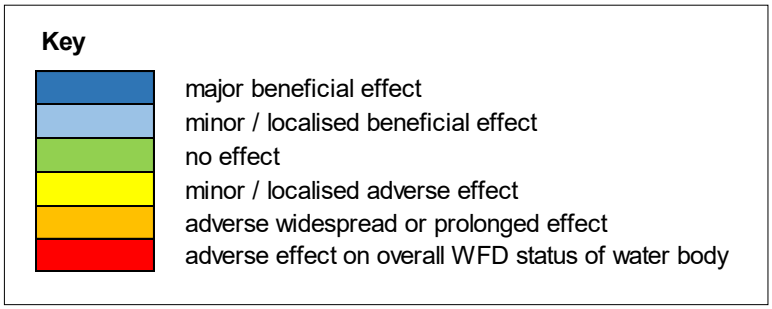
The WFD impact assessment for each water body has been undertaken based on the Order Scheme design, and also assumes the following:

1) The mitigation already "embedded" in this preliminary design is implemented.

2) Additional specific mitigation measures are implemented if agreed with the EA; and,

3) Generic guidance on the principles of WFD compliant design and best practice is adhered to in subsequent detailed design of Works components affecting the water environment.

The WFD impact assessment matrices use a colour-coded key (see below).



Where a WFD element is not classified by the EA for the WFD water body, it is not considered in the WFD impact assessment.

Tame (Source to Chew Brook)

Water body summary

WFD water body type	River Surface Water Body
WFD hydromorphological designation	Heavily Modified Water Body
WFD water body ID	GB112069064741
WFD Water body name	River Tame (Source to Chew Brook)

Works components with potential impacts to water body.

Structure code/name	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Welfare, rail hub and office compound	Diggle Road Overbridge and Utilities Bridge Works MVL3/39
Works component	Viaduct electrification works	Overbridge reconstruction.	Replacement of the existing Bywash underbridge	Site compound	Diggle Road Overbridge and Utilities Bridge Works
Water feature type	River Tame and Huddersfield Narrow Canal	Unnamed watercourse OW 7	Huddersfield Narrow Canal	Unnamed watercourse near Standedge Canal Tunnel and Diggle Brook.	Unnamed watercourse near Standedge Canal Tunnel and Huddersfield Narrow Canal.
Location	SD 99569 06285	SE 00280 07551	SD 98109 04139	SE 00598 07868	SE 00711 08065
Works description	To enable the electrification of the up and down lines, OLE portals are required to be installed over the viaduct. 1500mm into the viaduct.	The existing overbridge superstructure is to be reconstructed as it does not have sufficient headroom to accommodate installation of OLE and is in poor condition.	Replacement of the existing Bywash underbridge (MVL3/39B) located adjacent to the Standedge Canal Tunnel western portal, with a box culvert system. This work will require the temporary dewatering and over pumping of an unnamed watercourse.	Site compound and associated earthworks. (Full planning application to be progressed ahead of the TWAO subject to instruction from NR).	Reconstruction of span 1 on the Diggle Road overbridge (MVL3/39) on Station Road in Diggle, approximately 90 m south of Standedge Canal Tunnel.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements			**WFD status**		**Effect of Works components on WFD elements**					**Overall effect**				
			Current status (2019)	**Status objective**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Diggle Welfare, rail hub and office compound**	**Diggle Road Overbridge and Utilities Bridge Works MVL3/39**	**Overall effect of Order Scheme on WFD element***	**Additional proposed mitigation measures**	**Residual effect of Order Scheme on WFD element****	**Effect of Scheme on ecological/ chemical status**	**Overall effect of Order Scheme on water body status**
Ecological status	**Biological Quality Elements**	**Macrophytes and phytobenthos**	Good	Good (2015)	Assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements arising from changes to water quality are considered negligible. During construction works some minor disturbance to Biological Quality Elements (fish and macroinvertebrates) may occur as a result of noise and vibration created by the works. Works will however be temporary in nature and localised to the Uppermill Viaduct. Overall impacts to Biological Quality Elements are therefore considered to be minor and localised.	The unnamed watercourse (OW 7) which flows immediately adjacent to the proposed works area at ML3/36 makes a local contribution to habitat value and ecological resilience at the water body scale. During construction works disturbance to Biological Quality Elements (fish and macroinvertebrates) is likely to occur as a result of noise and vibration created by the works. Works will however be temporary in nature and restricted to the overbridge on Ward Lane (MVL3/36) and access routes. Assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements arising from changes to water quality are considered negligible in OW 7 and also Diggle Duck pond which is downstream of the proposed works area and fed by OW 7. Overall impacts to Biological Quality Elements arising from the works at MVL3/36 are therefore considered to be minor and localised.	The unnamed watercourse near Standedge Canal Tunnel impacted by the proposed works makes a local contribution to habitat value and ecological resilience at the water body scale. The dewatering process required as part of the works will cause a temporary loss in habitat availability and temporary loss of longitudinal connectivity for Biological Quality Elements'. During construction works disturbance to Biological Quality Elements will occur as a result of the physical works and the resulting noise and vibration. Works will however be temporary in nature and localised to the unnamed watercourse. Assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements as a result of changes to water quality are considered negligible. Overall impacts to Biological Quality Elements are therefore considered to be minor and localised however further mitigation e.g. fish rescues are likely to be required to ensure legislative compliance.	The unnamed watercourse near Standedge Canal Tunnel and Diggle Brook, which flow immediately adjacent to the proposed compound access route make a local contribution to habitat value and ecological resilience at the water body scale. During site set up and operation disturbance to Biological Quality Elements in both watercourses is likely to occur as a result of noise and vibration created by the works. Works will however be temporary in nature and existing access routes will be utilised therefore no in channel works will be required. Assuming adequate pollution controls are implemented during construction/operation and that there will be like for like or improvements to drainage impacts to Biological Quality Elements are considered negligible. Overall impacts to Biological Quality Elements arising from the works at Diggle Welfare are therefore considered to be minor and localised.	The unnamed watercourse near Standedge Canal Tunnel which bisects the proposed works area at ML3/39 makes a local contribution to habitat value and ecological resilience at the water body scale. During construction works disturbance to Biological Quality Elements is likely to occur as a result of noise and vibration created by the works. Works will however be temporary in nature and restricted to the overbridge on Station Road and access routes. Assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements arising from changes to water quality are considered negligible. Overall impacts to Biological Quality Elements arising from the works at MVL3/39 are therefore considered to be minor and localised.	Assuming industry best practice measures are implemented during the works (e.g. pollution prevention control) impacts to the ecological Quality Elements of the Tame (Source to Chew Brook water body) are considered to be minor, localised and for the most part temporary in nature.	Where possible the duration of works should be minimised to reduce disturbance via noise and vibration. Works on the unnamed watercourse near Standedge Canal Tunnel should be undertaken during the summer months to avoid periods where fish are likely to spawn. Prior to over pumping fish should be captured and excluded from the proposed works area by a trained ecologist. All pumping apparatus should be appropriately screened to reduce fish of fish entrainment/impingement. Furthermore, the duration of instream works on the unnamed watercourse near Standedge Canal Tunnel should be curtailed where possible to minimise the impacts associated with the temporary loss of longitudinal connectivity on Biological Quality Elements.	The proposed mitigation should minimise the potential effect on the Biological Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme	There is no anticipated effect of the Order Scheme on the Ecological Status of the water body.	**Overall, there is no anticipated effect on the WFD classification of the River Tame (Source to Chew Brook) WFD water body.**
		Macro-invertebrates	Good	Good (2015)										
		Fish	Moderate	Good (2027)										
	Physico-Chemical Quality Elements	**Elements including Ammonia, Dissolved Oxygen (DO), pH, Phosphate and Temperature.**	Moderate	Good (2015)	Assuming adequate pollution controls are implemented during construction impacts to Physico-Chemical Quality Elements are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to Physico-Chemical Quality Elements are considered negligible.	Localised changes to Physico-Chemical Quality Elements, such as dissolved oxygen, are likely to occur as a result of in channel works e.g. as a result of sediment mobilisation. Assuming adequate pollution controls are implemented during construction the impacts are likely to be minor, localised and temporary.	Assuming adequate pollution controls are implemented during construction/operation and that there will be like for like or improvements to drainage impacts to Physico-Chemical Quality Elements are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to Physico-Chemical Quality Elements are considered negligible.	Assuming industry best practice measures are implemented during the works (e.g. pollution prevention control) impacts to the Physico-Chemical Quality Elements of the Tame (Source to Chew Brook water body) are considered to be minor, localised and temporary in nature.	Assuming adequate pollution controls are implemented during construction the impacts are likely to be minor, localised and temporary. Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on the Physico-Chemical Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme		

WFD elements			WFD status		Effect of Works components on WFD elements					Overall effect				
			Current status (2019)	Status objective	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Welfare, rail hub and office compound	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	Overall effect of Order Scheme on WFD element*	Additional proposed mitigation measures	Residual effect of Order Scheme on WFD element**	Effect of Scheme on ecological/ chemical status	Overall effect of Order Scheme on water body status
Chemical Status	Hydromorphological Quality Elements	Elements including Hydrological Regime (i.e. quantity and dynamics of water flow, connection to groundwater) and Morphology (i.e. river continuity, river depth and width variation, structure and substrate of river bed, structure of the riparian zone).	Not assessed.	Not assessed	No in channel or drainage works required so impacts to Hydromorphological Quality Elements are considered negligible.	No in channel or drainage works required so impacts to Hydromorphological Quality Elements are considered negligible.	The unnamed watercourse near Standedge Canal Tunnel impacted by the proposed works makes a local contribution to habitat value and ecological resilience at the water body scale. Localised changes in river width, water depth, substrate composition and riparian zones are likely to occur within the section of unnamed watercourse which will be dewatered as part of the works. In the context of the water body scale these impacts are considered to be localised and minor however timescales are currently unknown.	Assuming there will be like for like or improvements to drainage impacts to Hydromorphological Quality Elements are considered negligible	No in channel or drainage works required so impacts to Hydromorphological Quality Elements are considered negligible.	Impacts to the Hydromorphological Quality Elements of the Tame (Source to Chew Brook water body) are considered to be minor and localised.	Following completion of the works on the unnamed watercourse near Standedge Canal Tunnel the instream habitat should be restored so that the hydromorphological characteristics (width, depth, flow, substrate composition and riparian structure) are representative of baseline conditions. Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effects on the Hydromorphological Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.		
	Specific pollutants	Listed in Annex VIII of the Water Framework Directive (2000/60/EC).	Not assessed	Not assessed	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction/operation and that there will be like for like or improvements to drainage impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	N/A impacts are considered negligible, so no further mitigation required.	Industry best practice mitigation is sufficient to minimise the potential effects on water quality to ensure no expected deterioration as a result of the Order Scheme.		
	Priority Substances	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Fail	Good (2027)	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction/operation and that there will be like for like or improvements to drainage impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	N/A impacts are considered negligible, so no further mitigation required.	Industry best practice mitigation is sufficient to minimise the potential effects on water quality to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Chemical Status of the water body.	
	Other Pollutants	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Does not require assessment	Does not require assessment										
	Priority Hazardous Substances	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Fail	Good (2063)										

Test B Potential to prevent future attainment of Good Ecological Potential

RBMP measures			Effect of Works components on WFD elements					Overall effect of Order Scheme on proposed measure
RBMP measures to achieve objective	Where RBMP will measure happen	When RBMP will measure happen	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36.	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Welfare, rail hub and office compound	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	
Wider area measures actions								
Education: Educate landowners	Catchment wide	Not specified	The proposed works will have no impact to the education measures.					No effect is anticipated at the water body scale.
Operations and maintenance: Vegetation control, invasive species techniques, minimise habitat impact (maintenance), sediment management strategy, prevent sediment transfer (maintenance) and retain habitats.	Catchment wide	Not specified	The proposed works are not anticipated to impact the operations and maintenance measures.		The proposed works will result in the temporary loss of instream habitat in an unnamed watercourse where damming, over pumping and dewatering is undertaken. This habitat will however be reinstated following completion of the works.	The proposed works are not anticipated to impact the operations and maintenance measures.		Temporary localised impacts are likely to occur however no effect is anticipated at the water body scale.
Structural modification: fish passes and enhance ecology.	Catchment wide	Not specified	The proposed works will have no impact on structural modification measures.					No effect is anticipated at the water body scale.

RBMP measures			Effect of Works components on WFD elements					Overall effect of Order Scheme on proposed measure
RBMP measures to achieve objective	**Where RBMP measure will happen**	**When RBMP measure will happen**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36.**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Diggle Welfare, rail hub and office compound**	**Diggle Road Overbridge and Utilities Bridge Works MVL3/39**	
Water management: Access to feeder stream, downstream flow regime, flows to move sediment, good downstream DO/temperature levels and align and attenuate flow.	Catchment wide	Not specified	The proposed works will have no impact on water management measures.		Damming and dewatering of an unnamed tributary is required as part of the works. This process will result in temporary loss of longitudinal connectivity in the watercourse and localised changes to water quality (e.g. dissolved oxygen) as a result of sediment mobilisation. Flow downstream of the works area will be maintained using over pumping. These impacts will be temporary for the duration of the works and minor in the context of the water body scale.	Assuming adequate pollution controls are implemented during construction/operation and that there will be like for like or improvements to drainage impacts to water quality are considered negligible.	The proposed works will have no impact on water management measures.	Minor localised impacts likely to occur however no effect is anticipated at the water body scale.
Working with physical form and function: Re-engineer River, flood bunds, set back embankments, floodplain connectivity, in channel morphological diversity, alter culvert channel bed, remove or soften hard banks, preserve or restore habitats and remove obsolete structures.	Catchment wide	Not specified	The proposed works are not anticipated to impact physical form and function measures.		Damming and dewatering of an unnamed tributary is required as part of the works. This process will result in temporary loss of longitudinal connectivity in the watercourse and localised changes to water quality (e.g. dissolved oxygen) as a result of sediment mobilisation. Flow downstream of the works area will be maintained using over pumping. These impacts will be temporary for the duration of the works and minor in the context of the water body scale.	The proposed works are not anticipated to impact physical form and function measures.		Minor, temporary, localised impacts likely to occur however no effect is anticipated at the water body scale.

Tame (Chew Brook to Swineshaw Brook)

Water body summary

WFD water body type	River Surface Water Body
WFD hydromorphological designation	Heavily Modified Water Body
WFD water body ID	GB112069061111
WFD Water body name	Tame (Chew Brook to Swineshaw Brook)

Works components with potential impacts to water body.

Structure code/name	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36.	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	Scout Spoil Point Compound	Manchester Road Scout West Compound	Diggle Welfare, rail hub and office compound
Works component	Construction of a new rail station with drainage system.	Overbridge reconstruction.	Viaduct electrification works	Overbridge reconstruction.	Replacement of the existing Bywash underbridge	Diggle Road Overbridge and Utilities Bridge Works	Site compound	Site compound	Site compound
Water feature type	River Tame	Unnamed watercourse OW 13.	River Tame and Huddersfield Narrow Canal	Unnamed watercourse 17.	Huddersfield Narrow Canal	Diggle Brook and Huddersfield Narrow Canal	River Tame	River Tame	Unnamed watercourse adjacent to Standedge Canal Tunnel
Location	SD 97530 02537	SD 98109 04139	SD 99569 06285	SE 00280 07551	SD 98109 04139	SE 00711 08065	SD 97331 01196	SD 97448 01241	SE 00598 07868
Works description	As part of the new station construction the proposed drainage system will outfall to a culverted watercourse.	Parapet raising to 1.5 m at the Grade II Listed Wrights overbridge (MVL3/23) between Low Grove Lane and Mossley Road. Bridge arms will also be installed to the bridge underside deck	To enable the electrification of the up and down lines, OLE portals are required to be installed over the viaduct. 1500mm into the viaduct.	The existing overbridge superstructure is to be reconstructed as it does not have sufficient headroom to accommodate installation of OLE and is in poor condition.	Replacement of the existing Bywash underbridge (MVL3/39B) located adjacent to the Standedge Canal Tunnel western portal, with a box culvert system. This work will require the temporary dewatering and over pumping of an unnamed watercourse.	Reconstruction of span 1 on the Diggle Road overbridge (MVL3/39) on Station Road in Diggle, approximately 90 m south of Standedge Canal Tunnel.	Site compound for storage	Site compound for storage	Site compound and associated earthworks. (Full planning application to be progressed ahead of the TWAO subject to instruction from NR).

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements			**WFD status**		**Effect of Works components on WFD elements**									**Overall effect**				
			Current status (2019)	**Status objective**	**Mossley Station**	**Wrights Overbridge works MVL3/23**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Diggle Road Overbridge and Utilities Bridge Works MVL3/39**	**Scout Spoil Point Compound**	**Manchester Road Scout West Compound**	**Diggle Welfare, rail hub and office compound**	**Overall effect of Order Scheme on WFD element***	**Additional proposed mitigation measures**	**Residual effect of Order Scheme on WFD element****	**Effect of Order Scheme on ecological/ chemical status**	**Overall effect of Order Scheme on water body status**
Ecological status	**Biological Quality Elements**	**Macrophytes and phytobenthos**	Not assessed	Not assessed	Changes to water quality and discharge could occur where surface water drainage from Mossley Station outfalls to an unnamed culverted	The unnamed watercourse (OW 13) which bisects proposed works area at ML3/23 is likely to make a local contribution to	The proposed works fall within the Tame (Source to Chew) water body which is immediately upstream of the Tame (Chew Brook to Swineshaw Brook) water body. No direct impacts to Biological Quality Elements are therefore anticipated and assuming adequate pollution controls are implemented during construction impacts to				The River Tame flows immediately adjacent to the proposed compound locations. Disturbance to Biological Quality Elements in The River Tame are likely to occur as a result of noise and vibration created during site set up and operation. Works will		The unnamed watercourse near Standedge Canal Tunnel impacted by the proposed works falls within the Tame (Source to Chew) water body which is immediately upstream of the Tame (Chew Brook to Swineshaw Brook) water body.	Assuming industry best practice measures are implemented during the works (e.g. pollution prevention control) impacts to the Biological Quality	The changes to surface water drainage associated with the Mossley station may contribute to a decline in water quality within the River Tame if the	The proposed mitigation should minimise the potential effect on the Biological Quality Elements and is	There is no anticipated effect of the Order Scheme on the Ecological	**Overall, there is no anticipated effect on the WFD classification of the**
		Macro-invertebrates	Moderate	Good (2027)														

WFD elements			WFD status		Effect of Works components on WFD elements									Overall effect				
			Current status (2019)	Status objective	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	Scout Spoil Point Compound	Manchester Road Scout West Compound	Diggle Welfare, rail hub and office compound	Overall effect of Order Scheme on WFD element*	Additional proposed mitigation measures	Residual effect of Order Scheme on WFD element**	Effect of Order Scheme on ecological/ chemical status	Overall effect of Order Scheme on water body status
		Fish	Not assessed	Not assessed	watercourse and subsequently to the River Tame (roughly 50 m below the proposed tie in location). The proposed outfall location is downstream of the ponds east and west of Well-Hole Road therefore no impacts are anticipated to these two water bodies during construction or operation. The drainage from the station will be attenuated therefore Impacts to water quality associated with the operation of the station are therefore anticipated to be negligible. Construction of a new outfall to the unnamed culverted watercourse is likely to cause minor localised disturbance to Biological Quality Elements as a result of the physical works and the resulting noise and vibration. It is important to note however that due to the heavily modified nature of the unnamed watercourse its ecological significance at the water body scale is considered to be limited. Assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements arising from changes to water quality (associated with construction) are considered negligible. Overall impacts to Biological Quality Elements arising from the works at Mossley Station are considered to be minor and localised.	habitat value and ecological resilience at the water body scale. The proposed compound location is downstream of the ponds east and west of Well-Hole Road therefore no impacts are anticipated to these two water bodies during construction or operation. During construction works disturbance to Biological Quality Elements is likely to occur as a result of noise and vibration created by the works. Works will however be temporary in nature and restricted to the overbridge at MVL3/23, adjacent railway embankments (where regrading and fencing will be undertaken) and access routes. Assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements arising from changes to water quality are considered negligible in OW 13 and also the pond at Low Grove Lane, which is downstream of the proposed works area potentially fed by OW 13, Overall impacts to Biological Quality Elements arising from the works at MVL3/23 are therefore considered to be minor and localised.	Biological Quality Elements within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.				however be temporary in nature and disturbance will be localised to the river channel immediately adjacent to the compound location. The proposed compound locations are downstream of the ponds east and west of Well-Hole Road therefore no impacts are anticipated to these two water bodies during construction or operation. No earthworks or intrusive works envisioned as part of compound set up/operation therefore assuming adequate pollution controls are implemented during site set up/operation impacts to Biological Quality Elements within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible. Overall impacts to Biological Quality Elements arising from the works therefore considered to be minor and localised.	No direct impacts to Biological Quality Elements are therefore anticipated and assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	Elements of the Tame (Chew Brook to Swineshaw Brook) water body are considered to be minor, localised and for the most part temporary in nature.	water is not attenuated prior to discharge. Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks. Where possible the duration of works should be minimised to reduce disturbance via noise and vibration.	considered sufficient to ensure no expected deterioration as a result of the Scheme	Status of the water body.	**River Tame (Chew Brook to Swineshaw Brook) WFD water body.**

WFD elements			WFD status		Effect of Works components on WFD elements									Overall effect				
			Current status (2019)	Status objective	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	Scout Spoil Point Compound	Manchester Road Scout West Compound	Diggle Welfare, rail hub and office compound	Overall effect of Order Scheme on WFD element*	Additional proposed mitigation measures	Residual effect of Order Scheme on WFD element**	Effect of Order Scheme on ecological/ chemical status	Overall effect of Order Scheme on water body status
	Physico-Chemical Quality Elements	**Elements including Ammonia, Dissolved Oxygen (DO), pH, Phosphate and Temperature.**	Moderate	Good (2063)	Changes to Physico-Chemical Quality Elements are likely to occur where surface water drainage from Mossley Station outfalls to an unnamed culverted watercourse and subsequently to the River Tame (roughly 50 m below the proposed tie in location). The drainage from the station will however be attenuated therefore Impacts to water quality are anticipated to be negligible.	Assuming adequate pollution controls are implemented during construction impacts to Physico-Chemical Quality Elements within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.					No earthworks or intrusive works envisioned as part of compound set up/operation therefore assuming adequate pollution controls are implemented during site set up/operation impacts to Physico-Chemical Quality Elements within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	A small section of the proposed land take for the compound falls within Flood Zone 2 and 3. Assuming adequate pollution controls are implemented during construction/operation to reflect the risk of flooding (e.g. appropriate storage of chemicals and materials) impacts to water quality as a result of flooding are considered negligible. No earthworks or intrusive works envisioned as part of compound set up/operation therefore assuming adequate pollution controls are implemented during site set up/operation impacts to Physico-Chemical Quality Elements within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	Assuming adequate pollution controls are implemented during construction/operation impacts to Physico-Chemical Quality Elements within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	Assuming industry best practice measures are implemented during the construction works (e.g. pollution prevention control) impacts to the Physico-Chemical Quality Elements of the Tame (Chew Brook to Swineshaw Brook) water body are anticipated to be negligible.	Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on the Physico-Chemical Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme..		
	Hydromorphological Quality Elements	**Elements including Hydrological Regime (i.e. quantity and dynamics of water flow, connection to groundwater) and Morphology (i.e. river continuity, river depth and width variation, structure and substrate of river bed, structure of the riparian zone).**	Not assessed	Not assessed	Changes to surface water drainage resulting from the proposed works could create scour and potentially changes in sediment composition and water depth. Surface water discharge from Mossley Station will be attenuated therefore these impacts are likely to be negligible.	No in channel works required so impacts to Hydromorphological Quality Elements are considered negligible.			Hydromorphological impacts resulting from the works will be localised to the unnamed watercourse near Standedge Canal Tunnel with negligible impacts to the Tame (Chew Brook to Swineshaw Brook) water body.	No in channel works required so impacts to Hydromorphological Quality Elements are considered negligible.	No in channel/drainage works required so impacts to Hydromorphological Quality Elements are considered negligible.	No in channel/drainage works required so impacts to Hydromorphological Quality Elements are considered negligible.	No in channel works required so impacts to Hydromorphological Quality Elements are considered negligible.	Assuming surface water drainage from the surface water outfall at Mossley Station are sufficiently attenuated potential impacts to Hydromorphological Quality Elements of the Tame (Chew Brook to Swineshaw Brook) water body are anticipated to be negligible.	Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on the Hydromorphological Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.		

WFD elements			WFD status		Effect of Works components on WFD elements									Overall effect				
			Current status (2019)	Status objective	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	Scout Spoil Point Compound	Manchester Road Scout West Compound	Diggle Welfare, rail hub and office compound	Overall effect of Order Scheme on WFD element*	Additional proposed mitigation measures	Residual effect of Order Scheme on WFD element**	Effect of Order Scheme on ecological/ chemical status	Overall effect of Order Scheme on water body status
Chemical Status	Specific pollutants	Listed in Annex VIII of the Water Framework Directive (2000/60/EC).	High	High (2015)	Changes to water quality are likely to occur where surface water drainage from Mossley Station outfalls to an unnamed culverted watercourse and subsequently to the River Tame (roughly 50 m below the proposed tie in location). The drainage from the station will however be attenuated therefore. impacts to water quality are anticipated to be negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.					No earthworks or intrusive works proposed as part of compound set up/operation therefore assuming adequate pollution controls are implemented during site set up/operation impacts to water quality within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	A small section of the proposed land take for the compound falls within Flood Zone 2 and 3. Assuming adequate pollution controls are implemented during construction/operation to reflect the risk of flooding (e.g. appropriate storage of chemicals and materials) impacts to water quality are considered negligible. No earthworks or intrusive works envisioned as part of compound set up/operation therefore assuming adequate pollution controls are implemented during site set up/operation impacts to water quality within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	Assuming industry best practice measures are implemented during the construction works (e.g. pollution prevention control) impacts to water quality of the Tame (Chew Brook to Swineshaw Brook) water body are anticipated to be negligible.	Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on water quality and is considered sufficient to ensure no expected deterioration as a result of the Order.		
	Priority Substances	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Fail	Good (2063)	Changes to water quality are likely to occur where surface water drainage from Mossley Station outfalls to an unnamed culverted watercourse and subsequently to the River Tame (roughly 50 m below the proposed tie in location). The drainage from the station will however be attenuated therefore impacts to water quality are anticipated to be negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.					No earthworks or intrusive works envisioned as part of compound set up/operation therefore assuming adequate pollution controls are implemented during site set up/operation impacts to water quality within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	A small section of the proposed land take for the compound falls within Flood Zone 2 and 3. Assuming adequate pollution controls are implemented during construction/operation to reflect the risk of flooding (e.g. appropriate storage of chemicals and materials) impacts to water quality are considered negligible. No earthworks or intrusive works envisioned as part of compound set up/operation therefore assuming adequate pollution controls are implemented during site set up/operation impacts to water quality within the Tame (Chew Brook to Swineshaw Brook) water body are considered negligible.	Assuming adequate pollution controls are implemented during construction impacts to water quality are considered negligible.	Assuming industry best practice measures are implemented during the construction works (e.g. pollution prevention control) impacts to water quality of the Tame (Chew Brook to Swineshaw Brook) water body are anticipated to be negligible.	Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on water quality is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Chemical Status of the water body.	
	Other Pollutants	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Does not require assessment	Does not require assessment														
	Priority Hazardous Substances	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Fail	Good (2063)														

Test B Potential to prevent future attainment of Good Ecological Potential

RBMP measures			Effect of Works components on WFD elements									Overall effect of Order Scheme on proposed measure
RBMP measures to achieve objective	**Where RBMP measure will happen**	**When RBMP measure will happen**	**Mossley Station**	**Wrights Overbridge works MVL3/23**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B)**	**Diggle Road Overbridge and Utilities Bridge Works MVL3/39**	**Manchester Road Scout West Compound**	**Diggle Welfare, rail hub and office compound**	**Manchester Road Scout West Compound**	
Wider area measures actions												
Education: Educate landowners.	Catchment wide	Not specified	The proposed works will have no impact to the education measures.									No effect is anticipated at the water body scale.
Operations and maintenance: Sediment management regime, manage artificial drawdown, manage seasonal water levels, vegetation control, invasive species techniques, retain habitats, minimise habitat impacts (maintenance), prevent sediment transfer (maintenance), water level management,	Catchment wide	Not specified	The proposed works are not anticipated to impact the operations and maintenance measures.									No effect is anticipated at the water body scale.
Structural modification: Fish passes, fish pass flow releases, reduce fish entrainment, enhance ecology and changes to locks etc.	Catchment wide	Not specified	The proposed works are not anticipated to impact the structural modification measures.									No effect is anticipated at the water body scale.
Water management: Access to feeder streams, downstream flow regime, flows to move sediment, good downstream DO/temperature and align and attenuate flow.	Catchment wide	Not specified	The proposed works are not anticipated to impact the water management measures.									No effect is anticipated at the water body scale.
Working with physical form and function: Re-engineers river, flood bunds, set back embankments, floodplain connectivity, remove obsolete structures, remove of soften hard banks, preserve or restore habitats, in channel morphological diversity, re-opening culverts and alter culvert channel bed.	Catchment wide	Not specified	The proposed works are not anticipated to impact the physical form and function measures.								A small section of the proposed compound is located within flood zones 2 & 3. In the context of the water body scale this only represents a small proportion of the River Tame's total floodplain area.	Minor localised impacts likely to occur however no effect is anticipated at the water body scale

Tame (Swineshaw Brook to Mersey)

Water body summary

WFD water body type	River Surface Water Body
WFD hydromorphological designation	Heavily Modified Water Body
WFD water body ID	GB112069061112
WFD Water body name	Tame (Swineshaw Brook to Mersey)

Works components with potential impacts to water body.

Structure code/name	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Scout Spoil Point Compound	Manchester Road Scout West Compound	Diggle Welfare, rail hub and office compound
Works component	Construction of a new rail station with drainage system.	Overbridge reconstruction.	Viaduct electrification works	Overbridge reconstruction.	Replacement of the existing Bywash underbridge	Site compound	Site compound	Site compound
Water feature type	River Tame	Unnamed watercourse OW 13.	River Tame and Huddersfield Narrow Canal	Unnamed watercourse 17.	Huddersfield Narrow Canal	River Tame	River Tame	Unnamed watercourse adjacent to Standedge Canal Tunnel
Location	SD 97530 02537	SD 98109 04139	SD 99569 06285	SE 00280 07551	SD 98109 04139	SE 00711 08065	SD 97331 01196	SD 97448 01241
Works description	As part of the new station construction the proposed drainage system will outfall to a culverted watercourse.	Parapet raising to 1.5 m at the Grade II Listed Wrights overbridge (MVL3/23) between Low Grove Lane and Mossley Road. Bridge arms will also be installed to the bridge underside deck	To enable the electrification of the up and down lines, OLE portals are required to be installed over the viaduct. 1500mm into the viaduct.	The existing overbridge superstructure is to be reconstructed as it does not have sufficient headroom to accommodate installation of OLE and is in poor condition.	Replacement of the existing Bywash underbridge (MVL3/39B) located adjacent to the Standedge Canal Tunnel western portal, with a box culvert system. This work will require the temporary dewatering and over pumping of an unnamed watercourse.	Site compound for storage	Site compound for storage	Site compound and associated earthworks. (Full planning application to be progressed ahead of the TWAO subject to instruction from NR).

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements			WFD status		Effect of Works components on WFD elements								Overall effect				
			Current status (2019)	Status objective	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	MLV3/39	Scout Spoil Point Compound	Manchester Road Scout West Compound	Diggle Welfare, rail hub and office compound	Overall effect of Order Scheme on WFD element*	Additional proposed mitigation measures	Residual effect of Order Scheme on WFD element**	Effect of Order Scheme on ecological/ chemical status	Overall effect of Order Scheme on water body status
Ecological status	Biological Quality Elements	**Macrophytes and phytobenthos**	Moderate	Moderate 2015	The proposed works falls within the Tame (Chew Brook to Swineshaw Brook) water body which is upstream of the Tame (Swineshaw Brook to Mersey) water body. No direct impacts to Biological Quality Elements are therefore anticipated and assuming adequate pollution controls are implemented during construction impacts to Biological Quality Elements within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.								Assuming adequate pollution controls are implemented during construction/operation impacts to Biological Quality Elements within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.	N/A impacts are considered negligible, so no further mitigation required.	The proposed mitigation should minimise the potential effect on Biological Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Ecological Status of the water body.	**Overall, there is no anticipated effect on the WFD classification of the River Tame (Swineshaw Brook to Mersey) WFD water body.**
		Macro-invertebrates	Poor	Moderate (2015)													
		Fish	Poor	Good (2027)													
	Physico-Chemical Quality Elements	**Elements including Ammonia, Dissolved Oxygen (DO), pH, Phosphate and Temperature.**	Moderate	Moderate (2015)	Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.									Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.	N/A impacts are considered negligible, so no further mitigation required.	The proposed mitigation should minimise the potential effect on the Physico-Chemical Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.		

WFD elements			WFD status		Effect of Works components on WFD elements								Overall effect				
			Current status (2019)	Status objective	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	MLV3/39	Scout Spoil Point Compound	Manchester Road Scout West Compound	Diggle Welfare, rail hub and office compound	Overall effect of Order Scheme on WFD element*	Additional proposed mitigation measures	Residual effect of Order Scheme on WFD element**	Effect of Order Scheme on ecological/ chemical status	Overall effect of Order Scheme on water body status
Chemical Status	Hydromorphological Quality Elements	Elements including Hydrological Regime (i.e. quantity and dynamics of water flow, connection to groundwater) and Morphology (i.e. river continuity, river depth and width variation, structure and substrate of river bed, structure of the riparian zone).	Not assessed	Not assessed	Assuming surface water drainage from Mossley Station is attenuated to provide like for like drainage Hydromorphological Quality Elements are considered negligible.	No in channel or drainage works required within the water body so impacts to Hydromorphological Quality Elements are considered negligible.								No in channel or drainage works required within the water body so impacts to Hydromorphological Quality Elements are considered negligible.	N/A impacts are considered negligible, so no further mitigation required.	No in channel or drainage works required within the water body so impacts to Hydromorphological Quality Elements are considered negligible.		
	Specific pollutants	Listed in Annex VIII of the Water Framework Directive (2000/60/EC).	High	High (2015)	Assuming adequate pollution controls are implemented during construction impacts to water quality within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.									Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.	N/A impacts are considered negligible, so no further mitigation required.	The proposed mitigation should minimise the potential effects on water quality and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.		
	Priority Substances	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Fail	Good (2027)	Assuming adequate pollution controls are implemented during construction and surface water drainage is sufficiently attenuated impacts to water quality within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.									Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Tame (Swineshaw Brook to Mersey) water body are considered negligible.	N/A impacts are considered negligible, so no further mitigation required.	The proposed mitigation should minimise the potential effects on water quality and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Chemical Status of the water body.	
	Other Pollutants	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Good	Good (2015)														
	Priority Hazardous Substances	Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC)	Fail	Good (2063)														

Test B Potential to prevent future attainment of Good Ecological Potential

RBMP measures			Effect of Works components on WFD elements									Overall effect of Order Scheme on proposed measure
RBMP measures to achieve objective	Where RBMP measure will happen	When RBMP measure will happen	Mossley Station	Wrights Overbridge works MVL3/23	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	Scout Spoil Point Compound	Diggle Welfare, rail hub and office compound	Manchester Road Scout West Compound	
Wider area measures actions												
Education: Educate landowners.	Catchment wide	Not specified	The proposed works will have no impact to the education measures.									No effect is anticipated at the water body scale.
Operations and maintenance: Sediment management regime, manage artificial drawdown, manage seasonal water levels, vegetation control, invasive species techniques, retain habitats, minimise habitat impacts (maintenance), prevent sediment transfer (maintenance) and water level management.	Catchment wide	Not specified	The proposed works are not anticipated to impact the operations and maintenance measures.									No effect is anticipated at the water body scale.
Structural modification: Fish passes, fish pass flow releases, reduce fish entrainment, enhance ecology and changes to locks etc.	Catchment wide	Not specified	The proposed works will have no impact on structural modification measures.									No effect is anticipated at the water body scale.
Water management: Access to feeder streams, downstream flow regime, flows to	Catchment wide	Not specified	The proposed works will have no impact on water management measures.									No effect is anticipated at the water body scale.

RBMP measures			Effect of Works components on WFD elements									Overall effect of Order Scheme on proposed measure
RBMP measures to achieve objective	**Where RBMP measure will happen**	**When RBMP measure will happen**	**Mossley Station**	**Wrights Overbridge works MVL3/23**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Diggle Road Overbridge and Utilities Bridge Works MVL3/39**	**Scout Spoil Point Compound**	**Diggle Welfare, rail hub and office compound**	**Manchester Road Scout West Compound**	
move sediment, good downstream DO/temperature and align and attenuate flow.												
Working with physical form and function: Re-engineers river, flood bunds, set back embankments, floodplain connectivity, remove obsolete structures, remove of soften hard banks, preserve or restore habitats, in channel morph diversity, re-opening culverts and alter culvert channel bed.	Catchment wide	Not specified	The proposed works will occur have no impact on the working with physical form and function measures.									No effect is anticipated at the water body scale.

Huddersfield Narrow Canal (Western Section)

Water body summary

WFD water body type	Canal Surface Water Body
WFD hydromorphological designation	Artificial Water Body
WFD water body ID	GB71210268
WFD Water body name	Huddersfield Narrow Canal (Western Section)

Works components with potential impacts to water body.

Structure code/name	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel MVL3/39A	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Plevins site compound	Ward Lane site compound	Grandpa Greens Site 2 Compound	Sam Road Car Park Compound
Works component	Viaduct electrification works	Overbridge reconstruction.	Overbridge reconstruction.	Replacement of the existing Bywash underbridge	Site compound	Site compound	Site compound	Site compound
Water feature type	River Tame and Huddersfield Narrow Canal	Unnamed watercourse OW 7 and Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal
Location	SD 99569 06285	SE 00280 07551	SE 00680 08021	SD 98109 04139	SD 97757 01536	SE 00300 07517	SE 00370 07697	SE 00621 07970
Works description	To enable the electrification of the up and down lines, OLE portals are required to be installed over the viaduct. 1500mm into the viaduct.	The existing overbridge superstructure is to be reconstructed as it does not have sufficient headroom to accommodate installation of OLE and is in poor condition.	Reconstruction of Diggle Road overbridge (MVL3/39) on Station Road in Diggle, approximately 90 m south of Standedge Canal Tunnel.	Replacement of the existing Bywash underbridge (MVL3/39B) located adjacent to the Standedge Canal Tunnel western portal, with a box culvert system. This work will require the temporary dewatering and over pumping of an unnamed watercourse.	Main site compound involving substantial demolition of existing commercial buildings.	Site compound with associated access and earthworks.	Site compound with associated access and earthworks.	Site compound with associated access and earthworks.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements			**WFD status**		**Effect of Works components on WFD elements**								**Overall effect**				
			Current status (2019)	**Status objective**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel MVL3/39A**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Plevins site compound**	**Ward Lane site compound**	**Grandpa Greens Site 2 Compound**	**Sam Road Car Park Compound**	**Overall effect of Order Scheme on WFD element***	**Additional proposed mitigation measures**	**Residual effect of Order Scheme on WFD element****	**Effect of Order Scheme on ecological/chemical status**	**Overall effect of Order Scheme on water body status**
Ecological Status	**Physico-Chemical Quality Elements**	**Elements including Ammonia, Dissolved Oxygen, pH, Phosphate and Temperature.**	Not assessed	Not assessed	Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Western Section water body are considered negligible.		Localised changes to Physico-Chemical Quality Elements, such as dissolved oxygen, are likely to occur as a result of in channel works e.g. as a result of sediment mobilisation. These impacts are anticipated to be minor.		No drainage works detailed therefore assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Western Section water body are considered negligible.				Localised changes to Physico-Chemical Quality Elements, such as dissolved oxygen, are likely to occur as a result of in channel work.	The use of silt curtains during in channel works will contain the dispersion of suspended solids and associated effects to water quality. The changes to surface water drainage associated with compound construction may contribute to a decline in water quality within the Huddersfield Narrow Canal if the water is not attenuated prior to discharge. Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on the Physico-Chemical Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Ecological Status of the water body.	**Overall, there is no anticipated effect on the WFD classification of the Huddersfield Narrow Canal (Western Section) WFD water body.**
Chemical Status	**Priority Substances**	**Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC).**	Fail	Good (2015)	Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Western Section water body are considered negligible.		Sediment disturbance within the canal during the works may result in the mobilisation of potentially harmful substances/ compounds bound to sediments (derived from the canals industrial past). The risk of these effects propagating to wider areas is however considered low due to the canals slow flowing nature. Impacts associated with sediment mobilisation are therefore considered to be localised and minor.		No drainage works detailed therefore assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Western Section water body are considered negligible.				Localised changes to water quality are likely to occur as a result of in channel works.	The use of silt curtains during in channel works will contain the dispersion of suspended solids and associated impacts to water quality. The changes to surface water drainage associated with compound construction may contribute to a decline in water quality within the Huddersfield Narrow Canal if the water is not attenuated prior to discharge. Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on water quality and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Chemical Status of the water body.	
	Other Pollutants		Does not require assessment	Does not require assessment													
	Priority Hazardous Substances		Good	Good (2015)													

Test B Potential to prevent future attainment of Good Ecological Potential

RBMP measures			Effect of Works components on WFD elements								Overall effect of Order Scheme on proposed measure
RBMP measures to achieve objective	**Where RBMP measure will happen**	**When RBMP measure will happen**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel MVL3/39A**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Plevins site compound**	**Ward Lane site compound**	**Grandpa Greens Site 2 Compound**	**Sam Road Car Park Compound**	
Wider area measures actions											
Structural modifications: Fish passes. Enhance ecology and changes to locks etc.	Catchment wide	Not specified	The proposed works will have no impact on existing structures.								No effect is anticipated at the water body scale.
Operations and maintenance: Avoid the need to dredge, dredging disposal strategy, reduce impact of dredging, reduce sediment resuspension, retime dredging or disposal, sediment management, dredge disposal site selection, management disturbance, phased de-watering, vegetation control and invasive species techniques.	Catchment wide	Not specified	Proposed works will have no impact on operations and maintenance of the Huddersfield Narrow Canal.		The proposed works are likely to result in the localised mobilisation of sediments.		Proposed works will have no impact on operations and maintenance of the Huddersfield Narrow Canal.				Localised sediment mobilisation anticipated from the work however no effect is anticipated at the water body scale.
Working with physical form and function: Remove or soften hard banks, preserve or restore habitats, in channel morph diversity and bank rehabilitation.	Catchment wide	Not specified	Proposed works will have no impact on the physical form or function of the Huddersfield Narrow Canal.		Proposed works will have a minor localised impact on the physical form of the Huddersfield Narrow Canal.		Proposed works will have no impact on the physical form or function of the Huddersfield Narrow Canal.				Minor localised impacts to physical form and function anticipated but no effect is anticipated at the water body scale.
Navigation: Modify vessel design, vessel management and boats in central track.	Catchment wide	Not specified	Proposed works will have no impact on vessel design or management.								No effect is anticipated at the water body scale.
Education: Invasive species awareness and boat wash awareness.	Catchment wide	Not specified	Proposed works will have no impact on education measures.								No effect is anticipated at the water body scale.

Huddersfield Narrow Canal (Summit Section)

Water body summary

WFD water body type	Canal Surface Water Body
WFD hydromorphological designation	Artificial Water Body
WFD water body ID	GB70410520
WFD Water body name	Huddersfield Narrow Canal (Summit Section)

Works components with potential impacts to water body,

Structure code/name	Uppermill Viaduct MVL3/31	Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36	Standedge Canal Tunnel MVL3/39A	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	Plevins site compound	Ward Lane site compound	Grandpa Greens Site 2 Compound	Sam Road Car Park Compound
Works component	Viaduct electrification works	Overbridge reconstruction.	Overbridge reconstruction.	Replacement of the existing Bywash underbridge	Site compound	Site compound	Site compound	Site compound
Water feature type	River Tame and Huddersfield Narrow Canal	Unnamed watercourse OW 7 and Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal	Huddersfield Narrow Canal
Location	SD 99569 06285	SE 00280 07551	SE 00680 08021	SD 98109 04139	SD 97757 01536	SE 00300 07517	SE 00370 07697	SE 00621 07970
Works description	To enable the electrification of the up and down lines, OLE portals are required to be installed over the viaduct. 1500mm into the viaduct.	The existing overbridge superstructure is to be reconstructed as it does not have sufficient headroom to accommodate installation of OLE and is in poor condition.	Reconstruction of Diggle Road overbridge (MVL3/39) on Station Road in Diggle, approximately 90 m south of Standedge Canal Tunnel.	Replacement of the existing Bywash underbridge (MVL3/39B) located adjacent to the Standedge Canal Tunnel western portal, with a box culvert system. This work will require the temporary dewatering and over pumping of an unnamed watercourse.	Main site compound involving substantial demolition of existing commercial buildings.	Site compound with associated access and earthworks.	Site compound with associated access and earthworks.	Site compound with associated access and earthworks.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements			**WFD status**		**Effect of Works components on WFD elements**								**Overall effect**				
			Current status (2019)	**Status objective**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel MVL3/39A**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Plevins site compound**	**Ward Lane site compound**	**Grandpa Greens Site 2 Compound**	**Sam Road Car Park Compound**	**Overall effect of Order Scheme on WFD element***	**Additional proposed mitigation measures**	**Residual effect of Order Scheme on WFD element****	**Effect of Order Scheme on ecological/chemical status**	**Overall effect of Order Scheme on water body status**
Ecological Status	**Physico-Chemical Quality Elements**	**Elements including Ammonia, Dissolved Oxygen, pH, Phosphate and Temperature.**	Not assessed	Not assessed	Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Summit Section water body are considered negligible.		Localised changes to Physico-Chemical Quality Elements, such as dissolved oxygen, are likely to occur as a result of in channel works e.g. as a result of sediment mobilisation. These impacts are anticipated to be minor.		Changes to Physico-Chemical Quality Elements may occur as a result of changes in surface water drainage. These impacts are however anticipated to localised and minor.	No drainage works detailed therefore assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Western Section water body are considered negligible.	Assuming adequate pollution controls are implemented during construction/operation and that there will be like for like or improvements to drainage impacts to Physico-Chemical Quality Elements are considered negligible.		Localised changes to Physico-Chemical Quality Elements, such as dissolved oxygen, are likely to occur as a result of in channel work.	The use of silt curtains during in channel works will contain the dispersion of suspended solids and associated impacts to water quality. Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on the Physico-Chemical Quality Elements and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Ecological Status of the water body.	**Overall, there is no anticipated effect on the WFD classification of the Huddersfield Narrow Canal (Summit Section) WFD water body.**
Chemical Status	**Priority Substances**	**Listed in Annex II of the Environmental Quality Standards Directive (2008/105/EC).**	Fail	Good (2015)	Assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Summit Section water body are considered negligible.		Sediment disturbance within the canal during the works may result in the mobilisation of potentially harmful substances/ compounds bound to sediments (derived from the canals industrial past). The risk of these effects propagating to wider areas is however considered low due to the canals slow flowing nature. Impacts associated with sediment mobilisation are therefore considered to be localised and minor.		Changes to water quality may occur as a result of changes in surface water drainage. These impacts are however anticipated to localised and minor.	No drainage works detailed therefore assuming adequate pollution controls are implemented during construction/operation impacts to water quality within the Huddersfield Narrow Canal Western Section water body are considered negligible.	Assuming adequate pollution controls are implemented during construction/operation and that there will be like for like or improvements to drainage impacts to water quality are considered negligible.		Localised changes to water quality are likely to occur as a result of in channel work.	The use of silt curtains during in channel works will contain the dispersion of suspended solids and associated impacts to water quality. Providing there will be like for like replacement or improvements to drainage design this will mitigate any potential water quality risks.	The proposed mitigation should minimise the potential effect on water quality and is considered sufficient to ensure no expected deterioration as a result of the Order Scheme.	There is no anticipated effect of the Order Scheme on the Chemical Status of the water body.	
	Other Pollutants		Does not require assessment	Does not require assessment													
	Priority Hazardous Substances		Good	Good (2015)													

Test B Potential to prevent future attainment of Good Ecological Potential

RBMP measures			Effect of Works components on WFD elements								Overall effect of Order Scheme on proposed measure
RBMP measures to achieve objective	**Where RBMP measure will happen**	**When RBMP measure will happen**	**Uppermill Viaduct MVL3/31**	**Reconstruction of existing overbridge superstructure on Ward Lane MVL3/36**	**Standedge Canal Tunnel MVL3/39A**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**Plevins site compound**	**Ward Lane site compound**	**Grandpa Greens Site 2 Compound**	**Sam Road Car Park Compound**	
Wider area measures actions											
Structural modifications: Fish passes. Enhance ecology and changes to locks etc.	Catchment wide	Not specified	The proposed works will have no impact on existing structures.								No effect is anticipated at the water body scale.
Operations and maintenance: Avoid the need to dredge, dredging disposal strategy, reduce impact of dredging, reduce sediment resuspension, retime dredging or disposal, sediment management, dredge disposal site selection, management disturbance, phased de-watering, vegetation control and invasive species techniques.	Catchment wide	Not specified	Proposed works will have no impact on operations and maintenance of the Huddersfield Narrow Canal.		The proposed works are likely to result in the localised mobilisation of sediments.		Proposed works will have no impact on operations and maintenance of the Huddersfield Narrow Canal.				Localised sediment mobilisation anticipated from the work however no effect is anticipated at the water body scale.
Working with physical form and function: Remove or soften hard banks, preserve or restore habitats, in channel morph diversity and bank rehabilitation.	Catchment wide	Not specified	Proposed works will have no impact on the physical form or function of the Huddersfield Narrow Canal.		Proposed works will have a minor localised impact on the physical form of the Huddersfield Narrow Canal		Proposed works will have no impact on the physical form or function of the Huddersfield Narrow Canal.				Minor localised impacts to physical form and function anticipated but no effect is anticipated at the water body scale.
Navigation: Modify vessel design, vessel management and boats in central track.	Catchment wide	Not specified	Proposed works will have no impact on vessel design or management.								No effect is anticipated at the water body scale.
Education: Invasive species awareness and boat wash awareness.	Catchment wide	Not specified	Proposed works will have no impact on education measures.								No effect is anticipated at the water body scale.

Manchester and East Cheshire Carboniferous Aquifers

Water body summary

WFD water body type	Groundwater body
WFD water body ID	GB41202G102900
WFD water body name	Manchester and East Cheshire Carboniferous Aquifers

Works components

Works component	Stalybridge Tunnel Works MVL3/3	Scout Tunnel Works	Wrights Overbridge works MVL3/23	Manchester Road Footbridge Reconstruction MVL3/10A	Diggle Road Overbridge and Utilities Bridge Works MVL3/39	Mossley Station Relocation Works	Mossley Cottages Works	Printworks Road Main Compound	Printworks Road Office Compound
Location (Structure ID and/or NGR)	SJ 96239 98737 to SJ 96764 99021	SD 97288 01238 to SD 97364 01408	MVL3/23 SD 98109 04139	ML3/10A SD 97238 00715	MVL3/39 SE 00711 08065	SD 97530 02537	SD 97374 01921	SJ 96899 99330	SJ 96905 99344
Description	Installation of rock anchors which will project beyond the tunnel extrados into third party land. Rock anchors range from 5.5 m to 9 m.	Works to Scout Tunnel south of Mossley Station, including the installation of rock anchors (7 m length) which will extend into third party land (the 'Scout Tunnel Works').	Parapet raising to 1.5 metres at the Grade II Listed Wrights overbridge (MVL3/23) between Low Grove Lane and Mossley Road. Bridge arms will also be installed to the bridge underside deck. Embankment works and rock anchors will be installed. Depth below ground of the proposed works are unknown.	The reconstruction of the Manchester Road Footbridge (MVL3/10A) is required to facilitate OLE installations underneath the bridge. Below ground works include excavation and demolishing of existing foundations, and installation of RC piling. Depth below ground of the proposed works are unknown.	Reconstruction of span 1 on the Diggle Road overbridge (MVL3/39) on Station Road in Diggle, approximately 90 metres south of Standedge Canal Tunnel. A new RC king pier will be built supported upon a piled foundation with piles socketed into the competent rock strata (circa 5m bgl).	The works include a new access layout, station building, parking area, footbridge, and lift shafts. Below ground works include: • Retaining walls which will be designed when GI is completed. May be contiguous or king post. Depths of retaining walls are unknown. • The proposed car park level is ~ 2 m bgl and there will be an additional excavation of approximately 1.5 m for the attenuation tank. Sheet piling may be used to provide temporary support. • The lift pit will require an excavation of between 1.5- 2.5 m deep. • The new station building and waiting shelters will have shallow foundations, piling may be required depending on GI. Depth below ground of the proposed works are unknown.	Installation of new retaining wall to support track slew and anti-trespass measures at Mossley Cottages to the west of Manchester Road and south of the existing Mossley Railway Station. Depth below ground of the proposed works are unknown.	Construction of the office compound at Printworks Road north of Stalybridge Tunnel, with upgrades to the existing road access. Install retaining wall (Sheet pile "king post" or stepped gravity wall / gabion backets - depending on ground condition). Depth below ground of the proposed works are unknown.	Construction of the office compound at Printworks Road north of Stalybridge Tunnel, with upgrades to the existing road access. A retaining wall will be installed (either sheet pile "king post" or stepped gravity wall). Depth below ground of the proposed works are unknown.
Summary of local geology (geology at 1 in 50 scale)	Pennine Lower Coal Measures Formation (mudstone, siltstone and sandstone), Woodhead Hill Rock (sandstone) and Rough Rock (sandstone) bedrock. Till is mapped at overlying the western end of Stalybridge Tunnel. No superficial deposits documented on eastern end of tunnel.	Marsden Formation (mudstone and silstone), Fletcher Bank Grit (sandstone). No documented overlying superficial deposits.	Lower Kingscourt Grit (sandstone), Hebden Formation (mudstone and siltstone). No documented overlying superficial deposits.	Marsden Formation (mudstone and siltstone) bedrock. Overlain by head (clay, silt, sand and gravel) on western side of footbridge. No documented overlying superficial deposits on eastern side of footbridge.	Underlain by Shale Grit (sandstone) bedrock. No documented overlying superficial deposits.	Underlain by Fletchers Bank Grit (sandstone), Marsden Formation (mudstone and siltstone), Upper Kinderscout Grit (sandstone) bedrock. No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone). No documented overlying superficial deposits.	Rough Rock (sandstone), Rossendale Formation (mudstone and siltstone), Huddersfield White Rock (sandstone), Marsden Formation (mudstone and siltstone). Overlain in the south and east by alluvium (clay, silt, sand and gravel) and head deposits (clay, silt, sand and gravel).	Rossendale Formation (mudstone and siltstone), Huddersfield White Rock (sandstone). Overlain by head deposits (clay, silt, sand and gravel).
Summary of bedrock hydrogeology	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. Indicative rest water level is deeper than 1 mbgl from GI.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements		WFD status		Effect of Works components on WFD elements								
		Current status	Status objective	Stalybridge Tunnel Works MVL3/3	Scout Tunnel Works	Wrights Overbridge works MVL3/23	Manchester Road Footbridge Reconstruction MVL3/10A	Diggle Road Overbridge Reconstruction	Mossley Station Relocation Works	Mossley Cottages Works	Printworks Road Main Compound	Printworks Road Office Compound
Quantitative impacts	**Quantitative impacts cover: Saline or other intrusions of poor-quality water due to groundwater abstraction, the impact on the ecological status of surface water bodies, the impact on the condition of groundwater dependent terrestrial ecosystems, and the impact on the groundwater body water balance.**	Good	Good (2027)	Rock anchors spaced out and will not act as a barrier to flow. No measurable change to the groundwater environment is anticipated. Compliance is expected with standard mitigation and best practice measures.			Groundwater body is partially at outcrop at this location with no low permeability geology protecting the groundwater body. RC clear space piling is unlikely to act as a barrier to flow. Site investigations should be conducted, and a piling risk assessment should also be undertaken where required to ensure the most appropriate piling for the ground conditions is selected to reduce impact to groundwater flow. Best practice should be followed when installing deep foundations and piling to minimise impacts to the groundwater body.	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. RC piling will not act as barrier to flow. Site investigations should be conducted, and a piling risk assessment should also be undertaken to ensure the most appropriate piling for the ground conditions will be selected to reduce impact to groundwater flow. Best practice will be followed when installing deep foundations and piling to minimise impacts to the groundwater body.	Groundwater body is at outcrop here, the depth of piling and structures are not known. Assuming piling will extend below the water table into the groundwater body, sheet piling may form a barrier to shallow groundwater flow, potentially reducing groundwater contributions to adjacent water courses. Assuming the excavation will extend below the water table into the shallow groundwater body, excavations may require dewatering, potentially reducing groundwater contributions to adjacent water courses. The nearest groundwater abstraction (Spring fed catchpit at Scout Farm Mossley) is 0.89 km south west of Works component and should not be impacted. The nearest GWDTE is the Huddersfield Narrow Canal SSSI which is located approximately 250 m east of Works component, separated by the River Tame and should not be impacted Site investigations should be conducted, and a piling risk assessment should also be undertaken to ensure the most appropriate piling for the ground conditions will be selected to reduce impact to groundwater flow. Best practice will be followed when installing deep foundations and piling to minimise impacts to the groundwater body.	Structure is unlikely to act as a barrier to flow. Compliance is expected with standard mitigation and best practice measures. No anticipated effect from Order Scheme element.	Structure is unlikely to act as a barrier to flow. Compliance is expected with standard mitigation and best practice measures. No anticipated effect from Order Scheme element.	Structure is unlikely to act as a barrier to flow. Compliance is expected with standard mitigation and best practice measures. No anticipated effect from Order Scheme element.
Chemical impacts	**Chemical impacts cover pollution concentrations, quality impact on groundwater abstractions, impact on the chemical & ecological status of surface water bodies, nutrient concentration impact on GWDTEs, Drinking Water Protected Areas and a General quality assessment.**	Poor	Good (2027)	Assuming rock anchors will extend below the water table, rock anchors may create vertical flow pathways into the groundwater body for potentially contaminated runoff. Assuming structure and design is to industry standards, risk to the groundwater body should be mitigated.			Groundwater body is partially at outcrop at this location with no low permeability geology protecting the groundwater body. There is the potential for piling to create a rapid vertical flow pathway, allowing pollution to enter the groundwater body. However, assuming best practice is followed, including preparation of piling risk assessments for deep foundations where required, and the design takes account of site-specific groundwater level data, no measurable change to the groundwater environment is anticipated. Compliance is expected with standard mitigation and best practice measures.	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. There is the potential for piling to create a rapid vertical flow pathway, allowing pollution to enter the groundwater body. However, assuming best practice is followed, including preparation of piling risk assessments for deep foundations, and the design takes account of site-specific groundwater level data, no measurable change to the groundwater environment is anticipated. Compliance is expected with standard mitigation and best practice measures.	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. Assuming excavation will extend below the water table, deep excavations may require dewatering. The disposal of pumped water may flow through contamination pathways into the aquifer. Assuming excavation and disposal of pumped water is to industry standards, this risk to the groundwater body should be mitigated.	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. Assuming structure will extend below the water table, piling may create rapid vertical flow pathways into the groundwater body for potentially contaminated runoff. Assuming piling design and construction is to industry standards, this risk to the groundwater body should be mitigated.	Groundwater body is partially at outcrop at this location with no low permeability geology protecting the groundwater body. Assuming structure will extend below the water table, piling may create rapid vertical flow pathways into the shallow groundwater body for potentially contaminated runoff. Assuming piling design and construction is to industry standards, this risk to the groundwater body should be mitigated.	Groundwater body is not at outcrop at this location with low permeability geology protecting the groundwater body. Assuming structure will extend below the water table, piling may create rapid vertical flow pathways into the shallow groundwater body for potentially contaminated runoff. Assuming piling design and construction is to industry standards, this risk to the groundwater body should be mitigated.

Test B Potential to prevent future attainment of Good Ecological Potential

RNAG element	Description	Order Scheme impact on RNAG
Drinking Water Protected Area	Point source of Private sewage treatment from domestic general public	No impact on water body's ability to achieve 'Good' status for this Quality Element. Additional mitigation not required.
	Diffuse source of Poor nutrient management from agricultural and rural land management	
	Diffuse source of Poor livestock management from agricultural and rural land management	
Trend Assessment	Diffuse source of Poor nutrient management from agriculture and rural land management	
	Diffuse source of Septic tanks from domestic general public	
	Diffuse source of Poor livestock management from agriculture and rural land management.	

Manchester and East Cheshire Carboniferous Aquifers

Water body summary

WFD water body type	Groundwater body
WFD water body ID	GB41202G102900
WFD water body name	Manchester and East Cheshire Carboniferous Aquifers

Works components

Works component	Printworks Road Main Compound	Printworks Road Office Compound	Scout West Ramp Compound	Wakefield Road Plant Access and Compound	Scout East Ramp Compound	Oaklands Road Site Compound	Wakefield Road Plant Access and Compound	Plevins site compound	Scout Spoil Point Compound
Location (Structure ID and/or NGR)	SJ 96899 99330	SJ 96905 99344	SD 97266 01117	SD 97326 00370	SD 97401 01568	SD 98690 04451	SD 97316 00355	SD 97757 01536	SE 00711 08065
Description	Construction of the office compound at Printworks Road north of Stalybridge Tunnel, with upgrades to the existing road access. Install retaining wall (Sheet pile "king post" or stepped gravity wall / gabion backets - depending on ground condition). Depth below ground of the proposed works are unknown.	Construction of the office compound at Printworks Road north of Stalybridge Tunnel, with upgrades to the existing road access. A retaining wall will be installed (either sheet pile "king post" or stepped gravity wall). Depth below ground of the proposed works are unknown. Topsoil will be removed and replaced with hardcore.	Site compound with associated access and earthworks. Below ground works include installation of retaining wall (sheet pile "king post" or stepped gravity wall / gabion backets - depending on ground condition). Depth below ground of the proposed works are unknown.	Upgrade works to the existing vehicular access at Wakefield Road, and the creation of a compound area north of the Springbank Lane Overbridge (MVL3/09) and west of Mossley Wastewater Treatment Works. Below ground works include excavation / earthworks installation / levelling off and installation of retaining wall (sheet pile "king post" or stepped gravity wall / gabion backets - depending on ground condition). Depth below ground of the proposed works are unknown.	Laydown area and associated earthworks. Installation of retaining wall (Sheet pile "king post" or stepped gravity wall / gabion backets - depending on ground condition). Depth below ground of the proposed works are unknown.	A site compound is required at Oaklands Road to the north of the George Street Underbridge Works. Below ground works include earthworks, excavation and installation of retaining wall (sheet pile "king post" or stepped gravity wall/gabion brackets depending on ground condition). Depth below ground of the proposed works are unknown.	Upgrade works to the existing vehicular access at Wakefield Road, and the creation of a compound area north of the Springbank Lane Overbridge (MVL3/09) and west of Mossley Wastewater Treatment Works. Below ground works include excavation / earthworks installation / levelling off and installation of retaining wall (sheet pile "king post" or stepped gravity wall / gabion backets - depending on ground condition). Depth below ground of the proposed works are unknown.	Main site compound involving substantial demolition of existing commercial buildings. Potential storage/stockpile of spoil.	Site compound for storage.
Summary of local geology (geology at 1 in 50 scale)	Rough Rock (sandstone), Rossendale Formation (mudstone and siltstone), Huddersfield White Rock (sandstone), Marsden Formation (mudstone and siltstone). Overlain in the south and east by alluvium (clay, silt, sand and gravel) and head deposits (clay, silt, sand and gravel).	Rossendale Formation (mudstone and siltstone), Huddersfield White Rock (sandstone). Overlain by head deposits (clay, silt, sand and gravel).	Fletcher Bank Grit (sandstone) bedrock. Overlain by alluvium (clay, silt, sand and gravel).	Marsden Formation (mudstone and siltstone), Fletcher Bank Grit (sandstone). No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone) bedrock. No documented overlying superficial deposits.	Hebden Formation (mudstone and siltstone) bedrock. No documented overlying superficial deposits.	Marsden Formation (mudstone and siltstone), Fletcher Bank Grit (sandstone). No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone), Marsden Formation (mudstone and siltstone) bedrock. Main compound area overlain by till.	Fletcher Bank Grit (sandstone) bedrock. Overlain by alluvium (clay, silt, sand and gravel).
Summary of bedrock hydrogeology	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements		WFD status		Effect of Works components on WFD elements								
		Current status	Status objective	Printworks Road Main Compound	Printworks Road Office Compound	Scout West Ramp Compound	Wakefield Road Plant Access and Compound	Scout East Ramp Compound	Oaklands Road Site Compound	Wakefield Road Plant Access and Compound	Plevins site compound	Scout Spoil Point Compound
Quantitative impacts	**Quantitative impacts cover: Saline or other intrusions of poor-quality water due to groundwater abstraction, the impact on the ecological status of surface water bodies, the impact on the condition of groundwater dependent terrestrial ecosystems, and the impact on the groundwater body water balance.**	Good	Good (2027)	Structure is unlikely to act as a barrier to flow. Compliance is expected with standard mitigation and best practice measures. No likely anticipated effect from Order Scheme element.	Structure is unlikely to act as a barrier to flow. Compliance is expected with standard mitigation and best practice measures. No likely anticipated effect from Order Scheme element.		Structure is unlikely to act as a barrier to flow. Compliance is expected with standard mitigation and best practice measures. No likely anticipated effect from Order Scheme element.				No below ground works anticipated. No likely anticipated impact from Order Scheme element.	
Chemical impacts	**Chemical impacts cover pollution concentrations, quality impact on groundwater abstractions, impact on the chemical & ecological status of surface water bodies, nutrient concentration impact on GWDTEs, Drinking Water Protected Areas and a General quality assessment.**	Poor	Good (2027)	Groundwater body is partially at outcrop at this location with no low permeability geology protecting the groundwater body. Assuming structure will extend below the water table, piling may create rapid vertical flow pathways into the shallow groundwater body for potentially contaminated runoff. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming piling design and construction is to industry standards, and adequate pollution controls are implemented during construction/operation the risk to the groundwater body should be mitigated.	Groundwater body is not at outcrop at this location with low permeability geology protecting the groundwater body. Assuming structure will extend below the water table, piling may create rapid vertical flow pathways into the shallow groundwater body for potentially contaminated runoff. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming piling design and construction is to industry standards, and adequate pollution controls are implemented during construction/operation the risk to the groundwater body should be mitigated.		Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. Assuming structure will extend below the water table, piling may create rapid vertical flow pathways into the shallow groundwater body for potentially contaminated runoff. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming piling design and construction is to industry standards, and adequate pollution controls are implemented during construction/operation the risk to the groundwater body should be mitigated.	Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming industry standard pollution controls are implemented during construction/operation no measurable change to the groundwater body or Huddersfield Canal SSSI is anticipated.	Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming industry standard pollution controls are implemented during construction/operation no measurable change to the groundwater body is anticipated.		

Test B Potential to prevent future attainment of Good Ecological Potential

RNAG element	Description	Order Scheme impact on RNAG
Drinking Water Protected Area	Point source of Private sewage treatment from domestic general public	No impact on water body's ability to achieve 'Good' status for this Quality Element. Additional mitigation not required.
	Diffuse source of Poor nutrient management from agricultural and rural land management	
	Diffuse source of Poor livestock management from agricultural and rural land management	
Trend Assessment	Diffuse source of Poor nutrient management from agriculture and rural land management	
	Diffuse source of Septic tanks from domestic general public	
	Diffuse source of Poor livestock management from agriculture and rural land management.	

Manchester and East Cheshire Carboniferous Aquifers

Water body summary

WFD water body type	Groundwater body
WFD water body ID	GB41202G102900
WFD water body name	Manchester and East Cheshire Carboniferous Aquifers

Works components

Works component	Oldham Road Overbridge Reconstruction	New Oldham Road Footbridge Works	Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B	MVL3/13 (diversion of utilities bridge)	Stamford Road Bridge Works MVL3/13	Armit Road Site Compound	Heyrod Hall Storage Compound
Location (Structure ID and/or NGR)	MVL/28 SD 99191 04720	MVL/28 SD 99191 04720	MLV/39B SE 00759 08128	SD 97352 02000	SD 97355 01846	SD 98108 03966	SJ 97246 99811
Description	Reconstruction of the Grade II Listed Oldham Road overbridge (MVL3/28) adjacent to Greenfield Station with a reinforced concrete portal structure and approach containment and widening to the low mileage side to improve the highways alignment and provide additional footway width. Depth below ground of the proposed works are unknown.	Construction of a new Oldham Road footbridge adjacent to the existing Oldham Road overbridge (MVL3/28A) and Greenfield Station. Below ground works include removal of shallow foundations and excavation. Depth below ground of the proposed works are unknown.	Replacement of the existing Bywash underbridge (MVL3/39B) located adjacent to the Standedge Canal Tunnel western portal, with a box culvert system. Below ground works include excavation of superficial deposits and 100mm of weathered bedrock.	Diversion of utilities bridge into Stamford Road Bridge, which requires excavation on the highway to install the diverted utility pipe. Depth below ground of excavation unknown.	Utilities diversion from bridge MVL3/12A adjacent to MVL3/13 Stamford Road Bridge, into Stamford Road Bridge, involving excavation of the highway which passes over the bridge. Depth below ground of excavation unknown.	Site compound located away from NR land and associated earthworks. Below ground works include excavation and earthworks installation. Soakaway or attenuation tanks may be used. Depth below ground of the proposed works are unknown.	Temporary site compound to support works to MVL 3/07, with associated earthworks and private access track upgrades. Depth below ground of the proposed works are unknown.
Summary of local geology (geology at 1 in 50 scale)	Lower Kindercourt Grit (sandstone), Hebden Formation (mudstone and siltstone) bedrock. No documented overlying superficial deposits.	Lower Kindercourt Grit (sandstone), Hebden Formation (mudstone and siltstone) bedrock. No documented overlying superficial deposits.	Shale Grit (sandstone) bedrock. No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone) bedrock. No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone) bedrock. No documented overlying superficial deposits.	Lower Kinderscout Grit (sandstone) bedrock. Overlain by alluvium (clay, silt, sand and gravel).	Fletcher Bank Grit (sandstone) bedrock. Overlain by head (clay, silt, sand and gravel).
Summary of bedrock hydrogeology	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements		**WFD status**		**Effect of Works components on WFD elements**						
		Current status	**Status objective**	**Oldham Road Overbridge Reconstruction**	**New Oldham Road Footbridge Works**	**Standedge Canal Tunnel Bywash Underbridge Replacement MVL3/39B**	**MVL3/13 (diversion of utilities bridge)**	**Stamford Road Bridge Works MVL3/13**	**Armit Road Site Compound**	**Heyrod Hall Storage Compound**
Quantitative impacts	**Quantitative impacts cover: Saline or other intrusions of poor-quality water due to groundwater abstraction, the impact on the ecological status of surface water bodies, the impact on the condition of groundwater dependent terrestrial ecosystems, and the impact on the groundwater body water balance.**	Good	Good (2027)	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. All earthworks have been designed and will be undertaken in accordance with relevant guidance and industry best practice. No likely anticipated effect from Order Scheme element as shallow works unlikely to affect groundwater flow pathways.					Groundwater body is not at outcrop at this location with low permeability superficial geology protecting the groundwater body. All earthworks have been designed and will be undertaken in accordance with relevant guidance and industry best practice. No likely anticipated effect from Order Scheme element as shallow works unlikely to affect groundwater flow pathways.	
Chemical impacts	**Chemical impacts cover pollution concentrations, quality impact on groundwater abstractions, impact on the chemical & ecological status of surface water bodies, nutrient concentration impact on GWDTEs, Drinking Water Protected Areas and a General quality assessment.**	Poor	Good (2027)	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. Assuming industry standard pollution controls are implemented during construction/operation no measurable change to the groundwater body is anticipated.					Groundwater body is not at outcrop at this location with low permeability superficial geology protecting the groundwater body. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming industry standard pollution controls are implemented during construction/operation no measurable change to the groundwater body is anticipated.	

Test B Potential to prevent future attainment of Good Ecological Potential

RNAG element	**Description**	**Order Scheme impact on RNAG**
Drinking Water Protected Area	Point source of Private sewage treatment from domestic general public	No impact on water body's ability to achieve 'Good' status for this Quality Element. Additional mitigation not required.
	Diffuse source of Poor nutrient management from agricultural and rural land management	
	Diffuse source of Poor livestock management from agricultural and rural land management	
Trend Assessment	Diffuse source of Poor nutrient management from agriculture and rural land management	
	Diffuse source of Septic tanks from domestic general public	
	Diffuse source of Poor livestock management from agriculture and rural land management.	

Manchester and East Cheshire Carboniferous Aquifers

Water body summary

WFD water body type	Groundwater body
WFD water body ID	GB41202G102900
WFD water body name	Manchester and East Cheshire Carboniferous Aquifers

Works components

Works component	Scout East Laydown Compound	Scout East Car Park Compound	Scout East Access Compound	Relocated Mossley Station West Site Compound	Manchester Road, Mossley Site Compound	Heron Lane Site Compound	Saddleworth Old Railway Tunnel site compound	Ward Lane site compound	Lineside fencing access from Oldham Road
Location (Structure ID and/or NGR)	SD 97397 01437	SD 97405 01478	SD 97401 01568	SD 97356 02528	SD 97385 02384	SD 97877 03547	SE 00095 06850	SE 00299 07530	SD 99425 05171
Description	Site compound and drainage works. Below ground works include excavation/earthworks. Depth below ground of the proposed works are unknown.	Earthworks from Andrew Street to create a suitable access route and for ground stability of the railway embankment. Depth below ground of the proposed works are unknown.	Diversion of utilities bridge into Stamford Road Bridge, which requires excavation on the highway to install the diverted utility pipe. Minor earthworks required. Depth below ground of the proposed works are unknown.	Site compound with new access on the western side of the Mossley Station relocation site. Earthworks include possible retaining structures, drainage, excavation and fill. Depth below ground of the proposed works are unknown.	Site compound with access widening onto Manchester Road. Below ground works include excavation and earthworks installation. Depth below ground of the proposed works are unknown.	Site compound with works to Heron Lane to create passing places and a parking area. Below ground works include excavation and earthworks installation. Soakaway or attenuation tanks may be used. Depth below ground of the proposed works are unknown.	Site compound for access with temporary RRAP with associated earthworks and tree removal. Depth below ground of the proposed works are unknown.	Site compound with associated access and earthworks. Depth below ground of the proposed works are unknown.	Creation of a new access from Oldham Road and earthworks as well as tree removal to create a suitable access route. Depth below ground of the proposed works are unknown.
Summary of local geology (geology at 1 in 50 scale)	Fletcher Bank Grit (sandstone) bedrock. No documented overlying superficial deposits.	Marsden Formation (mudstone and silstone), Fletcher Bank Grit (sandstone) bedrock. No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone) bedrock. No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone), Marsden Formation (mudstone and siltstone) bedrock. No documented overlying superficial deposits.	Fletcher Bank Grit (sandstone), Marsden Formation (mudstone and siltstone). Upper Kinderscout Grit (sandstone) bedrock. No documented overlying superficial deposits.	Lower Kinderscout Grit (sandstone) bedrock. No documented overlying superficial deposits.	Hebden Formation (mudstone and siltstone). No documented overlying superficial deposits.	Shale Grit (sandstone). No documented overlying superficial deposits.	Lower Kinderscourt Grit (sandstone) bedrock. No documented overlying superficial deposits.
Summary of bedrock hydrogeology	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements		**WFD status**		**Effect of Works components on WFD elements**								
		Current status	**Status objective**	**Scout East Laydown Compound**	**Scout East Car Park Compound**	**Scout East Access Compound**	**Relocated Mossley Station West Site Compound**	**Manchester Road, Mossley Site Compound**	**Heron Lane Site Compound**	**Saddleworth Old Railway Tunnel site compound**	**Ward Lane site compound**	**Lineside fencing access from Oldham Road**
Quantitative impacts	**Quantitative impacts cover: Saline or other intrusions of poor-quality water due to groundwater abstraction, the impact on the ecological status of surface water bodies, the impact on the condition of groundwater dependent terrestrial ecosystems, and the impact on the groundwater body water balance.**	Good	Good (2027)	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. All earthworks have been designed and will be undertaken in accordance with relevant guidance and industry best practice. No likely anticipated effect from Order Scheme element as shallow works unlikely to affect groundwater flow pathways.								
Chemical impacts	**Chemical impacts cover pollution concentrations, quality impact on groundwater abstractions, impact on the chemical & ecological status of surface water bodies, nutrient concentration impact on GWDTEs, Drinking Water Protected Areas and a General quality assessment.**	Poor	Good (2027)	Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming industry standard pollution controls are implemented during construction/operation no measurable change to the groundwater body is anticipated.								

Test B Potential to prevent future attainment of Good Ecological Potential

RNAG element	**Description**	**Order Scheme impact on RNAG**
Drinking Water Protected Area	Point source of Private sewage treatment from domestic general public	No impact on water body's ability to achieve 'Good' status for this Quality Element. Additional mitigation not required.
	Diffuse source of Poor nutrient management from agricultural and rural land management	
	Diffuse source of Poor livestock management from agricultural and rural land management	
Trend Assessment	Diffuse source of Poor nutrient management from agriculture and rural land management	
	Diffuse source of Septic tanks from domestic general public	
	Diffuse source of Poor livestock management from agriculture and rural land management.	

Manchester and East Cheshire Carboniferous Aquifers

Water body summary

WFD water body type	Groundwater body
WFD water body ID	GB41202G102900
WFD water body name	Manchester and East Cheshire Carboniferous Aquifers

Works components

Works component	Drainage and lineside fencing canal side in Uppermill	Brownhill Lane Compound	Sam Road Car Park Compound	Diggle Welfare, Rail hub and Office Compound	Scout West Laydown Compound	Grandpa Green's Site Compound 2	Grandpa Green's Site Compound	Diggle Access and Diversion Route
Location (Structure ID and/or NGR)	SD 99497 05483	SD 99871 06534	SE 00686 08026	SE 00598 07868	SD 97264 01203	SE 00386 07687	SE 00372 07637	SE 00779 08133
Description	Works to enable lineside fencing installation and a culvert into the Huddersfield Narrow Canal. Includes excavation to install new culvert from rail side to canal. Depth below ground of the proposed works are unknown.	Site compound with associated access and earthworks. Below ground works include excavation and earthworks installation. Soakaway or attenuation tanks may be used. Depth below ground of the proposed works are unknown.	Site compound with associated access and earthworks. Below ground works include excavation and earthworks installation. Soakaway or attenuation tanks may be used. Depth below ground of the proposed works are unknown.	Site compound and associated earthworks. (Full planning application to be progressed ahead of the TWAO subject to instruction from NR). Below ground works include excavation and earthworks installation. Depth below ground of the proposed works are unknown.	Laydown area and associated earthworks. Below ground works include excavation/earthworks. Depth below ground of the proposed works are unknown.	Site compound with associated access and earthworks. Below ground works include excavation and earthworks installation. Soakaway or attenuation tanks may be used. Depth below ground of the proposed works are unknown.	Site compound with associated access and earthworks. Below ground works include excavation and earthworks installation. Soakaway or attenuation tanks may be used. Depth below ground of the proposed works are unknown.	New access road to provide a temporary diversion and associated earthworks, to the north east of Standedge Canal Tunnel's western portal. Depth below ground of the proposed works are unknown.
Summary of local geology (geology at 1 in 50 scale)	Lower Kinderscout Grit (sandstone) bedrock. Partially overlain by alluvium (clay, silt, sand and gravel).	Lower Kinderscout Grit (sandstone), Hebden Formation (mudstone and siltstone) bedrock. Partially overlain by till.	Shale Grit (sandstone). Alluvium (clay, silt, sand and gravel) mapped at the south of compound.	Shale Grit (sandstone). Alluvium (clay, silt, sand and gravel) through centre of compound.	Marsden Formation (mudstone and siltstone) bedrock. No documented overlying superficial deposits.	Shale Grit (sandstone). No documented overlying superficial deposits.	Shale Grit (sandstone). No documented overlying superficial deposits.	Shale Grit (sandstone), Hebden Formation (mudstone and siltstone). No documented overlying superficial deposits.
Summary of bedrock hydrogeology	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.	Water bearing strata. Secondary A aquifer. No local groundwater level data available, assume groundwater is at surface.

Test A Potential to cause deterioration of current WFD Ecological Potential

WFD elements		**WFD status**		**Effect of Works components on WFD elements**							
		Current status	**Status objective**	**Drainage and lineside fencing canal side in Uppermill**	**Brownhill Lane Compound**	**Sam Road Car Park Compound**	**Diggle Welfare, Rail hub and Office Compound**	**Scout West Laydown Compound**	**Grandpa Green's Site Compound 2**	**Grandpa Green's Site Compound**	**Diggle Access and Diversion Route**
Quantitative impacts	**Quantitative impacts cover: Saline or other intrusions of poor-quality water due to groundwater abstraction, the impact on the ecological status of surface water bodies, the impact on the condition of groundwater dependent terrestrial ecosystems, and the impact on the groundwater body water balance.**	Good	Good (2027)	Groundwater body is partially at outcrop at this location with no low permeability geology protecting parts of the groundwater body. All earthworks have been designed and will be undertaken in accordance with relevant guidance and industry best practice. No likely anticipated effect from scheme element as shallow works unlikely to affect groundwater flow pathways.				Groundwater body is at outcrop at this location with no low permeability geology protecting the groundwater body. All earthworks have been designed and will be undertaken in accordance with relevant guidance and industry best practice. No likely anticipated effect from scheme element as shallow works unlikely to affect groundwater flow pathways.			
Chemical impacts	**Chemical impacts cover pollution concentrations, quality impact on groundwater abstractions, impact on the chemical & ecological status of surface water bodies, nutrient concentration impact on GWDTEs, Drinking Water Protected Areas and a General quality assessment.**	Poor	Good (2027)	Groundwater body is partially at outcrop at this location with no low permeability superficial geology protecting the groundwater body. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming industry standard pollution controls are implemented during construction/operation no measurable change to the groundwater body is anticipated.				Groundwater body is at outcrop at this location with no low permeability superficial geology protecting the groundwater body. Increased areas of hardstanding may increase surface water runoff and enter the groundwater body. Assuming industry standard pollution controls are implemented during construction/operation no measurable change to the groundwater body is anticipated.			

Test B Potential to prevent future attainment of Good Ecological Potential

RNAG element	**Description**	**Order Scheme impact on RNAG**
Drinking Water Protected Area	Point source of Private sewage treatment from domestic general public	No impact on water body's ability to achieve 'Good' status for this Quality Element. Additional mitigation not required.
	Diffuse source of Poor nutrient management from agricultural and rural land management	
	Diffuse source of Poor livestock management from agricultural and rural land management	
Trend Assessment	Diffuse source of Poor nutrient management from agriculture and rural land management	
	Diffuse source of Septic tanks from domestic general public	
	Diffuse source of Poor livestock management from agriculture and rural land management.	

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT: VOLUME 3 APPENDIX 12B FLOOD RISK ASSESSMENT

Rule 10(6)(d)

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CONTENTS

1. INTRODUCTION 3
1.1 Purpose 3
2. RELEVANT LEGISLATION, POLICY AND GUIDANCE 4
2.2 National Planning Policy 4
2.3 Consents, Permit, and Approvals 11
2.4 Local Plan and Local Flood Risk Guidance and Strategies 13
3. APPRAISAL OF IMPACTS AND EFFECTS 17
3.1 Methodology and Data Sources 17
3.2 Relevant works components of the Order Scheme 18
3.3 Study Area Overview – Baseline Conditions and Hydrological Context 20
3.4 Assessment of Flood Risk to the Relevant Works Components of the Order Scheme 22
3.5 Impacts of the Order Scheme on Flood Risk Elsewhere 42
3.6 Mitigation And Consideration of Control Measures 45
4. SUMMARY 50
5. ABBREVIATIONS 60
Annex A: Flood Risk Vulnerability Classification 62
Annex B: Flood Risk Vulnerability And Flood Zone Compatibility 63
Annex C: The Town And Country Planning (Development Management Procedure) (England) Order 2015 64
Annex D: Places For Everyone (Strategic Allocation Of Local Plan) Policies[10] 65
Annex E: SFRA Maps Of Proposed Development Sites and Flood Zone 3b (Functional Floodplain) 67
Annex F: SFRA Maps Of Historic Flooding 76
Annex G: SFRA Maps Of Flood Risk Management 85
Annex H: Groundsure Report Of Plevins Site Compound Works Groundwater Flood Risk 94
Annex I: Groundsure Report Of Armit Road Site Compound Groundwater Flood Risk 95
Annex J: Groundsure Report of Saddleworth Rangers Replacement Car park Groundwater Flood Risk 96
Annex K: Groundwater Report of High Street, near Uppermill Viaduct (MVL3/31), Groundwater Flood Risk 97

Annex L: Groundsure Report Diggle Access and Diversion Works Groundwater Flood Risk..... 98

1. INTRODUCTION

1.1 Purpose

1.1.1 This Technical Appendix presents the Flood Risk Assessment (FRA) undertaken to support the 'Stalybridge to Diggle (Saddleworth) Enhancements' Order (referred to as 'the Order Scheme').

1.1.2 Details of the Order Scheme, as well as the temporary construction required to deliver the Order Scheme (referred to as 'the relevant works components'), are provided in Table 1.1 of Chapter 1 in Volume 1 of this Report [**NR14**] and illustrated in Figures 12B.3.1 to 12B.4.24 in Volume 2 of this Report [**NR14**].

1.1.3 As part of the assessment process, potential sources and mechanisms of flooding that may affect, or be affected by, the Order Scheme and its relevant works components have been reviewed. The assessment also identifies site-specific constraints and outlines appropriate flood risk mitigation measures.

1.1.4 This early-stage evaluation enables flood risk to be considered during the initial design phases, allowing mitigation measures to be embedded into the Order Scheme's design, site layout, and construction methodology.

1.1.5 The Environmental Report serves to provide reassurance at the outline design stage that appropriate mechanisms and controls are in place to manage surface water drainage in advance of construction. These controls are established under the Order and will be implemented via the Code of Construction Practice (CoCP) Part B. No discharge will occur without prior consent via the Order's protective provisions from the respective authorities. These include the Environment Agency (EA) for discharges into main rivers, the Lead Local Flood Authority (LLFA) for discharges into ordinary watercourses, and United Utilities for discharges into surface water sewers.

1.1.6 In Volume 2 of this Report [**NR14**], the following figures provide relevant hydrological background information and can be referred to in the context of this Technical Note:

- Figures 12B.3.1 to 12B.3.6 – show the locations of watercourses and the topographic terrain in the context of the Order Scheme.
- Figures 12B.4.1 to 12B.4.6 – show the Flood Map for Planning in the context of the Order Scheme.
- Figures 12B.4.7 to 12B.4.12 – show the extent of the Risk of Flooding from River and the Sea in the context of the Order Scheme.
- Figures 12B.4.13 to 12B.4.18 – show the extent of the Risk of Flooding from Surface Water in the context of the Order Scheme.
- Figures 12B.4.19 to 12B.4.24 – show the extent of the Risk of Flooding from Reservoirs in the context of the Order Scheme.

2. RELEVANT LEGISLATION, POLICY AND GUIDANCE

2.1.1 This section outlines national and local planning policies relevant to the Order Scheme concerning flood risk.

2.2 National Planning Policy

2.2.1 The National Planning Policy Framework1 (NPPF) and the Flood Risk and Coastal Change Planning Practice Guidance2 (FRCC-PPG) set out how flood risk should be considered in the development planning process. The NPPF mandates that developments avoid all sources of flooding and be steered away from areas with the highest flood risk. Furthermore, any residual risk must be safely managed, and developments must demonstrate safe access and escape routes. To meet these requirements, developers must ensure that flood risk is assessed in the initial planning stages of development.

2.2.2 The Environment Agency Flood Map for Planning (FMfP) outlines three main zones of fluvial flood risk, defined as follows[3]:

- Flood Zone 1 – represents a low probability of flooding. This means the land has less than 1 in 1,000 annual probability (<0.1% annual exceedance probability (AEP)) of flooding from rivers or the sea.
- Flood Zone 2 – represents a medium probability of flooding. This means the land has between 1 in 100 to 1 in 1,000 annual probability (1% - 0.1% AEP) of flooding from rivers, or between 1 in 200 to 1 in 1,000 annual probability (0.5% - 0.1% AEP) of flooding from the sea.
- Flood Zone 3(a) – represents a high probability of flooding. This means the land has 1 in 100 or more annual probability (≥1% AEP) of flooding from rivers, or 1 in 200 or more annual probability (≥0.5% AEP) of flooding from the sea.
- Flood Zone 3(b)[2] – represents functional floodplains, where water from rivers or the sea must flow or be stored in times of flood. This zone is not mapped in the FMfP but instead mapped by Local Planning Authorities (LPAs) in their Strategic Flood Risk Assessments (SFRA) in agreement with the Environment Agency. Flood Zone 3b is not separately distinguished from Zone 3a on the FMfP. A functional floodplain typically includes:
    - Land having a 1 in 30 or more annual probability (≥3.3% AEP) of flooding, with any existing flood risk management infrastructure operating effectively; or

[1] National Planning Policy Framework - GOV.UK 2024

[2] Flood risk and coastal change - GOV.UK

[3] Flood map for planning - GOV.UK

- Land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in extreme events (such as 0.1% AEP of flooding).

2.2.3 The NPPF – supplemented by the FRCC-PPG, which is complemented by the 'Annex 3: Flood Risk Vulnerability Classification' of development types (see Annex A)[4] – sets out the following:

- Whether the development requires a site-specific FRA.
- Whether the development is subject to a Sequential Test.
- Whether the development is subject to an Exception Test (see Annex B).

2.2.4 The details of the site-specific FRA, Sequential Test, and Exception Test are discussed below, along with their implications for the Order Scheme and relevant works components.

Site-Specific FRA

2.2.5 In compliance with the NPPF, a site-specific FRA is required for development proposed in:

- Flood Zone 2 and 3 (including 3b); and
- Flood Zone 1 that:
  - Covers an area of 1 hectare (ha) or more;
  - Is in an area with critical drainage problems;
  - Is identified in a Local Planning Authority's (LPA's) Strategic Flood Risk Assessment (SFRA) as being at increased risk of flooding during its lifetime;
  - May be subject to other sources of flooding besides rivers and sea; or
  - Involves a change of use that increases its vulnerability classification (e.g. from car park to hospital).

[4] National Planning Policy Framework - Annex 3: Flood risk vulnerability classification - Guidance - GOV.UK

Implications of Site-Specific FRA on the Order Scheme and Relevant Works Components

2.2.6 The Order Scheme and its associated relevant works components are collectively over 1 ha in area. Therefore, a site-specific FRA is required, which this report achieves.

2.2.7 The developer is responsible for demonstrating the following:

- Whether the Proposed Development is likely to be affected by flooding;
- Whether the Proposed Development will increase flood risk to adjacent third-party land; and
- Mitigation measures to address any flood risk.

2.2.8 The developer (or in this instance the Promoter) must demonstrate that all sources of flood risk – including fluvial, ordinary watercourses, surface water, groundwater, sewers, reservoirs, and canals – to and from the proposed development can be satisfactorily managed.

Sequential Test

2.2.9 The Sequential Test aims to ensure that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding from any source. Development will not be allocated or permitted if appropriate sites with lower flood risk are available. The SFRA provides the basis for applying the Sequential Test.

2.2.10 The Sequential Test should be applied to 'major development' and 'non-major development' (defined in Annex C) proposed in areas at risk of flooding. However, the Sequential Test is not required where the site of the proposed development satisfies one of the following[2]:

- Is allocated for development in the Local Plan (see 'Places for Everyone Joint Development Plan' section 2.4) and subject to the test at the plan-making stage (provided that the proposed development is consistent with the use for which the site was allocated and that there have been no significant changes to the known level of flood risk to the site, now or in the future, which would have affected the outcome of the test);
- Is at low risk from all sources of flooding, unless the SFRA or other information indicates there may be a risk of flooding from sources in the future;
- Demonstrate that no built development, including access routes, escape routes, land raising, or other vulnerable elements, is located in areas at risk of flooding now or in the future1; or
- Is a type of minor development and change, including householder development and small non-residential extensions (with a footprint of

less than 250 m^2). However, changes of use to a caravan, camping, chalet site, or a mobile home or park home site will require the application of the Sequential Test and, where appropriate, Exception Tests[1].

Implications of Sequential Test on the Order Scheme and Relevant Works Components

2.2.11 The Order Scheme and its associated relevant works components are:

- Classed as 'major development', which is defined as "development carried out on a site having an area of 1 hectare or more" (see Annex C).
- Primarily located within Flood Zone 1, except for the following, which fall within Flood Zone 2 and/or 3:
  - Temporary land take for Scout West Compound – falls partially in Flood Zones 2 and 3. Refer to Figure 12B.4.3 in Volume 2 of this Report [**NR14**].
  - Temporary land take for Egmont Street Replacement Car park, and temporary right of access of Egmont Street road to Plevins Site Compound Works – the mid-section of this road is situated in Flood Zones 2 and 3, and falls within the high, medium, and low risk of fluvial flood extent. Refer to Figure 12B.4.3 in Volume 2 of this Report [**NR14**].
  - Temporary land take of Heron Lane road to Heron Lane Site Compound – falls partially in Flood Zones 2 and 3. Refer to Figure 12B.4.4 in Volume 2 of this Report [**NR14**].
  - Temporary land take for Armit Road Site Compound – falls partially in Flood Zone 2. Refer to Figure 12B.4.4 in Volume 2 of this Report [**NR14**].
  - Temporary land take of Saddleworth Rangers Replacement Car park – falls within Flood Zone 2. Refer to Figure 12B.4.4 in Volume 2 of this Report [**NR14**].
  - Temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works – falls partially in Flood Zone 2. Refer to Figure 12B.4.5 in Volume 2 of this Report [**NR14**].
  - Temporary land take for Diggle Access and Diversion Works – falls within Flood Zone 2 and 3. Refer to Figure 12B.4.6 in Volume 2 of this Report [**NR14**].
- Not within sites allocated for development in the Local Plan (see 'Places for Everyone Joint Development Plan' section 2.4[10]).

2.2.12 Under the NPPF, a Sequential Test is required for the seven sites listed above, as they are located within Flood Zone 2 and/or 3, classed as 'major

development', and not within sites allocated for development in the Local Plan.

2.2.13 Suitable land along the route is extremely limited due to topographical constraints, existing land use, and operational requirements. Multiple reviews have been taken to refine the location, size, and layout of work sites to minimise environmental impacts, including flood risk. Where feasible, sites have been located outside Flood Zones 2 and 3, with preference given to lower-risk where operationally viable. However, in some cases, avoidance is not possible due to the linear nature of the railway corridor, the need for proximity to specific worksites, and the lack of alternative accessible land.

2.2.14 Flood risk has been carefully balanced against the practical and logistical needs of delivering the Order Scheme. As the Order Scheme and its relevant works components cannot be relocated or substituted elsewhere, an Expectation Test is required in line with the NPPF.

Exception Test

2.2.15 Should the Sequential Test indicate no suitable sites at lower flood risk that can appropriately accommodate the development outside the site, the proposed development must undertake and pass the Exception Test to be permitted on the site with flood risk. Two criteria need to be satisfied to pass the Exception Test2:

- The development would provide wider sustainability benefits to the community that outweigh the flood risk; and
- The development will be safe for its lifetime, taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.

2.2.16 The Exception Test should only be applied if the Sequential Test shows no reasonably suitable, lower-risk sites are available for the proposed development. Moreover, the Exception Test should only be applied in the circumstances set out in the 'Flood Risk Vulnerability and Flood Zone Compatibility' table in Annex B, which is a matrix based on the Environment Agency FMfP and the 'Flood Risk Vulnerability Classification' of development types (Annex A).

Implications of Exception Test on the Order Scheme and Relevant Works Components

2.2.17 The Order Scheme and its associated relevant works components:

- Have a varying flood risk vulnerability classification (see Annex A). For example, some elements of the Order Scheme required for the operation of the railway infrastructure (e.g. overhead line equipment) would be classified as 'essential infrastructure'. Meanwhile, some elements of the Order Scheme that are not required for the functioning

of the railway itself (e.g. footbridges) would be classed as 'less vulnerable'.

- Is primarily located within Flood Zone 1, except for the following, which falls within Flood Zone 2 and/or 3 (this is further detailed in the 'Flood Risk from Main Rivers' section).
- Temporary land take for Scout West Compound – falls partially in Flood Zones 2 and 3. Refer to Figure 12B.4.3 in Volume 2 of this Report [**NR14**].
- Temporary land take for Egmont Street Replacement Car park – is situated in Flood Zones 2 and 3, and falls within the high, medium, and low risk of fluvial flood extent. Refer to Figure 12B.4.3 in Volume 2 of this Report [**NR14**].
- Temporary land take of Heron Lane road to Heron Lane Site Compound – falls partially in Flood Zones 2 and 3. Refer to Figure 12B.4.4 in Volume 2 of this Report [**NR14**].
- Temporary land take for Armit Road Site Compound – falls partially in Flood Zone 2. Refer to Figure 12B.4.4 in Volume 2 of this Report [**NR14**].
- Temporary land take of Saddleworth Rangers Replacement Car park – falls within Flood Zone 2. Refer to Figure 12B.4.4 in Volume 2 of this Report [**NR14**].
- Temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works – falls partially in Flood Zone 2. Refer to Figure 12B.4.5 in Volume 2 of this Report [**NR14**].
- Temporary land take for Diggle Access and Diversion Works – falls within Flood Zone 2 and 3**.** Refer to Figure 12B.4.6 in Volume 2 of this Report [**NR14**].

2.2.18 The locations of the permanent works were assessed against future flooding using the EA Flood Zone Flood Map for Planning with Climate Change allowance extents[5]. This dataset only considers the 'Central' Climate Change allowance which is less than the 'Higher Central' allowance appropriate for 'essential infrastructure'. However the difference between the 'Central' and 'Higher Central' allowances for the 2080's epoch (to 2125) in the location of the works (Upper Mersey Management Catchment) is 12% (41% to 53%).

2.2.19 Based on the EA climate change Flood Map for Planning extents, the permanent works are located in Flood Zone 1 with the 'Central' allowance to 2125. The permanent works – as 'essential infrastructure', are appropriate for Flood Zone 1 and 2. As the permanent works are located outside the future 'Central' Flood Zone 2 it is considered that the additional 12% for the 'Higher Central' climate change will not result in the permanent works being

[5] Gov.uk Flood Map for Planning Climate Change dataset

impacted. by the smaller Flood Zone 3 climate change extent, which would require additional mitigation works.

2.2.20 It is therefore considered that the permanent works will be safe for the lifetime of the development – as required by the Exception Test.

2.2.21 Under the NPPF, if the Sequential Test determines that no reasonably available sites exist in areas of lower flood risk, an Exception Test must be applied.

2.2.22 The Exception Test is required for the following four sites associated with the Order Scheme, as they fall within Flood Zone 3 as well as 2 and are classed as 'essential infrastructure' (see Annex B):

- Temporary land take for Scout West Compound.
- Temporary land take for Egmont Street Replacement .
- Temporary land take of Heron Lane road to Heron Lane Site Compound.
- Temporary land take for Diggle Access and Diversion Works.

2.2.23 While the other three sites do not require an Exception Test associated with the Order Scheme, as they fall within Flood Zone 2 and are classed as 'essential infrastructure' (see Annex B):

- Temporary land take for Armit Road Site Compound.
- Temporary land take of Saddleworth Rangers Replacement Car park.
- Temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works.

2.2.24 The Order Scheme and its relevant works components meet the two criteria of the Exception Test:

- Wider sustainability benefits – the development forms part of the Transpennine Route Upgrade in line national objectives on 'levelling up' the north of England. The development is expected to deliver sustainability and associated economic benefits to the wider community by supporting a cleaner mode of transport on a regional scale. This benefit is considered to outweigh the minimal flood risk impact identified in this FRA following the implementation of proposed mitigation measures.
- Safety and flood risk management – the proposed rail infrastructure improvement will remain safe for use throughout its operational lifetime, taking into account the vulnerability of its users. It will not increase flood risk elsewhere and, where feasible, may contribute to reducing flood risk. This reflects the requirements of the 'Weather Resilience and Climate Change Adaptation' section in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]).

2.2.25 The review provided above, based on the requirements of the NPPF Sequential Test and the Exception text, confirms that the relevant tests are passed (including the seven high-risk sites listed above that falls within Flood Zone 2 and/or 3).

2.3 Consents, Permit, and Approvals

Flood Risk Activity Permit (FRAP) and Land Drainage Consent

2.3.1 FRAPs and land drainage consent are regulatory requirements in England, governed by the Environmental Agency and Lead Local Flood Authority (LLFA), respectively. These permits are required for certain works in, over, under, or near main rivers, flood defences, and ordinary watercourses. Failure to obtain permits constitutes a breach of UK environmental legislation that can lead to consequences, including financial penalties and legal proceedings.

2.3.2 Permits are required for activities involving:

- Erecting, altering, repairing, or maintaining any structure (temporary or permanent) in, over, or under a main river.
- Dredging, raising, or removing material from a main river.
- Diverting or impounding the flow of water in a main river.
- Quarrying or excavation within:
  - 8 metres of a main river (non-tidal); or
  - 16 metres of a tidal main river or flood defence.
- Building or altering structures designed to contain or divert floodwaters.
- Working on or near flood defences, including embankments, walls, weirs, and sluices.

2.3.3 While permits are not required for activities involving:

- Activities that qualify for an exemption or standard rules permit.

Canal and River Trust Approval

2.3.4 The Canal and River Trust advises that any development located adjacent to or near a canal will require consultation and, in some cases, formal approval[6]. This applies to any works on, near, under, or over canals[7] where there is potential to affect the structural integrity of the canal or towpath,

[6] Canal and River Trust: Is the development appropriate?

[7] Canal and River Trust: Undertaking works and code of practice

interfere with navigation or maintenance access, or impact water levels or drainage patterns[8].

2.3.5 In addition, the Canal and River Trust defines specific "notified areas" around canals that they must be consulted on for proposed developments. These areas vary depending on the scale of the development:

- A 150 m buffer applies for major developments.
- A 50 m buffer applies for minor and household developments but can extend to 75 or 150 m where there are assets such as reservoirs, tunnels, cuttings, and embankments[9].

Implications of FRAP and Land Drainage Consent on the Order Scheme and Relevant Works Components

2.3.6 The Order Scheme, if granted, provides Network Rail with planning permission and deemed consent for the works in, over, under, or near main rivers or flood defences. However, this does not override environmental legislation; rather, it streamlines the process by replacing certain permitting requirements with protective provisions. These provisions ensure that the Environment Agency remains engaged in the process, requiring submission of detailed designs and allowing for consultation and agreement.

2.3.7 So while formal permits such as FRAPs may not be required, the EA retains the right to review and respond to proposals, with the Order stipulating that agreement cannot be unreasonably withheld. In practice, this means the same level of scrutiny and environmental rigour is applied, but through a mechanism that de-risks delivery and provides certainty for the Order Scheme. Should any conditions require FRAPs, these will be prepared in advance by the contractor/designer prior to the relevant works.

Implications of Canal and River Trust Approval on the Order Scheme and Relevant Works Components

2.3.8 The Order, if granted, provides Network Rail with planning permission and deemed consent for the works on, near, under, or over canals. However, this does not remove the need for engagement with the Canal & River Trust. Under the Order's protective provisions, Network Rail must submit detailed designs and seek the Trust's approval. While formal approval is not required,

[8] Canal and River Trust: Development management checklist for waterside developments.pdf

[9] Canal and River Trust: Our notified area

the Trust retains the right to review and respond to proposals, with the Order stipulating that agreement cannot be unreasonably withheld.

2.3.9 Engagement arrangements with the Trust will be reviewed and clarified by the designer/contractor prior to the start of construction for each applicable work elements, ensuring continued collaboration and oversight.

2.4 Local Plan and Local Flood Risk Guidance and Strategies

2.4.1 The Order Scheme and its associated relevant works components are located within the administrative boundaries of Tameside Metropolitan Borough Council (TMBC) and Oldham Metropolitan Borough Council (OMBC). These two Council are the local planning authorities (LPAs) and the Lead Local Flood Authority (LLFA) for their respective districts.

2.4.2 The Local Plans and the flood risk management plans for TMBC and OMBC have been reviewed as below. These include the Places for Everyone Plan, the Greater Manchester Level 1 Greater Manchester Strategic Flood Risk Management Framework (SFRMF), and SFRA.

Places for Everyone Joint Development Plan (2024)[10]

2.4.3 Places for Everyone, previously known as the Greater Manchester Spatial Framework (GMSF), is a joint development plan between nine Greater Manchester districts, including TMBC and OMBC. It outlines the approach to housing, employment, and sustainable growth until 2039. The plan prioritises using brownfield land and urban spaces while protecting Green Belt land and important environmental assets from unplanned development.

2.4.4 In relation to flood risk, the location of new developments in this local plan is guided by the Sequential Test and Exception Test, as required by the NPPF. These tests aim to direct new development to areas with the lowest flood risk. If new developments are proposed in higher flood risk zones, they must provide wider community benefits and be safe from flooding for their design lifetime.

Greater Manchester Strategic Flood Risk Management Framework (SFRMF)[11]

2.4.5 Published in March 2019, the Greater Manchester SFRMF informed the GMSF (now known as the Places for Everyone Joint Development Plan as detailed above). The SFRMF provides a spatial framework for flood risk management across the region, highlighting key flood risk issues and recommending priorities for intervention by taking into account previous, existing, and planned interventions delivered or to be delivered by Risk Management Authorities. The Framework intends to be an overarching strategic framework for policies and activities developed and implemented

[10] Modifications Documentation 2023 - Greater Manchester Combined Authority

[11] Greater Manchester Strategic Flood Risk Management Framework (SFRMF)

by Greater Manchester local authorities, including the TMBC and OMBC. The SFRMF aims to manage current and future flood risk to enable sustainable development in Greater Manchester by adopting a catchment-based approach.

Greater Manchester Level 1 Strategic Flood Risk Assessment (SFRA)[12]

2.4.6 The Greater Manchester Level 1 SFRA, published in March 2019, supports the GMSF (now known as the Places for Everyone Development Plan as detailed above). It was carried out in accordance with the NPPF and FRCC-PPG at the time of its writing.

2.4.7 The Level 1 SFRA provides guidance on the Sequential Approach, including the application of the Sequential Test and Exception Test. It is supported by several appendices[13], including the 'SFRA Maps of Proposed Development Sites and Flood Zone 3b'[14,15] (see Annex E), Development Sites Assessment spreadsheets[16,17], and Development Sites Summary Reports[18].

2.4.8 Potential Development Sites within Greater Manchester have been identified and categorised into several types of strategic recommendations based on:

- Environment Agency FMfP[3];
- 'Flood Risk Vulnerability Classification' of development types (Annex A)[4]; and
- 'Flood Risk Vulnerability and Flood Zone Compatibility' matrix table of the two points above (Annex B)[2].

[12] Greater Manchester Level 1 Strategic Flood Risk Assessment (SFRA)

[13] Supporting and Background Evidence Documents - Greater Manchester Combined Authority

[14] 04.02.05 Appendix A Oldham Interactive Maps.zip

[15] 04.02.08 Appendix A Tameside Interactive Maps.zip

[16] 04.02.11 GM SFRA Level 1 Appendix B Sites Assessment Part 1.xlsx

[17] 04.02.12 GM SFRA Level 1 Appendix B Sites Assessment Part 2.xlsx

[18] 04.02.13 GM SFRA Level 1 Appendix C - Development Sites Assessments Summary Reports.pdf

Implications of Local Plan and Local Flood Risk Guidance to the Order Scheme and Relevant Works Components

2.4.9 A review of the 'Places for Everyone Policies' proposals map (see Annex D) indicates that the Order Scheme and its relevant works components do not fall within any sites of the 'strategic allocation of Local Plan'.

Greater Manchester SFRMF[11]

2.4.10 The SFRMF is complemented by the Greater Manchester Level 1 SFRA, which identifies areas at the most significant flood risk.

2.4.11 Critical Drainage Areas (CDAs) are locations identified by local authorities and the Environment Agency as having significant drainage problems and prone to flooding. These areas often include multiple and interlinked sources of flood risk, including surface water, groundwater, sewer, rivers, and tidal flooding. Identifying CDAs supports the effective management and mitigation of existing flood risks by ensuring that development within these areas is carefully planned. Developers are required to demonstrate that surface water drainage systems are both adequate and maintainable for the lifetime of the development and to provide details of long-term maintenance arrangements to ensure that new developments do not exacerbate existing flooding issues.

2.4.12 The 'SFRA Maps of Flood Risk Management' shows that the Order Scheme and its relevant works components are not located within any designated CDA (see Annex G) and, thus, are not considered at risk of flooding due to significant drainage issues.

2.4.13 Canal Hazard Zones are identified in the SFRMF as areas that could potentially be flooded if canal embankments are overtopped or if raised canal embankments are breached. It should be noted that properties on low-level sites may still encounter the risk of canal flooding despite not being within the Canal Hazard Zone.

2.4.14 The 'SFRA Maps of Flood Risk Management' indicate that the Order Scheme and its relevant works components do not fall within the Huddersfield Narrow Canal Modelled Hazard Zone (see Annex G). Although a few sections of the Order Scheme and its relevant works components are on low-level sites, very near the Huddersfield Narrow Canal (e.g. the temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works, is at equivalent elevation as and <1 m from the Huddersfield Narrow Canal), the risk of canal flooding is low. This is because canals are artificial waterways where water flow is strongly controlled, thus making them less prone to flooding than natural watercourses during storm events.

Greater Manchester Level 1 SFRA[12]

2.4.15 According to the 'SFRA Maps of Proposed Development Sites and Flood Zone 3b' for Oldham[14] and Tameside[15] (see Annex E), the Order Scheme

and its relevant works components do not fall within Flood Zone 3b and are largely not within sites allocated for development except for:

- Temporary land take for the construction access route to Standedge Tunnel Bywash Underbridge (MVL3/39B) Replacement, and Diggle Road Overbridge (MVL3/39) Reconstruction and Utilities Bridge Works. These sites fall within the Development Site (see Annex E1 – 'SHA1217')[14] allocated with Strategic Recommendation C[17]: "consider site layout and design around the identified flood risk"[12]. Both parcels of land are suitable for their proposed temporary purposes, as they do not fall within Flood Zone 2 or 3, and a range of mitigation measures, potentially including Protective Provisions* will be in place to mitigate any potential flood risk. Hence, no further consideration is required for the layout and design of these proposed temporary sites.
- Temporary land take for the construction access route to Ward Lane Overbridge (MVL3/36) Reconstruction and Utilities Bridge Works – this site falls within a Development Site (see Annex E1 or E2 – 'HLA3147')[14] allocated with Strategic Recommendation D[17]: "flood risk to the site is low however an FRA is required to show flood risk can be mitigated"[12]; which this FRA report achieves.
- Temporary land take for Armit Road Site Compound – this site falls within a Development Site (see Annex E5 – '508')[14] allocated with Strategic Recommendation B[17]: "Exception Test required if site passes Sequential Test. For development to proceed, the site must be subject to and pass the Exception Test"[12]. This compound passes the Exception Test, as detailed in the 'Exception Test' section, and can be permitted on the higher flood-risk site.
- Plevins Site Compound Works – this site falls within a Development Site (see Annex E6 or E7 – 'H-MOSSLE-012')[15] allocated with Strategic Recommendation D[17]: "flood risk to the site is low however an FRA is required to show flood risk can be mitigated"[12], which this FRA report achieves.
- Printworks Road Site Compound, Access and Drainage Works – this site falls within a Development Site (see Annex E7 – '302')[15] allocated with Strategic Recommendation D[17]: "flood risk to the site is low however an FRA is required to show flood risk can be mitigated"[12], which this FRA report achieves.

* Protective Provisions are the requirements to be included in the TWAO where the Order Scheme could affect the statutory powers, obligations or assets of another body. Protective Provisions govern the relationship between the Order Scheme promoter – in this instance Network Rail – and the owner or undertaker of an asset. Generally, they cover the design, protection, mitigation, construction and operation of the asset or utility concerned – for example a watercourse or waterbody. Protective Provisions usually provide a means for the body concerned to monitor, enforce compliance with and to review the effectiveness of the matters covered by such provisions.

2.4.16 The 'SFRA Maps of Historic Flooding' for Oldham[14] and Tameside[15] (see Annex F) show no recorded history of flooding at or around the vicinity of the Order Scheme and its relevant works components.

2.4.17 The 'SFRA Maps of Historic Flooding' (see Annex F) indicate that sections of the Order Scheme and its associated relevant works components fall within the Surface Water Hotspots, which are areas at risk of surface water flooding (identified by the Greater Manchester Surface Water Management Plan (SWMP)). However, it is important to note that these hotspots represent a high-level identification of surface water flood risk. The Environment Agency Risk of Flooding from Surface Water map (detailed in the 'Flood Risk from Ordinary Watercourses' section) provides a more precise assessment, as discussed below. It reveals that the Order Scheme and its relevant works components have isolated pockets of varying surface water flood risk, with levels ranging from low to high.

3. Appraisal Of Impacts And Effects

3.1 Methodology and Data Sources

3.1.1 This assessment is based on the best available data at the time of writing. Desktop research was conducted to collate relevant flood risk and hydrological information via the Defra (Department for Environment, Food, and Rural Affairs) online data platform and other publicly available sources, including:

- Defra National LiDAR Programme[19].
- British Geology Survey (BGS) Geology of Britain Viewer[20].
- DEFRA Multi-Agency Geographic Information for the Countryside (MAGIC) Map[21].
- Cranfield LandIS Soilscapes Viewer[22].
- Places for Everyone Joint Development Plan[10].
- Greater Manchester Strategic Flood Risk Management Framework[11].
- Greater Manchester Level 1 Strategic Flood Risk Assessment[12].
- Environment Agency Flood Map for Planning (FMfP)[3].
- Environment Agency Risk of Flooding from Rivers & Sea[23].

[19] National LIDAR Programme - data.gov.uk

[20] GeoIndex - British Geological Survey

[21] Magic Map Application

[22] LandIS - Land Information System - Soilscapes soil types viewer

[23] Risk of Flooding from Rivers and Sea

- Environment Agency Risk of Flooding from Surface Water[24].
- Environment Agency Risk of Flooding from Reservoirs 'Dry Day'[25] and 'Wet Day'[26] Scenarios.

3.2 Relevant works components of the Order Scheme

3.2.1 The Order Scheme and its relevant works components – which require deemed planning and thus require assessment, are listed below and presented in Figures 12B.3.1 to 12B.4.24 in Volume 2 of this Report [**NR14**] and detailed in Table 1.1 of Chapter 1 in Volume 1 of this Report [**NR14**]:

- Stalybridge Tunnel Ground Stabilisation Works
- Printworks Road Site Compound, Access and Drainage Works
- Heyrod Hall Overbridge (MVL3/07), Site Compound and Access Works
- Works to Footbridge off Springbank Lane (MVL3/08)50
- Springbank Lane Overbridge Works (MVL3/09)
- Wakefield Road Plant Access and Compound
- Manchester Road Underbridge (MVL3/10) and Drainage Works
- Manchester Road Footbridge (MVL3/10A) Reconstruction
- Scout West Ramp Compound (supporting Ground Stabilisation Works)
- Scout West Laydown Compound (supporting Ground Stabilisation Works)
- Scout Spoil Point Compound (supporting Ground Stabilisation Works)
- Scout West Compound (supporting Ground Stabilisation Works)
- Scout Tunnel Ground Stabilisation Works
- Scout East Laydown Compound (supporting Ground Stabilisation Works)
- Scout East Car Park Compound (supporting Ground Stabilisation Works)
- Scout East Ramp Compound (supporting Ground Stabilisation Works)
- Scout East Access Compound (supporting Ground Stabilisation Works)
- Plevins Site Compound Works

[24] Risk of Flooding from Surface Water

[25] Reservoir Flood Extents - Dry Day (National)

[26] Reservoir Flood Extents - Wet Day (National)f

- Mossley Cottages Works
- Stamford Road Pipebridge (MVL3/12A) Diversion Works
- MVL3/13 (diversion of utilities bridge)
- Mossley Station Relocation Works and Site Compounds
- Scout West Compound
- Roughtown Road Overbridge (MVL3/17) Works
- Roughtown Road Footbridge (MVL3/18) Works
- Heron Lane Site Compound
- Stockport Road Level Crossing Diversion
- Wright Mill Overbridge (MVL3/20) Reconstruction
- Armit Road Site Compound
- Royal George Underbridge (MVL3/25) and Site Compound Works
- Oaklands Road Site Compound Works
- New Oldham Road Footbridge (proposed MVL3/27B) and Greenfield Station Platform 2 Secondary Means of Escape Works
- Oldham Road Overbridge (MVL3/28) Reconstruction
- Oldham Road Access and Drainage Works
- Uppermill Viaduct (MVL3/31) and Site Compound Works
- Former Butterhouse Tunnel Site Compound Works
- Saddleworth Old Railway Tunnel Compound
- Ravenstone Drive Footbridge (MVL3/35) Works
- Ward Lane Overbridge (MVL3/36) Reconstruction and Utilities Bridge Works
- Ward Lane Site Compound Works:
- Grandpa Greene's Site Compound 1
- Grandpa Greene's Site Compound 2
- Diggle Compound Works:
- Diggle Welfare, Rail hub and Office Compound
- Diggle Access and Diversion Works
- Sam Road Car Park Compound
- Diggle Road Overbridge (MVL3/39) and Utilities Bridge Works
- Standedge Canal Tunnel (MVL3/39A)
- Standedge Tunnel Bywash Underbridge (MVL3/39B) Replacement

3.3 Study Area Overview – Baseline Conditions and Hydrological Context

3.3.1 For the purposes of this assessment the Order Scheme and its relevant component works have been sectioned into six areas:

- Stalybridge, Tameside (two Order Scheme components: Stalybridge Tunnel Ground Stabilisation Work; Printworks Road Site Compound, Access and Drainage Works.
- Millbrook, Tameside (six Order Scheme components: Heyrod Hall Overbridge (MVL3/07), Site Compound and Access Works; Works to Footbridge off Springbank Lane (MVL3/08); Springbank Lane Overbridge Works (MVL3/09); Wakefield Road Plant Access and Compound; Manchester Road Underbridge (MVL3/10) and Drainage Works; Manchester Road Footbridge (MVL3/10A) Reconstruction).
- Mossley, Tameside (seventeen Order Scheme components: Scout West Ramp Compound (supporting Ground Stabilisation Works); Scout West Laydown Compound (supporting Ground Stabilisation Works); Scout Spoil Point Compound (supporting Ground Stabilisation Works); Scout West Compound (supporting Ground Stabilisation Works); Scout Tunnel Ground Stabilisation Works; Scout East Laydown Compound (supporting Ground Stabilisation Works); Scout East Car Park Compound (supporting Ground Stabilisation Works); Scout East Ramp Compound (supporting Ground Stabilisation Works); Scout East Access Compound (supporting Ground Stabilisation Works); Plevins Site Compound Works; Mossley Cottages Works; Stamford Road Pipebridge (MVL3/12A) Diversion Works; MVL3/13 (diversion of utilities bridge); Mossley Station Relocation Works and Site Compounds; Scout West Compound; Roughtown Road Overbridge (MVL3/17) Works; Roughtown Road Footbridge (MVL3/18) Works).
- Greenfield, Oldham (nine Order Scheme components: Heron Lane Site Compound; Stockport Road Level Crossing Diversion; Wright Mill Overbridge (MVL3/20) Reconstruction; Armit Road Site Compound; Royal George Underbridge (MVL3/25) and Site Compound Works; Oaklands Road Site Compound Works; New Oldham Road Footbridge (proposed MVL3/27B) and Greenfield Station Platform 2 Secondary Means of Escape Works; Oldham Road Overbridge (MVL3/28) Reconstruction; Greenfield Site Compounds Works)
- Uppermill, Oldham (five Order Scheme components: Oldham Road Access and Drainage Works; Uppermill Viaduct (MVL3/31) and Site Compound Works; Former Butterhouse Tunnel Site Compound Works; Saddleworth Old Railway Tunnel Compound).
- Diggle, Oldham (eleven Order Scheme components: Ravenstone Drive Footbridge (MVL3/35) Works; Ward Lane Overbridge (MVL3/36) Reconstruction and Utilities Bridge Works; Ward Lane Site Compounds Works; Grandpa Greene's Site Compound 1; Grandpa Greene's Site Compound 2; Diggle Welfare, Rail hub and Office

Compound; Diggle Access and Diversion Works; Sam Road Car Park Compound; Diggle Road Overbridge (MVL3/39) Reconstruction and Utilities Bridge Works; Standedge Canal Tunnel (MVL3/39A); Standedge Tunnel Bywash Underbridge (MVL3/39B) Replacement.

Topographic Terrain Overview

3.3.2 A high-level overview of the topographic terrain for each area, based on the LiDAR Digital Terrain Model (DTM) with a 1 m grid resolution from the Environment Agency Open Data, is as follows:

Stalybridge, Tameside

3.3.3 The Order Scheme and its associated relevant works components between Stalybridge and Millbrook are situated on gentle terrain with an average elevation of approximately 125 m Above Ordnance Datum (mAOD). There is no significant change in ground level as this section is an even-level tunnel. Refer to Figure 12B.3.1 in Volume 2 of this Report [**NR14**].

Millbrook, Tameside

3.3.4 The Order Scheme and its associated relevant works components between Millbrook and Mossley are situated on gentle terrain with an average elevation of approximately 133 m mAOD. The ground level changes by about 5 m, ascending north-east from 130 to 135 mAOD. Refer to Figure 12B.3.2 in Volume 2 of this Report [**NR14**].

Mossley, Tameside

3.3.5 The Order Scheme and its associated relevant works components between Mossley and Greenfield are situated on moderate topographic relief with an average elevation of approximately 153 mAOD. The ground level changes by about 25 m, ascending north-east from 140 to 165 mAOD. Refer to Figure 12B.3.3 in Volume 2 of this Report [**NR14**].

Greenfield, Oldham

3.3.6 The Order Scheme and its associated relevant works components between Greenfield and Uppermill are situated on gentle terrain with an average elevation of approximately 170 mAOD. The ground level changes by about 10 m, descending north-eastward from 165 to 175 mAOD. Refer to Figure 12B.3.4 in Volume 2 of this Report [**NR14**].

Uppermill, Oldham

3.3.7 The Order Scheme and its associated relevant works components between Uppermill and Diggle are situated on gentle terrain with an average elevation of approximately 170 mAOD. The ground level changes by about 10 m,

descending north-east from 175 to 165 mAOD. Refer to Figure 12B.3.5 in Volume 2 of this Report [**NR14**].

Diggle, Oldham

3.3.8 The Order Scheme and its associated relevant works components within Diggle are situated on gentle terrain with an average elevation of approximately 202 mAOD. The ground level changes by about 13 m, ascending north-east from 195 to 208 mAOD. Refer to Figure 12B.3.6 in Volume 2 of this Report [**NR14**].

3.4 Assessment of Flood Risk to the Relevant Works Components of the Order Scheme

3.4.1 This section outlines the potential flood risks to the Order Scheme and its relevant works components from all sources of flooding as defined in the NPPF. Appropriate high-level mitigation measures are proposed to support the Order Scheme design where flood risks are identified. These measures may require further consideration during the detailed design process.

3.4.2 Aerial photography and Ordnance Survey (OS) mapping were reviewed to identify nearby main rivers (managed by the Environment Agency) and ordinary watercourses (managed by the LLFA). Additionally, maps from the Environment Agency Open Data were reviewed to identify the Flood Zone and all sources of flood risk.

Flood Risk from Main Rivers

3.4.3 In England, the main rivers are large watercourses for which the Environment Agency is responsible, including maintenance, improvement, and flood risk mitigation. These rivers are represented in the 'Statutory Main River Map'[27], which has been plotted as 'Main Rivers' in Figures 12B.3.1 to 12B.4.24. Fluvial flooding occurs when a watercourse exceeds capacity due to high inflows into the catchment, causing it to overflow or overtop its banks.

3.4.4 An assessment of flood risk from Main Rivers has been undertaken for the Order Scheme and its associated relevant works components by reviewing the Environment Agency FMfP and Flood Risk from Rivers & Sea maps, as detailed below.

Environment Agency Flood Map for Planning

3.4.5 The Environment Agency's FMfP shows Flood Zones, which represent the likelihood and extent of land at risk of flooding from rivers and the sea at present-day. Flood Zones do not consider the presence and impact of flood

[27] Environment Agency's Statutory Main River Map

defences (except for Flood Zone 3b) unless those defences increase the potential flood risk. Flood Zones definitions are included in section 2.2.2.

3.4.6 The Environment Agency's FMfP does not map Flood Zone 3b; it is instead defined by the Local Planning Authorities (LPAs) in their Strategic Flood Risk Assessments (SFRA) in agreement with the Environment Agency. Nevertheless, Flood Zone 3b is usually included within the mapped extent of Flood Zone 3; Flood Zone 3b is thus not separately distinguished from Zone 3a in the Environment Agency's FMfP. The identification of functional floodplains takes local conditions into account and is not defined solely by rigid probability parameters.

3.4.7 The Environment Agency's FMfP is a high-level strategic illustration of the fluvial flood risk extent from main rivers. In England, the main rivers are large watercourses for which the Environment Agency is responsible. The Environment Agency's FMfP does not consider the possible impact of other sources of flood risk (such as surface water, ordinary watercourses, groundwater, infrastructure failure (sewers and reservoirs), and changing flood risk consequential to climate change). Hence, a location may still be at risk of flooding from other sources, and flood risk may change over the lifetime of a development. The Environment Agency's FMfP is a planning tool designed only to indicate flood risk, not necessarily predict whether a specific place will or will not flood. Therefore, it is not suitable for determining the flood risk of individual properties, as detailed information about each property is unknown.

Environment Agency Risk of Flooding from Rivers & Sea[23]

3.4.8 The Environment Agency's Flood Risk from Rivers & Sea map is a high-level illustration showing the extent and probability of flooding from rivers and the sea to the land at present-day, considering the presence and condition of flood defences, including the chance of them overtopping or failing. While flood defences reduce flood risk, they do not eliminate it as they can be overtopped, fail in extreme weather conditions, or if they are in poor condition.

3.4.9 The Flood Risk from Rivers & Sea map is a probabilistic dataset that shows the overall risk rather than the risk associated with a specific event or scenario. It categorises the likelihood into the following three annual probabilities:

- 'High' – represents greater than or equal to 1 in 30 (≥3.3% AEP) annual probability of flooding.
- 'Medium' – represents less than 1 in 30 but greater than or equal to 1 in 100 (<3.3% to ≥1% AEP) annual probability of flooding.
- 'Low' – represents less than 1 in 100 but greater than or equal to 1 in 1,000 (<1% to ≥0.1% AEP) annual probability of flooding.
- 'Very low' – represents less than 1 in 1,000 (<0.1% AEP) annual probability of flooding.

Stalybridge, Tameside

3.4.10 The River Tame, a main river, is 75 m southeast of the Order Scheme and its relevant works components between Stalybridge and Millbrook. It flows southwest, parallel to the existing railway line. The Order Scheme and its relevant works components in this area are within Flood Zone 1 and do not fall within the Environment Agency Risk of Flooding from Rivers & Sea map – refer to Figures 12B.4.1 and 12B.4.7 in Volume 2 of this Report [**NR14**], respectively.

Millbrook, Tameside

3.4.11 The River Tame is approximately 150 m east of the Order Scheme and its relevant works components between Millbrook and Mossley. It flows south, parallel to the existing railway line. The Order Scheme and its relevant works components in this area are within Flood Zone 1 and do not fall within the Environment Agency Risk of Flooding from Rivers & Sea map – refer to Figures 12B.4.2 and 12B.4.8 in Volume 2 of this Report [**NR14**], respectively.

Mossley, Tameside

3.4.12 The River Tame is approximately 150 m east of the Order Scheme and its relevant works components between Mossley and Greenfield. It flows south, parallel to the existing railway line. The majority of the Order Scheme and its relevant works components in this area are within Flood Zone 1 and do not fall within the Environment Agency Risk of Flooding from Rivers & Sea map, except for the following:

- Temporary land take for Scout West Compound – a small section along the southeastern fringe of this site is situated in Flood Zones 2 and 3 and falls within the medium and low risk of fluvial flood extent. Refer to Figures 12B.4.3 and 12B.4.9 in Volume 2 of this Report [**NR14**], respectively.
- Temporary land take for Egmont Street Replacement Car Park – is situated in Flood Zones 2 and 3, and falls within the high, medium, and low risk of fluvial flood extent. Refer to Figures 12B.4.3 and 12B.4.9 in Volume 2 of this Report [**NR14**], respectively.

Greenfield, Oldham

3.4.13 The River Tame is approximately 250 m southeast of the Order Scheme and its relevant works components between Greenfield and Uppermill. It flows southwest, parallel to the existing railway line. The majority of the Order Scheme and its relevant works components in this area are within Flood Zone 1 and do not fall within the Environment Agency Risk of Flooding from Rivers & Sea map, except for the following:

- Temporary land take of Heron Lane road to Heron Lane Site Compound – the mid-section of this site is situated in Flood Zones 2

and 3, and falls within the high-risk fluvial flood extent. Refer to Figures 12B.4.4 and 12B.4.10 in Volume 2 of this Report [**NR14**], respectively.

- Temporary land take for Armit Road Site Compound – this site is partially situated in Flood Zone 2 and falls within the low risk of fluvial flood extent. Refer to Figures 12B.4.4 and 12B.4.10 in Volume 2 of this Report [**NR14**], respectively.

3.4.14 The access route to Heron Lane Site Compound, Heron Lane road, is affected by fluvial flood risk, as it falls within Flood Zones 2 and 3 and the high and medium fluvial flood risk extent.

Uppermill, Oldham

3.4.15 The River Tame is approximately 80 m east of the Order Scheme and its relevant works components between Uppermill and Diggle. It flows south, parallel to the existing railway line. The majority of the Order Scheme and its relevant works components in this area are within Flood Zone 1 and do not fall within the Environment Agency Risk of Flooding from Rivers & Sea map extent, except for the following:

- Temporary land take of Saddleworth Rangers Replacement Car Park – this site is situated in Flood Zone 2 and falls within the low risk of fluvial flood extent. Refer to Figures 12B.4.5 and 12B.4.11 in Volume 2 of this Report [**NR14**], respectively
- Temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works – this site is situated in Flood Zone 2 and falls within the high, medium, and low risk of fluvial flood extent. Refer to Figures 12B.4.5 and 12B.4.11 in Volume 2 of this Report [**NR14**], respectively.

Diggle, Oldham

3.4.16 The Diggle Brook, a main river, is approximately 80 m east of the Order Scheme and its relevant works components within Diggle. It flows southwest, parallel to the existing railway line. The majority of the Order Scheme and its relevant works components in this area are within Flood Zone 1 and do not fall within the Environment Agency Risk of Flooding from Rivers & Sea map extent, except for the following:

- Temporary land take for Diggle Access and Diversion Works – falls within Flood Zone 2 and 3. Figures 12B.4.6 and 12B.4.12 in Volume 2 of this Report [**NR14**], respectively.

Summary of Flood Risk from Main Rivers

3.4.17 Based on the available data (Environment Agency's Flood Map for Planning, Risk of Flooding from Rivers & Sea Water map, and historical flooding), the Order Scheme and its relevant works components are not at risk of fluvial flooding from main rivers, as they are primarily located within Flood Zone 1

and outside the fluvial flood extent of the Environment Agency Risk of Flooding from Rivers & Sea map, except for the following that falls within Flood Zone 2 and/or 3 and the high, medium, and low fluvial flood risk extent:

- Temporary land take for Scout West Compound.
- Temporary land take for Egmont Street Replacement Car Park.
- Temporary land take of Heron Lane road to Heron Lane Site Compound.
- Temporary land take for Armit Road Site Compound.
- Temporary land take of Saddleworth Rangers Replacement Car Park
- Temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works.
- Temporary land take for Diggle Access and Diversion Works.

3.4.18 A range of mitigation measures will cover the sites listed above. This includes adhering to guidance, such as surface water management measures outlined in the Pollution Prevention and Incident Control Plan (PPICP) which forms part of the CoCP Part B, the Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site Guide (C811D)[28], Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]) and the CoCP. CoCP Part A [**NR17**] has already been prepared and is submitted with the TWAO application [NR16] to establish general construction practice and principles and the general environmental management system for the Order Scheme. CoCP Part A [**NR17**] will subsequently be supplemented by Part B, comprising a suite of specialist plans, including any such documents that are required through the implementation of planning conditions as included in the Order application document 'Request for deemed planning permission and statement of proposed conditions' [**NR12**]. CoCP Part B will be subject to the approval of each local authority for the Order Scheme Development that require planning permission.

3.4.19 Of particular relevance to flood risk, the CoCP will act as the mechanism to ensure that water resources are appropriately protected through the application of a comprehensive PPICP and Piling Risk Assessment. The PPICP will be a condition of the Order Scheme for the elements that require planning permission. The PPICP will include consideration of site drainage including surface runoff and discharge requirements arising. The PPICP will seek, where necessary, any appropriate consents and approval for discharges to sewers or controlled waters in accordance with EA guidelines.

3.4.20 Potential mitigation also includes agreement of Protective Provisions with asset owners such as the EA or LLFA. Although no additional flood risk

[28] Environmental good practice on site guide (fifth edition)

mitigations are necessary beyond compliance with such mitigation measures, several flood resilience measures have been recommended under the 'Mitigation and Consideration of Control Measures' section of this report to prevent increase flood risk and minimise potential flood-related hazards, especially at high-risk sites as listed above.

Flood Risk from Ordinary Watercourses and Surface Water

3.4.21 Ordinary watercourses are watercourses through which water flows and do not form part of a main river. This includes smaller rivers, streams, ditches, drains, cuts, dykes, sluices, and sewers (excluding public sewers, which are drainage networks serving more than one property, including associated manholes, and is managed by water companies).

3.4.22 Surface water flooding occurs when rainwater exceeds the capacity of the sewer or drainage network systems or does not infiltrate into the ground and instead pools or flows over the ground as surface water runoff. Surface water flooding can be difficult to predict as it depends on rainfall volume and location, which are challenging to forecast. Local features can significantly affect the occurrence and severity of surface water flooding. Typically, runoff occurs on sloping land and impermeable ground surfaces. The ground can be impermeable either naturally, through soil type and geology, or unnaturally, due to development such as large areas of impervious material (e.g. paving and roads).

3.4.23 The responsibility for managing the risk of flooding from ordinary watercourses (fluvial) and surface water (pluvial) is the LLFA, in this case, TMBC and OMBC.

3.4.24 Understanding flood risk from ordinary watercourses is limited, as detailed hydraulic modelling is not always available. Subsequently, flood risk from ordinary watercourses is included under the term 'surface water' and is considered within the Environment Agency's Risk of Flooding from Surface Water map. This inclusion is due to ordinary watercourses flooding through mechanisms similar to surface water flooding, which is the methodology used by the Environment Agency for its Risk of Flooding from Surface Water mapping.

3.4.25 The Environment Agency's Risk of Flooding from Surface Water map is a high-level illustration showing the extent and probability of surface water at present-day. The map is not suitable for identifying whether an individual site will flood from surface water, as information regarding floor levels, construction characteristics, or designs of structures is not considered.

3.4.26 The Environment Agency's Risk of Flooding from Surface Water map is a probabilistic dataset, meaning that it shows the overall risk rather than the

risk associated with a specific event or scenario. It categorises the likelihood into the following three annual probabilities[24]:

- High – represents greater than or equal to 1 in 30 (≥3.3% AEP) annual probability of flooding.
- Medium – represents less than 1 in 30 but greater than or equal to 1 in 100 (<3.3% to ≥1% AEP) annual probability of flooding.
- Low – represents less than 1 in 100 but greater than or equal to 1 in 1,000 (<1% to ≥0.1% AEP) annual probability of flooding.

3.4.27 An assessment of flood risk from ordinary watercourses has been undertaken for the Order Scheme and its associated relevant works components by reviewing the Environment Agency Risk of Flooding from Surface Water map, as detailed below.

Stalybridge, Tameside

3.4.28 Three ordinary watercourses are near the Order Scheme and its relevant works components between Stalybridge and Millbrook. These include the Fern Bank (approximately 200 m southeast, flowing southwest adjacent to the existing railway line), Acres Brook (approximately 300 m southeast, flowing southwest adjacent to the existing railway line), and Huddersfield Narrow Canal (approximately 300 m southeast, flowing southwest parallel to the existing railway line). A review of the Environment Agency Risk of Flooding from Surface Water map shows the Order Scheme and its relevant works components between Stalybridge and Millbrook have pockets of low, medium, and high risk of surface flooding. Refer to Figure 12B.4.13 in Volume 2 of this Report [**NR14**].

Millbrook, Tameside

3.4.29 Two ordinary watercourses are near the Order Scheme and its relevant works components between Millbrook and Mossley. These include the Swineshaw Brook (approximately 250 m east, flowing southwest adjacent to the existing railway line) and Huddersfield Narrow Canal (approximately 250 m east, flowing south parallel to the existing railway line). A review of the Environment Agency Risk of Flooding from Surface Water map shows the Order Scheme and its relevant works components between Millbrook and Mossley have pockets of low, medium, and high risk of flooding. Refer to Figure 12B.4.14 in Volume 2 of this Report [**NR14**], respectively.

Mossley, Tameside

3.4.30 Two ordinary watercourses are near the Order Scheme and its relevant works components between Mossley and Greenfield. These include the Micklehurst Brook (approximately 250 m east, flowing west, adjacent to the existing railway line) and Huddersfield Narrow Canal (approximately 250 m east, flowing south parallel to the existing railway line). A review of the Environment Agency Risk of Flooding from Surface Water map shows the

Order Scheme and its relevant works components between Mossley and Greenfield have pockets of low, medium, and high risk of flooding. Refer to Figure 12B.4.15 in Volume 2 of this Report [**NR14**].

Greenfield, Oldham

3.4.31 Two ordinary watercourses are near the Order Scheme and its relevant works components between Greenfield and Uppermill. These include Clough Lane (approximately 150 m southeast, flowing west adjacent to the existing railway line) and Huddersfield Narrow Canal (approximately 120 m southeast, flowing southwest parallel to the existing railway line). A review of the Environment Agency Risk of Flooding from Surface Water map shows the Order Scheme and its relevant works components between Greenfield and Uppermill have pockets of low, medium, and high risk of flooding. Refer to Figure 12B.4.16 in Volume 2 of this Report [**NR14**].

Uppermill, Oldham

3.4.32 Two ordinary watercourses are near the Order Scheme and its relevant works components between Uppermill and Diggle. These include the White Brook (approximately 300 m east, flowing southwest adjacent to the existing railway line) and Huddersfield Narrow Canal (approximately 50 m east, flowing south parallel to the existing railway line). A review of the Environment Agency Risk of Flooding from Surface Water map shows the Order Scheme and its relevant works components between Uppermill and Diggle have pockets of low, medium, and high risk of flooding. Refer to Figure 12B.4.17 in Volume 2 of this Report [**NR14**].

Diggle, Oldham

3.4.33 The Huddersfield Narrow Canal, an ordinary watercourse, is approximately 0 to 140 m from the Order Scheme and its relevant works components within Diggle. It flows southwest parallel to the existing railway line. A review of the Environment Agency Risk of Flooding from Surface Water map shows the Order Scheme and its relevant works components in Diggle have pockets with low, medium, and high risk of flooding. Refer to Figure 12B.4.18 in Volume 2 of this Report [**NR14**].

Future Climate Change Allowances

3.4.34 The majority of the proposed works are temporary works which will not be subject to the future impacts of climate change. However, permanent works will require consideration of climate change in order to demonstrate that they will be safe for the lifetime of the development (understood to be to 2125).

3.4.35 The two permanent works – Mossley Station Boundary and Oaklands Road Compound - are located in the Flood Zone 1.

3.4.36 The potential impact of future climate change to the permanent works were assessed using the EA Flood Zone Flood Map for Planning with Climate Change allowance extents. This dataset only considers the ‘Central’ Climate

Change allowance which is less than the 'Higher Central' allowance appropriate for 'essential infrastructure'. However the difference between the 'Central' and 'Higher Central' allowances for the 2080's epoch (to 2125) in the location of the works (Upper Mersey Management Catchment) is 12% (41% to 53%).

3.4.37 Based on the EA climate change Flood Map for Planning extents, the permanent works are located in Flood Zone 1 with the 'Central' allowance to 2125. The permanent works – as 'essential infrastructure', are appropriate for Flood Zone 1 and 2. As the permanent works are located outside the future 'Central' Flood Zone 2 it is considered that the additional 12% for the 'Higher Central' climate change will not result in the permanent works being impacted by the smaller Flood Zone 3 climate change extent, which would require additional mitigation works.

3.4.38 It is therefore considered that the permanent works will be safe for the lifetime of the development – as required by the Exception Test.

Summary of Flood Risk from Ordinary Watercourses

3.4.39 The Order Scheme and its relevant works components encompass areas with varying levels of surface water flood risk, including low, medium, and high, as identified through the Environment Agency Risk of Flooding from Surface Water map. Much of the Order Scheme involves upgrading the existing infrastructure along the Network Rail railway line, which already has a range of design features and mitigation measures to mitigate surface water flood risk. However, there are three new permanent works, which are as follows:

- Mossley Station Relocation Works
- Oldham Road Footbridge (proposed MVL3/27B)
- Greenfield Station Platform 2 Secondary Means of Escape Works (as part of Greenfield Station Redevelopment Works)

3.4.40 The new Mossley Station and Greenfield Station Platform 2 Secondary Means of Escape Works will be constructed on elevated platforms above ground level, and similarly, the New Oldham Road Footbridge (proposed MVL3/27B) is a structure asset elevated above ground level. Therefore, they are less susceptible to surface water flooding.

3.4.41 Any potential surface water flood risk to the Order Scheme and its relevant works components will be covered by a range of mitigation measure, potentially including Protective Provisions. This mitigation includes adhering to guidance, such as surface water management measures outlined in the PPICP, CIRIA Environmental Good Practice on Site Guide (C811D), Network Rail's requirements detailed in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]) and CoCP Part B will be prepared setting out measures to be implemented to address relevant Order Scheme

impacts, ensuring that works are appropriately managed and impacts and effects reduced where feasible.

3.4.42 Therefore, no additional flood risk mitigation measures are required beyond compliance with these mitigation measures.

Flood Risk from Groundwater

3.4.43 Groundwater flooding occurs when the water table (upper surface of the groundwater) rises above ground level due to prolonged or intense rainfall. This can lead to flooding in below-ground and low-lying areas, such as underpasses and basements. Groundwater flooding is more likely in regions underlain by permeable rock (aquifers), but it can also occur in areas with sand and gravel floodplains.

3.4.44 Groundwater flooding is typically localised and does not generally pose a significant risk to life due to the slow rate at which the groundwater level rises above ground as overland flow. However, it can cause substantial property damage, especially in urban areas, and pose additional risks to the environment and ground stability.

3.4.45 Groundwater levels will likely be in hydraulic continuity with nearby watercourses, including the River Tame and Diggle Brook, which are likely the primary influence on the water table at the Order Scheme and its relevant works components. The extent of this continuity depends on factors such as the permeability, hydraulic gradient, and the connectivity between groundwater and surface waterbodies.

3.4.46 The responsibility for managing local flood risk from groundwater lies with the LLFA, in this case, TMBC and OMBC. Due to the complex below-ground processes of groundwater flooding, it is a difficult flood source to precisely predict and identify which areas are at risk of it. The risk of groundwater flooding varies greatly depending on local ground conditions and the built environment.

3.4.47 Detailed groundwater information on the whole Order Scheme is unavailable. The Groundsure assessment reports (Annex H: Groundsure Report Of Plevins Site Compound Works Groundwater Flood Risk Annex I: Groundsure Report Of Armit Road Site Compound Groundwater Flood Risk, Annex J: Groundsure Report of Saddleworth Rangers Replacement Car park Groundwater Flood Risk) – which contains groundwater flood risk, assessed based on a 1 in 100-year return period (1% AEP) and 5 m DTM – were only conducted for the sites close to the watercourse, where groundwater would be expected to be linked to water levels in channel and where excavation is expected to take place, as discussed below. Nevertheless, the hydrogeological characteristics and other information (soil type, superficial and bedrock geology, and aquifer designation) are available

to assess the Order Scheme and its relevant works components groundwater condition, as discussed below.

Stalybridge, Tameside

Soil Type[22]

3.4.48 The soil type underlying the Order Scheme and its relevant works components between Stalybridge and Millbrook is Soilscape 17, which refers to slowly permeable, seasonally wet, clayey soils with impeded drainage that drain to stream networks.

Bedrock and Superficial Deposits[20]

3.4.49 The bedrock geology that underlies the Order Scheme and its relevant works components between Stalybridge and Millbrook is a mixture of:

- Pennine Lower Coal Measures Formation (mudstone, siltstone, and sandstone) – typically has a variable permeability depending on the proportion of each material; sandstone layers generally have moderate permeability, while mudstone and siltstone layers have low permeability.
- Woodhead Hill Rock (sandstone) – typically has high permeability due to its coarse-grained texture that allows water to pass through more easily; Rough Rock (sandstone) generally has high permeability due to its coarse-grained texture.
- Rossendale Formation (mudstone and siltstone) – generally have a low permeability.
- Huddersfield White Rock (sandstone) – typically has a high permeability due to its coarse-grained texture, which allows water to pass through more easily.

3.4.50 The superficial deposit that underlies the Order Scheme and its relevant works components between Stalybridge and Millbrook is a mixture of:

- Till, Devensian (diamicton) – generally have a low permeability due to its dense and compact nature.
- Head (clay, silt, sand, and gravel) – typically has a highly variable permeability depending on the proportion of each material; clay and silt components have low permeability, while sand and gravel layers exhibit higher permeability.

Aquifer Designation[21]

3.4.51 The bedrock between Stalybridge and Millbrook is designated as a Secondary A aquifer. This type of aquifer consists of permeable geological layers that support the local water table and can sustain water supplies on a local scale. In some cases, these aquifers may be an important source of

river baseflow. During prolonged or intense rainfall, the water table may rise above the ground level, potentially resulting in groundwater flooding under extreme conditions. Secondary A aquifers were formerly classified as minor aquifers under the previous classification system.

Millbrook, Tameside

Soil Type

3.4.52 The soil underlying the Order Scheme and its relevant works components between Millbrook and Mossley is a mix of Soilscapes 16 and 17. Soilscape 16 refers to very acidic, loamy upland soils with a wet, peaty surface that is characteristically saturated and drains to local streams. Soilscape 17 refers to slowly permeable, seasonally wet, clayey soils with impeded drainage that drain to stream networks.

Bedrock and Superficial Deposits

3.4.53 The bedrock geology that underlies the Order Scheme and its relevant works components between Millbrook and Mossley is a mixture of:

- Fletcher Bank Grit (sandstone) – typically has high permeability due to its coarse-grained texture, allowing water to pass through more easily.
- Marsden Formation (mudstone and siltstone) – typically has low permeability due to its fine-grained nature, which does not allow water to pass through more easily due to its compact nature.

3.4.54 The superficial deposit that underlies this area is:

- Head (clay, silt, sand, and gravel) – which has a highly variable permeability depending on the proportion of each material; clay and silt components have low permeability, while sand and gravel layers exhibit high permeability.

Aquifer Designation

3.4.55 The bedrock between Millbrook and Mossley is designated as a Secondary A aquifer. This type of aquifer consists of permeable geological layers that support the local water table and can sustain water supplies on a local scale. In some cases, these aquifers may be an important source of river baseflow. During prolonged or intense rainfall, the water table may rise above the ground level, potentially resulting in groundwater flooding under extreme

conditions. Secondary A aquifers were formerly classified as minor aquifers under the previous classification system.

Mossley, Tameside

Soil Type

3.4.56 The soil underlying the Order Scheme and its relevant works components between Mossley and Greenfield is Soilscape 6, which is freely draining, slightly acidic, loamy soil that drains to local groundwater and rivers.

Bedrock and Superficial Deposits

3.4.57 The bedrock geology that underlies the Order Scheme and its relevant works components between Mossley and Greenfield is a mixture of:

- Fletcher Bank Grit (sandstone) – typically has high permeability due to its coarse-grained texture, which allows water to pass through more easily.
- Marsden Formation (mudstone and siltstone) – typically has low permeability due to its fine-grained nature, which does not allow water to pass through more easily due to its compact nature.
- Upper Kinderscout Grit (sandstone) – typically has a relatively high permeability due to its coarse-grained, cross-bedded nature that allows water to pass through more easily.
- Hebden Formation (mudstone and siltstone) – generally exhibits low permeability due to its fine-grained and compact nature, which restricts fluid flow.

3.4.58 The area of the Order Scheme and its relevant works components between Mossley and Greenfield has no superficial deposits.

Groundwater Flood Risk

3.4.59 Temporary right of access of Egmont Street road to Plevins Site Compound Works – according to the Groundsure report, the groundwater flood risk of this road is primarily low, with the southwestern section assessed as negligible risk (Annex H).

3.4.60 Temporary land take for Egmont Street Replacement Car Park – according to the Groundsure report, the groundwater flood risk of this site primarily negligible (Annex H).

Aquifer Designation

3.4.61 The bedrock between Millbrook and Mossley is designated as a Secondary A aquifer, which supports local water supplies and contributes to river base flow. This aquifer indicates that groundwater sustains the water table and contributes to the baseflow of surface watercourses. Therefore, during

prolonged or intense rainfall, water table levels can rise above the surface, potentially leading to groundwater flooding in extreme conditions.

Greenfield, Oldham

Soil Type

3.4.62 The soil underlying the Order Scheme and its relevant works components between Greenfield and Uppermill is a mix of Soilscapes 6 and 17. Soilscape 6 refers to freely draining, slightly acidic, loamy soil that drains to local groundwater and rivers. Soilscape 17 refers to slowly permeable, seasonally wet, clayey soils with impeded drainage that drain to stream networks.

Bedrock and Superficial Deposits

3.4.63 The bedrock geology that underlies the Order Scheme and its relevant works components from Mossley, heading north to Greenfield is a mixture of:

- Marsden Formation (mudstone and siltstone) – typically has low permeability due to its fine-grained nature, which does not allow water to pass through more easily due to its compact nature.
- Lower Kinderscout Grit (sandstone) – typically has a relatively high permeability due to its medium to very coarse grain size and the presence of crossbedding that allows fluids to pass through more easily.
- Hebden Formation (mudstone and siltstone) – generally exhibits low permeability due to its fine-grained and compact nature, which restricts fluid flow.

3.4.64 The area of the Order Scheme and its relevant works components between Greenfield and Uppermill has no superficial deposits.

Aquifer Designation

3.4.65 The bedrock between Mossley and Greenfield is designated as a Secondary A aquifer. This type of aquifer consists of permeable geological layers that support the local water table and can sustain water supplies on a local scale. In some cases, these aquifers may be an important source of river baseflow. During prolonged or intense rainfall, the water table may rise above the ground level, potentially resulting in groundwater flooding under extreme

conditions. Secondary A aquifers were formerly classified as minor aquifers under the previous classification system.

Groundwater Flood Risk

3.4.66 Temporary land take for Armit Road Site Compound – according to the Groundsure report, the groundwater flood risk along this route is primarily low (Annex I).

3.4.67 Temporary land take of Saddleworth Rangers Replacement Car Park – according to the Groundsure report, the groundwater flood risk along this site is primarily negligible (Annex J).

Uppermill, Oldham

Soil Type

3.4.68 The soil type underlying the Order Scheme and its relevant works components between Uppermill and Diggle is Soilscape 17. Soilscape 17 refers to slowly permeable, seasonally wet, clayey soils with impeded drainage that drain to stream networks.

Bedrock and Superficial Deposits

3.4.69 The bedrock geology that underlies the Order Scheme and its relevant works components between Uppermill and Diggle is:

- Lower Kinderscout Grit (sandstone) – typically has a relatively high permeability due to its medium to very coarse grain size and the presence of crossbedding that allows fluids to pass through more easily.

3.4.70 The area of the Order Scheme and its relevant works components between Uppermill and Diggle has no superficial deposits.

Aquifer Designation

3.4.71 The bedrock between Uppermill and Diggle is designated as a Secondary A aquifer. This type of aquifer consists of permeable geological layers that support the local water table and can sustain water supplies on a local scale. In some cases, these aquifers may be an important source of river baseflow. During prolonged or intense rainfall, the water table may rise above the ground level, potentially resulting in groundwater flooding under extreme

conditions. Secondary A aquifers were formerly classified as minor aquifers under the previous classification system.

Groundwater Flood Risk

3.4.72 Temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works – according to the Groundsure report, the groundwater flood risk at this site is primarily low (Annex K).

Diggle, Oldham

Soil Type

3.4.73 The soil underlying the Order Scheme and its relevant works components in Diggle is a mix of Soilscapes 6 and 17. Soilscape 6 refers to freely draining, slightly acidic, loamy soil that freely drains to local groundwater and rivers. Soilscape 17 refers to slowly permeable, seasonally wet, clayey soils with impeded drainage that drain to stream networks.

Bedrock and Superficial Deposits

3.4.74 The bedrock geology that underlies the Order Scheme and its relevant works components in Diggle is:

- Shale Grit (sandstone) – typically has moderate to high permeability due to its coarse grain size and interconnected pore spaces that allow fluids to move through the rock relatively more easily.

3.4.75 The area of the Order Scheme and its relevant works components in Diggle has no superficial deposits.

Aquifer Designation

3.4.76 The bedrock in Diggle is designated as a Secondary A aquifer. This type of aquifer consists of permeable geological layers that support the local water table and can sustain water supplies on a local scale. In some cases, these aquifers may be an important source of river baseflow. During prolonged or intense rainfall, the water table may rise above the ground level, potentially resulting in groundwater flooding under extreme conditions. Secondary A aquifers were formerly classified as minor aquifers under the previous classification system.

Groundwater Flood Risk

3.4.77 Temporary land take for access to Diggle Welfare, Rail hub and Office Compound; and Diggle Access and Diversion Works – according to the

Groundsure report, the groundwater flood risk at this site is primarily negligible (Annex L).

Summary of Flood Risk from Groundwater

3.4.78 Based on the area's hydrogeological characteristics and other information (soil type, superficial and bedrock geology, and aquifer designation), findings from the Groundsure assessments (which indicated negligible to low risk where conducted), and historical flood records – the risk of groundwater flooding is considered low for the Order Scheme and its relevant works components. Even in the rare event that groundwater flooding does occur, it is unlikely to pose a significant risk, as groundwater typically rises slowly above ground level and is generally of insufficient volume to cause widespread and consequential flood damage.

3.4.79 While groundwater flood risk should not typically prevent development, it is crucial to ensure that developments are not placed at unnecessary risk or exacerbate existing flood risk. The Order Scheme and its relevant works will involve minimal below-ground construction that could alter subsurface flow regimes.

3.4.80 Where below-ground work is necessary, it will be designed to withstand hydrostatic pressure and prevent groundwater ingress, ensuring it is not vulnerable to groundwater flooding. The depth of the underlying aquifers is expected to be greater than that of any proposed below-ground elements, and there are no proposals to discharge into the ground. Any potential groundwater emergence at the surface will be appropriately managed through the surface water management measures outlined in the PPICP, which forms part of the CoCP Part B.

3.4.81 Given the low groundwater flood risk of the Order Scheme and its relevant works components, the following mitigation measures are deemed sufficient, and no additional flood risk mitigation measures are required beyond them. This includes the surface water management measures outlined in the PPICP, CIRIA Environmental Good Practice on Site Guide (C811D), adherence to requirements included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]) and the measures to be developed and implemented through the CoCP Part B.

Flood Risk from Reservoirs and Canals

3.4.82 An assessment of flood risk from canals and reservoirs has been undertaken for the Order Scheme and its associated relevant works components by reviewing the Huddersfield Narrow Canal Modelled Hazard Zone[14,15] and the Environment Agency Risk of Flooding from Reservoir.

Canals

3.4.83 Canals are artificial waterways that often contain features such as locks and dams to regulate water levels, making them less susceptible to flooding than natural watercourses. Canal flooding is most likely to occur due to residual

risks related to defences, such as overtopping of canal banks, breaching of embanked reaches, or asset (gate) failure.

3.4.84 The Order Scheme and its relevant works components do not fall within the Huddersfield Narrow Canal Modelled Hazard Zone (see Annex G)[11]. Although some sections of the Order Scheme and its relevant works components are on low-level sites, very near the Huddersfield Narrow Canal (e.g. the temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works, is at equivalent elevation as and <1 m from the canal), the risk of canal flooding is low. This is because canals are artificial waterways where water flow is strongly controlled, thus making them less prone to flooding compared to natural watercourses during storm events.

Reservoir

3.4.85 Reservoirs are large natural or artificial lakes that store water for public supply, irrigation, and industrial use. Reservoirs play a crucial role in managing water resources, especially in areas with water fluctuations. The Environment Agency is responsible for managing flood risk from reservoirs.

3.4.86 The Environment Agency's Reservoir Flood map shows where water may go in the very unlikely event of a dam or reservoir failure. It should be noted that more than one reservoir could affect a location simultaneously. There are two flooding scenarios on the Reservoir Flood map:

3.4.87 'Dry day' scenario – predicts the flooding that would occur if the dam or reservoir failed when rivers are at normal levels[25]; and

3.4.88 'Wet day' scenario – predicts how much worse the flooding might be if a river is already experiencing an extreme natural flood[26].

3.4.89 An assessment of flood risk from reservoirs for the Order Scheme and its associated relevant works components was conducted by reviewing the Environment Agency Risk of Flooding from Reservoirs map, as detailed below.

Stalybridge, Tameside

3.4.90 Reservoirs – small sections of the Order Scheme and its relevant works components between Stalybridge and Millbrook fall within the reservoir flood extent for both dry and wet day scenarios in the very unlikely event of a reservoir failure[15]. Refer to Figure 12B.4.19 in Volume 2 of this Report [**NR14**].

3.4.91 Canals – the Order Scheme and its relevant works components between Stalybridge and Millbrook do not fall within the Huddersfield Narrow Canal Modelled Hazard Zone[11], and there are no recorded incidents of canal

flooding nearby. Thus, there is no risk of flooding from canals in this area (see Annex G).

Millbrook, Tameside

3.4.92 Reservoirs – sections of the Order Scheme and its relevant works components between Millbrook and Mossley fall within the reservoir flood extent for both dry and wet day scenarios in the very unlikely event of a reservoir failure[15]. Refer to Figure 12B.4.20 in Volume 2 of this Report [**NR14**].

3.4.93 Canals – the Order Scheme and its relevant works components between Millbrook and Mossley fall within the Huddersfield Narrow Canal Modelled Hazard Zone[11], and there are no recorded incidents of canal flooding nearby. Thus, there is no risk of flooding from canals in this area (see Annex G).

Mossley, Tameside

3.4.94 Reservoirs – sections of the Order Scheme and its relevant works components between Mossley and Greenfield fall within the reservoir flood extent for both dry and wet day scenarios in the very unlikely event of a reservoir failure[15]. Refer to Figure 12B.4.21 in Volume 2 of this Report [**NR14**].

3.4.95 Canals – the Order Scheme and its relevant works components between Mossley and Greenfield do not fall within the Huddersfield Narrow Canal Modelled Hazard Zone[11], and there are no recorded incidents of canal flooding nearby. Thus, there is no risk of flooding from canals in this area (see Annex G).

Greenfield, Oldham

3.4.96 Reservoirs – small sections of the Order Scheme and its relevant works components between Greenfield and Uppermill fall within the reservoir flood extent for both dry and wet day scenarios in the very unlikely event of a reservoir failure[14]. Refer to Figure 12B.4.22 in Volume 2 of this Report [**NR14**].

3.4.97 Canals – the Order Scheme and its relevant works components between Greenfield and Uppermill do not fall within the Huddersfield Narrow Canal Modelled Hazard Zone[11], and there are no recorded incidents of canal flooding nearby. Thus, there is no risk of flooding from canals in this area (see Annex G).

Uppermill, Oldham

3.4.98 Reservoirs – sections of the Order Scheme and its relevant works components between Uppermill and Diggle fall within the reservoir flood extent for both dry and wet day scenarios in the very unlikely event of a

reservoir failure[14]. Refer to Figure 12B.4.23 in Volume 2 of this Report [**NR14**].

3.4.99 Canals – the Order Scheme and its relevant works components between Uppermill and Diggle do not fall within the Huddersfield Narrow Canal Modelled Hazard Zone[11], and there are no recorded incidents of canal flooding nearby. Thus, there is no risk of flooding from canals in this area (see Annex G).

Diggle, Oldham

3.4.100 Reservoirs – sections of the Order Scheme and its relevant works components in Diggle fall within the reservoir flood extent for both dry and wet day scenarios in the very unlikely event of a reservoir failure[14]. Refer to Figure 12B.4.24 in Volume 2 of this Report [**NR14**].

3.4.101 Canals – the Order Scheme and its relevant works components within Diggle do not fall within the Huddersfield Narrow Canal Modelled Hazard Zone[11], and there are no recorded incidents of canal flooding nearby. Thus, there is no risk of flooding from canals in this area (see Annex G).

Summary of Flood Risk from Reservoirs and Canals

3.4.102 Sections of the Order Scheme and its relevant works components fall within the risk of flooding if the reservoir(s) fail. However, the risk of reservoir failure is very unlikely based on historical flood records and regular inspections, surveys, and maintenance by the operating authorities; reservoirs in the UK have an excellent safety record, with no reservoir failure incidents resulting in the loss of life since 1925[29].

3.4.103 The Order Scheme and its relevant works components are not at risk of canal flooding. This is based on historical flood records, their location outside the Canal Hazard Zones, and canals being strongly controlled waterways with regulated water levels.

3.4.104 Given the absence of tidal flood risk and the low flood risk from reservoirs and canals for the Order Scheme and its relevant works components, the proposed mitigation measures are deemed sufficient, and no additional flood risk mitigation measures are required for the Order Scheme and its relevant works components. These include the surface water management measures outlined in the PPICP, CIRIA Environmental Good Practice on Site Guide (C811D), adherence to NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]), a requirement to ensure that the measures to be set out in the CoCP Part B are implemented to address Order Scheme impacts,

[29] Biennial report on reservoir safety - GOV.UK (www.gov.uk)

ensuring that works are appropriately managed and the potential for the use of Protective Provisions as necessary.

3.5 Impacts of the Order Scheme on Flood Risk Elsewhere

3.5.1 An evaluation of the potential flood risk impact on third-party properties and land due to the Order Scheme and its relevant works components has also been conducted, as detailed below.

Impact of the Order Scheme on Fluvial Flood Risk Elsewhere

3.5.2 Development on floodplain can reduce the water storage capacity and alter overland flowpaths, potentially displacing floodwater changing flood extents and depths in the surrounding area. The Order Scheme and its relevant works components are primarily in Flood Zone 1 and outside the 0.1% AEP fluvial flood extent of the Environment Agency Risk of Flooding from Rivers and Sea map. However, the following elements fall within Flood Zone 2 and/or 3, and the high-risk 1% AEP fluvial flood extent:

- Temporary land take for Scout West Compound.
- Temporary land take for Egmont Street Replacement Car Park, and temporary right of access of Egmont Street road to Plevins Site Compound Works.
- Temporary land take of Heron Lane road to Heron Lane Site Compound.
- Temporary land take for Armit Road Site Compound.
- Temporary land take of Saddleworth Rangers Replacement Car Park
- Temporary land take for Uppermill Viaduct (MVL3/31) and Site Compound Works.
- Temporary land take for Diggle Access and Diversion Works.

3.5.3 The areas surrounding the sites listed above are already protected to prevent increased fluvial flood risk under mechanisms, including flood mechanisms or floodplain storage; therefore, no further flood risk mitigation measures are required. The impact on fluvial flood risk to the surrounding area as a result of the Order Scheme and its relevant works is thus considered low.

Impact of the Order Scheme on Surface Water Flood Risk Elsewhere

3.5.4 Development in areas prone to surface water ponding or that alter overland flow can displace stormwater runoff and increase surface water flood risk to the surrounding area. Increased impermeable surfaces can reduce ground infiltration capacity, leading to higher volumes and rates of surface water

runoff to nearby watercourses or drainage systems, potentially causing localised flooding.

3.5.5 Most permanent aspects of the Order Scheme will not introduce additional impermeable surfaces, as it primarily involves upgrading the existing infrastructure along the Network Rail railway line, so there would only be very limited change to flood mechanisms or floodplain storage. However, some elements of the Order Scheme include constructing new assets that may seemingly increase the impermeable surface area of the floodplain:

- (New) Mossley Station Relocation Works – will take place on vacant land approximately 300 m north of the existing Mossley Station. The site for the new station has a low to medium risk of surface water flooding, whereas the site of the existing station has a higher risk of surface water flooding, ranging from high to low. The relocation works effectively reduce the surface water flood risk exposure of Mossley Station; hence, there is no impact on surface water flood risk from this element of the Order Scheme to the surrounding area. Refer to Figure 12B.4.15 in Volume 2 of this Report [**NR14**].
- Greenfield Station Platform 2 Secondary Means of Escape Works (as part of Greenfield Station Redevelopment Works) – will replace the existing MVL3/27A Greenfield Station footbridge with a new, equivalent footbridge with lift shafts, in addition to a minor (<1 ha) extension of the existing Greenfield Station platform. As the new replacement footbridge is being constructed in a like-for-like manner to the existing footbridge, and the minor platform extension does not occupy a significant footprint area, there is no impact on surface water flood risk from this element of the Order Scheme to the surrounding area. Refer to Figure 12B.4.16 in Volume 2 of this Report [**NR14**].
- New Oldham Road Footbridge (proposed MVL3/27B) – will involve constructing a new footbridge adjacent to the existing Oldham Road Overbridge (MVL3/28). As the new footbridge is elevated above ground level, it effectively does not increase the impermeable area of the floodplain; hence, there is no impact on surface water flood risk from this element of the Order Scheme to the surrounding area. Refer to Figure 12B.4.16 in Volume 2 of this Report [**NR14**].

3.5.6 Although three works of the Order Scheme – Mossley Station Relocation, Greenfield Station Platform 2 Secondary Means of Escape Works, and New Oldham Road Footbridge (proposed MVL3/27B) – entails constructing new assets rather than upgrades to infrastructure, the overall change in impermeable area is minimal and not considered significant enough to

displace floodplain storage or increase the risk of surface water flooding in the surrounding area.

3.5.7 Therefore, no further flood risk mitigation measures are required. The impact on surface water flood risk to the surrounding area as a result of the Order Scheme and its relevant works is thus considered low.

Impact of the Order Scheme on Groundwater Flood Risk Elsewhere

3.5.8 The risk of groundwater flooding across the Order Scheme and its relevant works components is considered low, even during periods of high rainfall or elevated water tables. This is based on the area's hydrogeological characteristics and other information (soil type, superficial and bedrock geology, and aquifer designation), findings from the Groundsure assessments (Annex H: Groundsure Report Of Plevins Site Compound Works Groundwater Flood Risk Annex I: Groundsure Report Of Armit Road Site Compound Groundwater Flood Risk, Annex J: Groundsure Report of Saddleworth Rangers Replacement Car park Groundwater Flood Risk) (which indicated negligible to low risk where conducted), and historical flood record. In the rare event that groundwater flooding does occur, it is unlikely to pose a significant risk, as groundwater typically rises slowly above ground level and is generally of insufficient volume to cause widespread and consequential flood damage.

3.5.9 While groundwater flood risk should not typically prevent development, it is crucial to ensure that developments are not placed at unnecessary risk or exacerbate existing flood risk. The Order Scheme and its relevant works will involve minimal below-ground construction that could alter subsurface flow regimes.

3.5.10 The depth of the underlying aquifers is expected to be greater than that of any proposed below-ground elements, and there are no proposals to discharge into the ground. Moreover, the Order Scheme and its relevant works components will be covered by a range of mitigation measures to prevent any increase in groundwater flood risk in the surrounding area. Any potential groundwater emergence at the surface will be appropriately

managed through the surface water management measures outlined in the PPICP, which forms part of the CoCP Part B.

3.5.11 The risk of the Order Scheme and its relevant works impacting groundwater flood risk elsewhere is thus considered low, and no further flood risk mitigation measures are required.

Impact of the Order Scheme on Reservoirs, Canals, and Tidal Flood Risk Elsewhere

3.5.12 The Order Scheme and its relevant works components are not within a tidal area. Therefore, the impact of the Order Scheme and its relevant works on tidal flood risk to the surrounding area is considered negligible.

3.5.13 Although the Order Scheme and its relevant works components are near the Huddersfield Narrow Canal, it does not fall within the Huddersfield Narrow Canal Modelled Hazard Zone. While a few sections of the Order Scheme and its relevant works components are on low-level sites, very near the Huddersfield Narrow Canal (e.g. the temporary land taken adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works, is at equivalent elevation as and <1 m from the canal), the risk of canal flooding is low. This is because canals are artificial waterways where water flow is greatly controlled, thus making them less prone to flooding than natural watercourses during storm events.

3.5.14 The Order Scheme and its relevant works components will not significantly alter overland flow paths, displace floodplain storage, or increase runoff volume at a level enough to overwhelm the nearby reservoirs. Additionally, the development will be designed with adequate drainage systems to effectively manage stormwater and minimise its contribution to potential flood risk in the surrounding area, including reservoirs.

3.5.15 Moreover, the Order Scheme and its relevant works components will be covered by mitigation measures to prevent increased reservoir and canal flood risk in the surrounding area; therefore, no further mitigation measures are required. The impact on reservoir and canal flood risk to the surrounding area as a result of the Order Scheme and its relevant works is thus considered low.

3.6 Mitigation And Consideration of Control Measures

3.6.1 Mitigation measures for the Order Scheme and its relevant works components are required during the construction and operational phases; these measures are summarised below.

Construction Phase Mitigation

3.6.2 No specific mitigation measures are required during the construction phase of the Order Scheme and its relevant works components, as there is no change in flood risk compared to the baseline flood risk. Nevertheless, as detailed below, flood resilience measures will still be implemented to prevent

increase flood risk and minimise potential flood-related impacts, especially at high-risk sites.

Surface Water Drainage

3.6.3 The NPPF requires that new developments do not exacerbate flood risk by reducing flood storage capacity or increasing overland flow. Surface water flood risk must be effectively managed to prevent any additional overland flow elsewhere. This involves directing overland flow away from vulnerable assets associated with the proposed development by conveying it to a drainage network designed to receive additional outfall or by containing it onsite.

3.6.4 Surface water management during construction will be implemented through the PPICP, which forms part of the CoCP Part B. These measures will ensure effective control of surface water to prevent any increase in flood risk to the sites or surrounding areas.

3.6.5 During the construction phase, any temporary drainage systems will comply with the protective provisions granted to the regulatory bodies under the Order as required. This includes any works carried out within 16 m of waterbodies, culverts, and drainage outfalls – existing or new. Drainage construction will be carefully managed to control discharges into drainage systems and watercourses, including runoff from earthworks, access roads, and haulage routes. Measures will be taken to ensure discharge rates do not exceed the capacity of existing drainage system or receiving watercourses, thereby preventing flooding from sewer surcharges or fluvial overflow at the sites and in the surrounding area.

Code of Construction Practice (CoCP)

3.6.6 The CoCP Part A [**NR17**] sets out best practice environmental management measures that will be implemented on-site during construction to address potential environmental impacts that may arise from the Order Scheme and its associated relevant works, ensuring the works are appropriately managed, and effects are reduced where feasible.

3.6.7 The CoCP is split into Part A and Part B. Part A sets out the general principles, relevant measures, standards, and environmental management requirements to be adhered to during construction. Part B applies to the Order Scheme Development that requires deemed planning permission; it will be a series of standalone reports and delivery plans. The CoCP sets out the environmental objectives and targets for the Order Scheme and how the environmental requirements stipulated will be delivered. It also details the processes to manage the environment during construction, ensuring compliance with relevant legislation and regulations. The aim of the CoCP,

to be secured via a planning condition, is to ensure that all relevant flood risk mitigation measures will be in place in advance of construction works.

Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015)

3.6.8 All of the relevant requirements included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]) will be complied with. This document is comprised of a rigorous, effective and well-established set of environmental standards and procedures that are routinely implemented by Network Rail on its projects nationwide. This includes requiring the contractor to assess the risk of flooding from all sources for temporary construction facilities and locate them outside floodplains or areas prone to other sources of flooding; or use appropriate protection measures to minimise the risk. This also includes meeting the requirements outlined in the 'Weather Resilience and Climate Change Adaptation' section in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]).

CIRIA Environmental Good Practice on Site Guide (C811D)

3.6.9 The CIRIA Environmental Good Practice on Site Guide (C811D) is a comprehensive guide that provides practical information for managing environmental issues and delivering sustainable construction. The guide aims to assist with the adherence to high environmental standards and compliance with relevant legislation, such as the Environment Act 2021, ensuring that projects meet national environmental commitments.

Flood Warning Register

3.6.10 It is required that Heron Lane road to Heron Lane Site Compound, Egmont Street road to Plevins Site Compound Works, and Lee Side road (Diggle Access and Diversion Works) to Diggle Welfare, Rail hub and Office Compound – which falls within Flood Zones 2 and 3 – be registered with the Environment Agency's flood warning service. This service monitors and forecasts potential flooding, providing timely alerts that would support the implementation of evacuation procedures. Registering these sites and access routes would improve flood preparedness by facilitating the safe securing and evacuation of the compounds in the event of a flood warning.

Measures for Mitigating Flood-Related Hazards

3.6.11 Measures for mitigation flood-related hazards include the following, as outlined in the PPICP, which forms part of the CoCP Part B:

- Buffer zone protection – no materials, equipment, or waste should be stored or placed within 16 m of watercourses to prevent the risk of wash-in during high rainfall or flood events. Physical mitigation measures could be installed around the perimeter to further minimise the risk of accidental ingress.

- Fuel and chemical storage – the storage of fuels, oils, or chemicals on-site is prohibited unless appropriately contained within bunded areas that meet relevant environmental containment standards.
- Long-term material storage – where long-term storage of materials is proposed, flood resilience measures must be implemented to prevent displacement and wash-in during high rainfall or flood conditions. These may include elevated storage platforms, secure containment units (bunding), and fencing or other appropriate physical barriers.
- Flood monitoring and response – the site management plan must assign two designated personnel to be available on-call 24/7. These individuals must be registered to receive flood alerts and warnings from the Environment Agency. Upon receipt of a flood warning/alert, they are required to inspect flagged high-risk sites within one hour and initiate appropriate mitigation actions. The implementation of surveillance systems is recommended to support flood risk monitoring throughout the construction phase.

Operational Phase Mitigation

3.6.12 No specific mitigation measures are required during the operational phase of the Order Scheme and its relevant works components, as there is no change in flood risk compared to the baseline. Nevertheless, measures will still be implemented to prevent potential flood risk, detailed in the PPICP, as part of the CoCP Part B, which will include good practice measures and protocols for the storage, use and management of potential contaminants on site, criteria for adequate bunding and hardstanding and silt fencing.

Surface Water Drainage and Discharge

3.6.13 All discharges from the Order Scheme into the existing drainage system or nearby watercourse will be appropriately managed. This includes ensuring discharge rates do not exceed the capacity of the existing drainage system or the receiving watercourse; thereby, mitigating the risk of flooding from sewer surcharges at the sites or fluvial overflow in the surrounding area. No discharge will occur without prior consent via the Order's protective provisions from the respective authorities. These include the EA for discharges into main rivers, the LLFA for discharges into ordinary watercourses (TMBC and OMBC), and United Utilities for discharges into surface water sewers.

3.6.14 The Drainage Strategy is a standalone document, separate from this Technical Appendix FRA, and is being developed to support the internal progression of detailed design. The Drainage Strategy will be undertaken at the detailed design stage, specifying the discharge rates of the new outfalls and how surface water runoff will be managed in accordance with current regulatory guidance. While the Drainage Strategy is not intended for submission at this stage, the Environmental Report serves to provide reassurance at the outline design stage that appropriate mechanisms and controls are in place to manage surface water drainage in advance of

construction. These controls are established under the Order and will be implemented via the CoCP Part B.

4. Summary

4.1.1 The Order Scheme and its associated relevant works components are collectively over 1 ha in area. Therefore, a site-specific FRA (this report) is required.

4.1.2 This site-specific FRA presents the findings of flood risk to and from the Order Scheme and its associated relevant works components and, where necessary, an appraisal of possible mitigation measures to prevent or reduce flood risk.

4.1.3 The Order Scheme has been sub-divided into 43 components spread across six assessment areas:

- Stalybridge
- Millbrook
- Mossley
- Greenfield
- Uppermill
- Diggle

4.1.4 Stalybridge, Millbrook, Mossley and Greenfield fall within the TMBC, while Uppermill and Diggle fall within OMBC. The relevant components of the Scheme within each of these areas are detailed in section 3.3.1.

Consents, Permit, and Approvals

4.1.5 No discharge will occur without prior consent via the Order's protective provisions from the respective authorities. These include the EA for discharges into main rivers, the LLFA for discharges into ordinary watercourses (TMBC and OMBC), and United Utilities for discharges into surface water sewers.

Flood Risk Activity Permit (FRAP) and Land Drainage Consent

4.1.6 FRAPs and land drainage consent are regulatory requirements in England, governed by the Environmental Agency and Lead Local Flood Authority (LLFA), respectively. These permits are required for certain works in, over, under, or near main rivers, flood defences, and ordinary watercourses. Failure to obtain permits constitutes a breach of UK environmental legislation that can lead to consequences, including financial penalties and legal proceedings.

4.1.7 The Order Scheme, if granted, provides Network Rail with planning permission and deemed consent for the works in, over, under, or near main rivers, flood defences, and ordinary watercourses. However, this does not override environmental legislation; rather, it streamlines the process by replacing certain permitting requirements with protective provisions. These

provisions ensure that the Environment Agency remains engaged in the process, requiring submission of detailed designs and allowing for consultation and agreement.

4.1.8 While formal permits such as FRAPs may not be required, the EA retains the right to review and respond to proposals, with the Order stipulating that agreement cannot be unreasonably withheld. In practice, this means the same level of scrutiny and environmental rigour is applied, but through a mechanism that de-risks delivery and provides certainty for the Order Scheme. Should any conditions require FRAPs, these will be prepared

Canal and River Trust Approval

4.1.9 The Canal and River Trust advises that any development located adjacent to or near a canal will require consultation and, in some cases, formal approval. This applies to any works on, near, under, or over canals where there is potential to affect the structural integrity of the canal or towpath, interfere with navigation or maintenance access, or impact water levels or drainage patterns.

4.1.10 In addition, the Canal and River Trust defines specific "notified areas" around canals that they must be consulted on for the planning application. These areas vary depending on the scale of the development:

- A 150 m buffer applies for major developments.
- A 50 m buffer applies for minor and household developments, but can extend to 75 or 150 m where there are assets such as reservoirs, tunnels, cuttings, and embankments.

4.1.11 The Order, if granted, provides Network Rail with planning permission and deemed consent for the works on, near, under, or over canals. However, this does not remove the need for engagement with the Canal and River Trust. Under the Order's protective provisions, Network Rail must submit detailed designs and seek the Trust's approval. While formal approval is not required, the Trust retains the right to review and respond to proposals, with the Order stipulating that agreement cannot be unreasonably withheld.

4.1.12 Engagement arrangements with the Trust will be reviewed and clarified by the designer/contractor prior to the start of construction for each applicable work elements, ensuring continued collaboration and oversight.

Risk of Flooding from Rivers

4.1.13 The majority of the Order Scheme and its relevant works components are not at risk of fluvial flooding from main rivers, as they are primarily located within Flood Zone 1 and outside the fluvial flood extent of the Environment Agency Risk of Flooding from Rivers & Sea map, except for the following

seven sites listed in the 'Summary of Flood Risk from Main Rivers' section, that fall within Flood Zone 2 and/or 3 and the high-risk fluvial flood extent.

4.1.14 The permanent works for the development have been assessed against future climate change using the available data from the EA. The permanent works are expected to be located outside the future Flood Zone 3 (1% AEP) extent with the 'Higher Central' (53%) climate change allowance. This assessment is based on the site being located outside the larger Flood Zone 2 (0.1% AEP) with the marginally smaller 'Central' (41%) climate change allowance. Consequently the permanent works are considered to be appropriately located for future flood risk for the lifetime of the development.

Sequential Approach

4.1.15 In accordance with the NPPF, the following two tests are required.

Sequential Test

4.1.16 The Sequential Test is provided for the seven sites listed above, as they fall within Flood Zone 2 and/or 3, classed as 'major development' (see Annex C), and not within sites allocated for development in the Local Plan (as detailed in the 'Places for Everyone Joint Development Plan' section).

4.1.17 Suitable land along the route is extremely limited due to topographical constraints, existing land use, and operational requirements. Multiple reviews have been taken to refine the location, size, and layout of work sites to minimise environmental impacts, including flood risk. Where feasible, sites have been located outside Flood Zones 2 and 3, with preference given to lower-risk where operationally viable. However, in some cases, avoidance is not possible due to the linear nature of the railway corridor, the need for proximity to specific worksites, and the lack of alternative accessible land.

4.1.18 Flood risk has been carefully balanced against the practical and logistical needs of delivering the Order Scheme. As the Order Scheme and its relevant works components cannot be relocated or substituted elsewhere, an Expectation Test is required in line with the NPPF.

Exception Test

4.1.19 The Exception Test is provided for the following four of the seven sites listed above, as they fall within Flood Zone 3, as well as 2, and are classed as 'essential infrastructure' (see Annex B):

- Temporary land take for Scout West Compound.
- Temporary land take for Egmont Street Replacement Car park,.
- Temporary land take of Heron Lane road to Heron Lane Site Compound.
- Temporary land take for Diggle Access and Diversion Works.

4.1.20 The following three of the seven sites listed above do not require an Exception Test, as they fall within Flood Zone 2 and are classed as 'essential infrastructure' (see Annex B):

- Temporary land take for Armit Road Site Compound.
- Temporary land take of Saddleworth Rangers Replacement Car park
- Temporary land take adjacent to High Street road for Uppermill Viaduct (MVL3/31) and Site Compound Works.

4.1.21 Order Scheme and its relevant works components meet the two criteria of the Exception Test:

- Wider sustainability benefits – the development forms part of the Transpennine Route Upgrade in line national objectives on 'levelling up' the north of England. The development is expected to deliver sustainability and associated economic benefits to the wider community by supporting a cleaner mode of transport on a regional scale. This benefit is considered to outweigh the minimal flood risk impact identified in this FRA following the implementation of proposed mitigation measures.
- Safety and flood risk management – the proposed rail infrastructure improvement will remain safe for use throughout its operational lifetime, taking into account the vulnerability of its users. It will not increase flood risk elsewhere and, where feasible, may contribute to reducing flood risk. This reflects the requirements of the 'Weather Resilience and Climate Change Adaptation' section in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]).

4.1.22 This assessment has confirmed that the requirements of the Sequential Test and the Exception Test have been fulfilled. The requirements of tests are passed for the Order Scheme and its associated relevant works components – including the seven high-risk sites.

4.1.23 Mitigation measures will cover those seven sites listed above. This includes adhering to guidance, such as surface water management measures outlined in the PPICP which forms part of the CoCP Part B, the Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site Guide (C811D)[30] adherence to NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]), a requirement to ensure that the measures to be set out in the CoCP Part B are implemented to address

[30] Environmental good practice on site guide (fifth edition)

Order Scheme impacts, ensuring that works are appropriately managed. and the potential for the use of Protective Provisions as necessary.

Risk of Flooding from Ordinary Watercourses and Surface Water Flooding

4.1.24 The risk of surface water flooding across the Order Scheme and its relevant works components varies between low, medium, and high. Much of the Order Scheme involves upgrading the existing infrastructure along the railway line, which already has protective measures to mitigate surface water flood risk. Although there are three new permanent works, which will have mitigation measures to minimise surface water flood risk:

- Mossley Station Relocation Works – will be constructed on elevated platforms above ground level, making it less susceptible to surface water flooding. A new drainage system will be implemented during the operation phase to mitigate flood risk.
- Greenfield Station Platform 2 Secondary Means of Escape Works (as part of Greenfield Station Redevelopment Works) – will be constructed on elevated platforms above ground level, making it less susceptible to surface water flooding. A new drainage system will be implemented during the operation phase to mitigate flood risk.
- New Oldham Road Footbridge (MVL3/27B) – is a structured asset above ground level, making it less susceptible to surface water flooding.

4.1.25 Nevertheless, any potential surface water flood risk to the Order Scheme and its relevant works components will be covered by various mitigation measures. This includes adhering to guidance, such as surface water management measures outlined in the PPICP which forms part of the CoCP Part B, CIRIA Environmental Good Practice on Site Guide (C811D), adhering to NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]) and adherence to the CoCP [**NR17**] to ensure that all relevant mitigation measures are in place prior to the commencement of construction. Therefore, no additional flood risk mitigation measures are required beyond compliance with these measures.

Risk of Flooding from Groundwater

4.1.26 The risk of groundwater flooding across the Order Scheme and its relevant works components is considered low. This is based on the area's hydrogeological characteristics and other information (soil type, superficial and bedrock geology, and aquifer designation), findings from the Groundsure assessments (Annex H: Groundsure Report Of Plevins Site Compound Works Groundwater Flood Risk, Annex I: Groundsure Report Of Armit Road Site Compound Groundwater Flood Risk, Annex J: Groundsure Report of Saddleworth Rangers Replacement Car park Groundwater Flood

Risk) which indicated negligible to low risk where conducted), and historical flood records.

4.1.27 Even in the rare event that groundwater flooding does occur, it is unlikely to pose a significant risk, as groundwater typically rises slowly above ground level and is generally of insufficient volume to cause widespread and consequential flood damage.

4.1.28 While groundwater flood risk should not typically prevent development, it is crucial to ensure that developments are not placed at unnecessary risk or exacerbate existing flood risk. The Order Scheme and its relevant works will involve minimal below-ground construction that could alter subsurface flow regimes.

4.1.29 Where below-ground work is necessary, it will be designed to withstand hydrostatic pressure and prevent groundwater ingress, ensuring it is not vulnerable to groundwater flooding. The depth of the underlying aquifers is expected to be greater than that of any proposed below-ground elements, and there are no proposals to discharge into the ground. Moreover, the Order Scheme and its relevant works components will be covered by various mitigation measures to prevent any increase in groundwater flood risk in the surrounding area. Any potential groundwater emergence at the surface will be appropriately managed through the surface water management measures outlined in the PPICP, which forms part of the CoCP Part B.

4.1.30 Given the low groundwater flood risk of the Order Scheme and its relevant works components, no additional flood risk mitigation measures are required beyond them. This includes the surface water management measures outlined in the PPICP which forms part of the CoCP Part B, CIRIA Environmental Good Practice on Site Guide (C811D), adherence to NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**])and compliance with the measures and requirements of the CoCP [**NR17**].

Risk of Flooding from Artificial Sources (Reservoirs, Canals, Sewers)

4.1.31 Although sections of the Order Scheme and its relevant works components fall within the reservoir flood extent, the potential risk of reservoir flooding is considered low. This is because reservoir failure is very unlikely based on historical flood records and regular inspections, surveys, and maintenance by the operating authorities. Reservoirs in the UK have an excellent safety record, with no reservoir failure incidents resulting in the loss of life since 1925.

4.1.32 The potential risk of canal flooding across the Order Scheme and its relevant works components is considered low based on historical flood records, their

location outside the Canal Hazard Zones, and canals being strongly controlled waterways with regulated water levels.

Risk of Flooding Elsewhere

4.1.33 The potential impact of the Order Scheme and its relevant works components on the surrounding area's flood risk is considered low due to the following:

- Fluvial flood risk – the Order Scheme and its relevant works components are mainly in Flood Zone 1 and outside the fluvial flood extent of the Environment Agency Risk of Flooding from Rivers and Sea map. For sites in Flood Zone 2 and/or 3, a range of mitigation measures, potentially include Protective Provisions will be in place to prevent increased fluvial flood risk in the surrounding area, including flood mechanisms or floodplain storage.
- Surface water flood risk – the Order Scheme primarily involves upgrading the existing infrastructure along the railway line, so there is no change to flood mechanisms or floodplain storage. Although three works of the Order Scheme – Mossley Station Relocation, Greenfield Station Platform 2 Secondary Means of Escape Works, and New Oldham Road Footbridge (proposed MVL3/27B – entails constructing new assets rather than upgrades to infrastructure, the overall change in impermeable area is minimal and not considered significant enough to displace floodplain storage or increase the risk of surface water flooding in the surrounding area.
- Groundwater flood risk – the Order Scheme and its relevant works involve minimal below-ground construction that could alter subsurface flow regimes. Additionally, the depth of the underlying aquifers is expected to be greater than that of any proposed below-ground elements, and there are no proposals to discharge into the ground.
- Reservoir flood risk – the Order Scheme and its relevant works components will not significantly alter overland flow paths, displace floodplain storage, or increase runoff volume enough to overwhelm nearby reservoirs. In addition, the development will be designed with adequate drainage systems to effectively manage stormwater and minimise its impact on flood risk in the surrounding area, including reservoirs.
- Canals flood risk – although the Order Scheme and its relevant works components are near the Huddersfield Narrow Canal, with some sites on low-level ground directly adjacent to the canal, the risk of canal flooding is overall low. This is because the development is not within the Huddersfield Narrow Canal Modelled Hazard Zone, and canals are artificial waterways with strongly controlled water flow, making them less prone to flooding than natural watercourses during storm events.

4.1.34 For the reasons outlined above, the Order Scheme and its relevant works components will not exacerbate flood risk on the surrounding area. Therefore, no further flood risk mitigation measures are required.

Mitigation Measures

Construction mitigation

- ***Surface water drainage*** – any temporary drainage systems during the construction phase will comply with the protective provisions afforded to the regulatory bodies by the Order, that is any works within 16 m of waterbodies, works to culverts, and drainage outfalls – existing and new. Drainage during construction will ensure that any discharge into the drainage system and watercourses is appropriately managed, such as runoff from earthworks, access roads and haulage routes. This includes ensuring discharge rates do not exceed the capacity of the existing drainage system or the receiving watercourse to prevent potential flooding from sewer surcharges at the sites or fluvial overflow in the surrounding area. Surface water management during construction will be addressed through the PPICP, as part of the CoCP Part B. These measures will ensure that surface water is appropriately controlled to prevent increased flood risk to the site or surrounding areas. This is in compliance with the NPPF and Local planning Policy.
- ***Code of Construction Practice (CoCP*)** – the CoCP sets out best practice environmental management measures that will be implemented on-site during construction to address potential environmental impacts that may arise from the Order Scheme and its associated relevant works, ensuring the works are appropriately managed, and effects are reduced where feasible. The CoCP is split into Part A and Part B. Part A sets out the general principles, relevant measures, standards, and environmental management requirements to be adhered to during construction. Part B applies to the Order Scheme, comprising a series of standalone reports and delivery plans. In relation to flood risk, the CoCP include a comprehensive PPICP and Piling Risk Assessment. The PPICP, which will be a condition of the Order Scheme for elements requiring planning permission, will address site drainage, surface runoff, and discharge requirements. Where necessary, it will also secure appropriate consents for discharges to sewers or controlled waters, in accordance with Environment Agency guidelines.
- ***Network Rail's Environment and Social Minimum Requirements for Projects*** – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]) comprised of a rigorous, effective and well-established set of environmental standards and procedures that are routinely implemented by Network Rail on its projects nationwide. This document sets out the environmental objectives and targets for the Order Scheme and how environmental requirements will be delivered. This is an internal management document that

ensures all commitments are implemented. It also details the processes to manage the environment during construction, ensuring compliance with relevant legislation and regulations.

- ***CIRIA Environmental Good Practice on Site Guide (C811D)*** – the CIRIA Environmental Good Practice on Site Guide (C811D) is a comprehensive guide that provides practical information for managing environmental issues and delivering sustainable construction. The guide aims to assist with the adherence to high environmental standards and compliance with relevant legislation, such as the Environment Act 2021, ensuring that projects meet national environmental commitments.
- ***Flood Warning Register*** – it is required that Heron Lane road to Heron Lane Site Compound, Egmont Street road to Plevins Site Compound Works, and Lee Side road (Diggle Access and Diversion Works) to Diggle Welfare, Rail hub and Office Compound – which falls within Flood Zones 2 and 3 – be registered with the Environment Agency's flood warning service. This service monitors and forecasts potential flooding, providing timely alerts that would support the implementation of evacuation procedures. Registering these access routes would improve flood preparedness by facilitating the safe securing and evacuation of the compounds in the event of a flood warning.
- ***Measures for Mitigating Flood-Related Hazards*** – a range of flood resilience measures is recommended to mitigate flood-related hazards at sites identified as high flood risk, as outlined in the PPICP, which forms part of the CoCP Part B:
    - Buffer zone protection – no materials, equipment, or waste should be stored or placed within 16 m of the watercourse to prevent the risk of wash-in during high rainfall or flood events. Physical mitigation measures could be installed around the perimeter to further minimise the risk of accidental ingress.
    - Fuel and chemical storage – the storage of fuels, oils, or chemicals on-site is prohibited unless appropriately contained within bunded areas that meet relevant environmental containment standards
    - Long-term material storage – where long-term storage of materials is proposed, flood resilience measures must be implemented to prevent displacement and wash-in during high rainfall or flood conditions. These may include elevated storage platforms, secure containment units (bunding), and fencing or other appropriate physical barriers.
    - Flood monitoring and response – the site management plan must assign two designated personnel to be available on-call 24/7. These individuals must be registered to receive flood alerts and warnings from the Environment Agency. Upon receipt of a flood warning/alert, they are required to inspect flagged

high-risk sites within one hour and initiate appropriate mitigation actions. The implementation of surveillance systems is recommended to support flood risk monitoring throughout the construction phase.

4.1.35 No discharge will occur without prior consent via the Order's protective provisions from the respective local authorities. These include the EA for discharges into main rivers, the LLFA for discharges into ordinary watercourses (TMBC and OMBC), and United Utilities for discharges into surface water sewers.

4.1.36 There are no significant flooding constraints for the Order Scheme and its relevant works components that cannot be mitigated during construction and operation. Therefore, no additional flood risk mitigation measures are required beyond compliance mitigation measures including the surface water management measures outlined in the PPICP which forms part of the CoCP Part B, CIRIA Environmental Good Practice on Site Guide (C811D), relevant requirements included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]), in addition to ensuring measures contained in the CoCP [**NR17**] regarding the management and application of best practice during construction are implemented.

Permitted Development Rights Works

4.1.37 It is acknowledged that additional works, which are being consented via Permitted Development Rights (PDRs), are being undertaken as part of the Scheme. These works will likely be constructed concurrently with the relevant works components of the Order Scheme. It therefore may give rise to cumulative effects during the project's construction and operation phases.

4.1.38 For the elements of the Order Scheme for which planning permission is not sought, including works to be undertaken using PDR (refer to Volume 1 Chapter 1 of the Environment Report Table 1.2 [**NR14**]), environmental effects and mitigation are addressed through Network Rail's Environment and Social Minimum Requirements for Projects (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]). In particular, NR/L2/ENV/015 requires contractor to assess the risk of flooding from all sources for construction facilities and locate them outside floodplains or areas prone to other sources of flooding or sedimentation; or use appropriate protection measures to minimise the risk. There are therefore no risks of flooding from works to be undertaken using PDR, either in isolation, or in combination with the Order Scheme Development that cannot be mitigated during construction and operation.

5. Abbreviations

Abbreviation	Full terminology
TWAO	Transport and Works Act Order
TRU	Transpennine Route Upgrade
SuDS	Sustainable Drainage Systems
NPPF	National Planning Policy Framework
FRCC-PPG	Flood Risk and Coastal Change Planning Practice Guidance
FMfP	Flood Map for Planning
FRA	Flood Risk Assessment
AEP	Annual exceedance probability
LPA	Local Planning Authority
SFRA	Strategic Flood Risk Assessment
ha	Hectare
m	Meter
MBC	Metropolitan Borough Council
LLFA	Lead Local Flood Authority
SFRMF	Strategic Flood Risk Management Framework
GMSF	Greater Manchester Spatial Framework
CDA	Critical Drainage Area
BGS	British Geology Survey
MAGIC	Multi-Agency Geographic Information for the Countryside
LiDAR	Light Detection And Ranging
DTM	Digital Terrain Model
AOD	Above Ordnance Datum

Abbreviation	Full terminology
OS	Ordnance Survey
CIRIA	Construction Industry Research and Information Association
CoCP	Code of Construction Practice

ANNEX A: FLOOD RISK VULNERABILITY CLASSIFICATION4

Essential infrastructure:

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood.
- Wind turbines.
- Solar farms.

Highly vulnerable:

- Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding.
- Emergency dispersal points.
- Basement dwellings.
- Caravans, mobile homes and park homes intended for permanent residential use.
- Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure').

More vulnerable:

- Hospitals.
- Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
- Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
- Non–residential uses for health services, nurseries and educational establishments.
- Landfill* and sites used for waste management facilities for hazardous waste.

- Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Less vulnerable:

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
- Car parks.

Water-compatible development:

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

ANNEX B: FLOOD RISK VULNERABILITY AND FLOOD ZONE COMPATIBILITY[2]

		Flood risk vulnerability classification				
		Essential infrastructure	**Highly vulnerable**	**More vulnerable**	**Less vulnerable**	**Water compatible**
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	Exception Test Required	✓	✓	✓
	Zone 3a	Exception Test Required †	✗	Exception Test Required	✓	✓
	Zone 3b	Exception Test Required*	✗	✗	✗	✓*

In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- Remain operational and safe for users in times of flood.
- Result in no net loss of floodplain storage.
- Not impede water flows and not increase flood risk elsewhere.

ANNEX C: THE TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE) (ENGLAND) ORDER 2015

Major Development[31]

Major development means development involving any one or more of the following:

(a) The winning and working of minerals or the use of land for mineral-working deposits.

(b) Waste development.

(c) The provision of dwellinghouses where:

i. The number of dwellinghouses to be provided is 10 or more; or

ii. The development is to be carried out on a site having an area of 0.5 hectares or more, and it is not known whether the development falls within sub-paragraph (c)(i).

(d) The provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more; or

(e) Development is carried out on a site having an area of 1 hectare or more.

Non-Major Development[2]

Non-major development is any development falling below the 'major development' thresholds but excluding 'minor development'. For example, a planning application for 8 dwellings, an office building creating 750 square metres of floor space, or a development with a site area of 0.4 hectares.

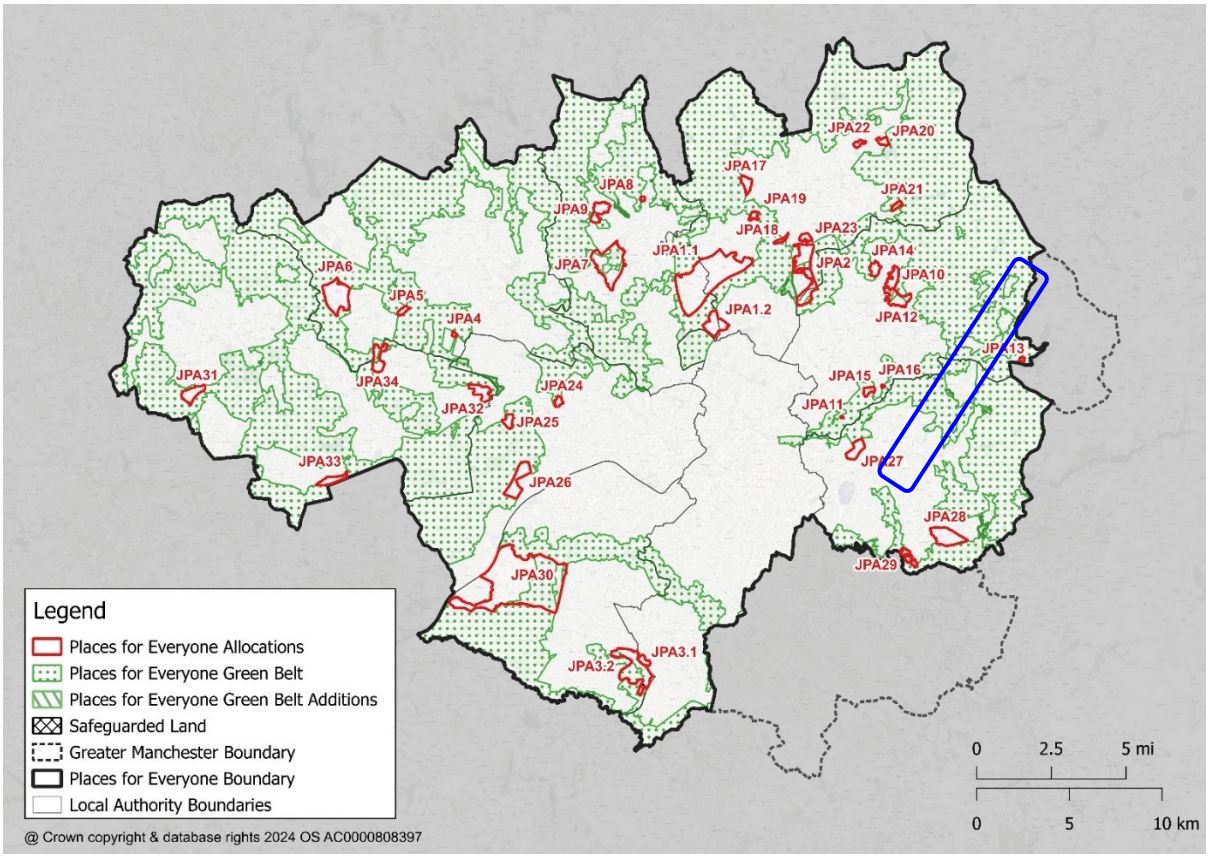
Minor Development[2]

Minor development means:

- Minor non-residential extensions (industrial/commercial/leisure etc): extensions with a floorspace not in excess of 250 square metres;
- Alterations: development that does not increase the size of buildings, e.g. alterations to external appearance; or
- Householder development: for example, sheds, garages, games rooms, etc., within the curtilage of the existing dwelling, in addition to physical extensions to the existing dwelling itself. This definition excludes any proposed development that would create a separate dwelling within the curtilage of the existing dwelling (e.g. subdivision of houses into flats) or any other development with a purpose not incidental to the enjoyment of the dwelling.

[31] The Town and Country Planning (Development Management Procedure) (England) Order 2015

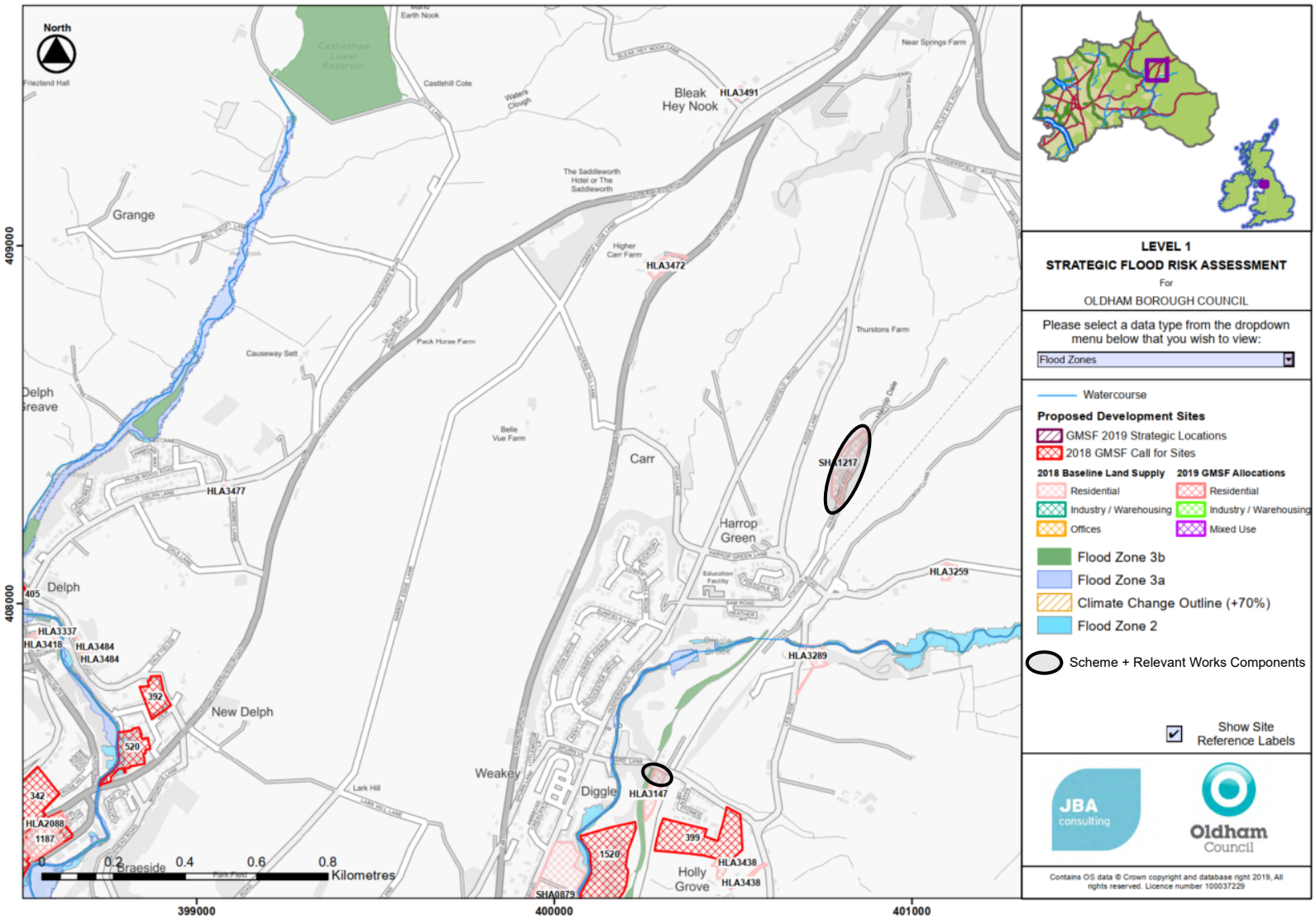
ANNEX D: PLACES FOR EVERYONE (STRATEGIC ALLOCATION OF LOCAL PLAN) POLICIES10



Approximate Area of the Scheme

ANNEX E: SFRA MAPS OF PROPOSED DEVELOPMENT SITES AND FLOOD ZONE 3B (FUNCTIONAL FLOODPLAIN)

Annex E1: Oldham[14]



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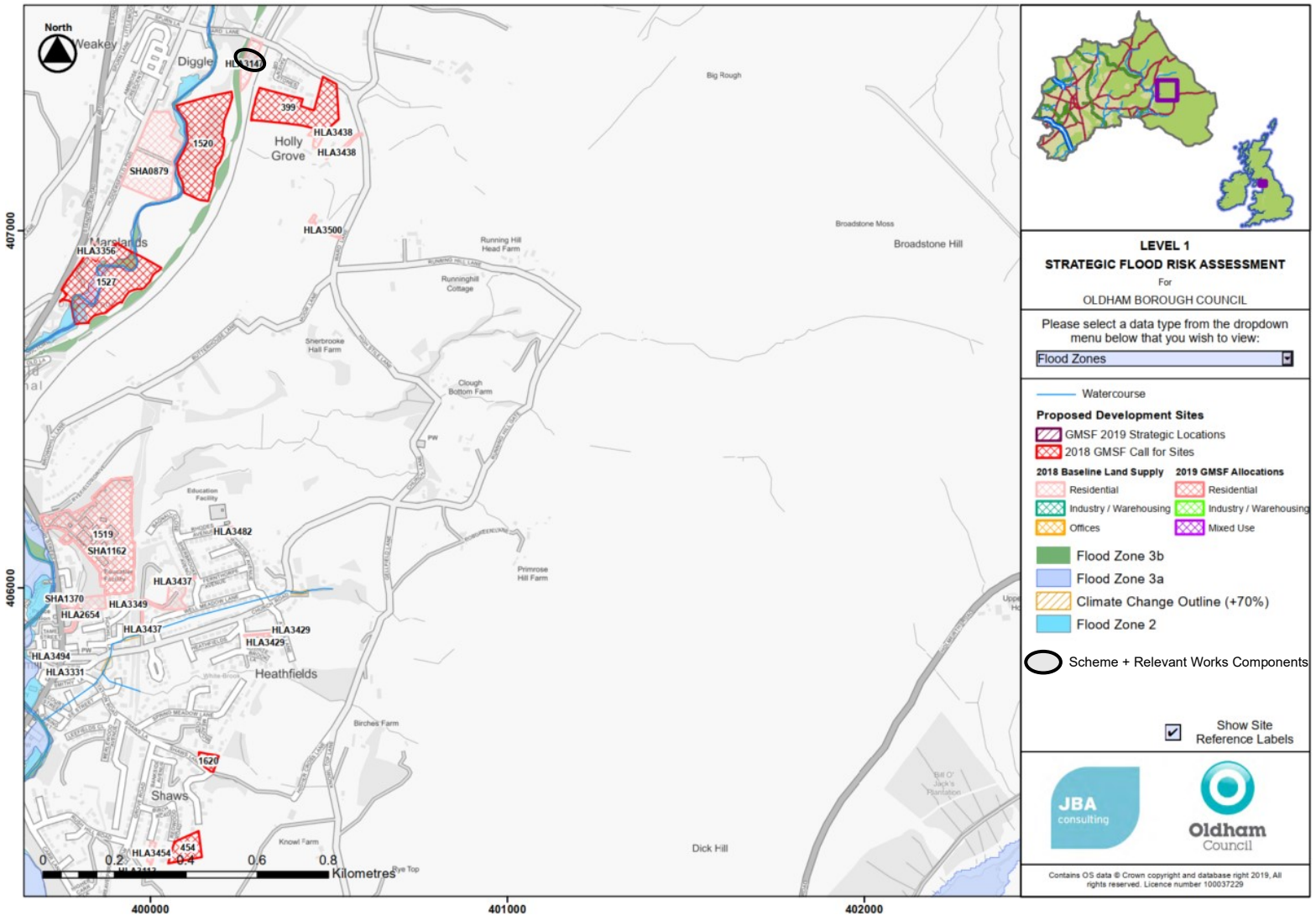
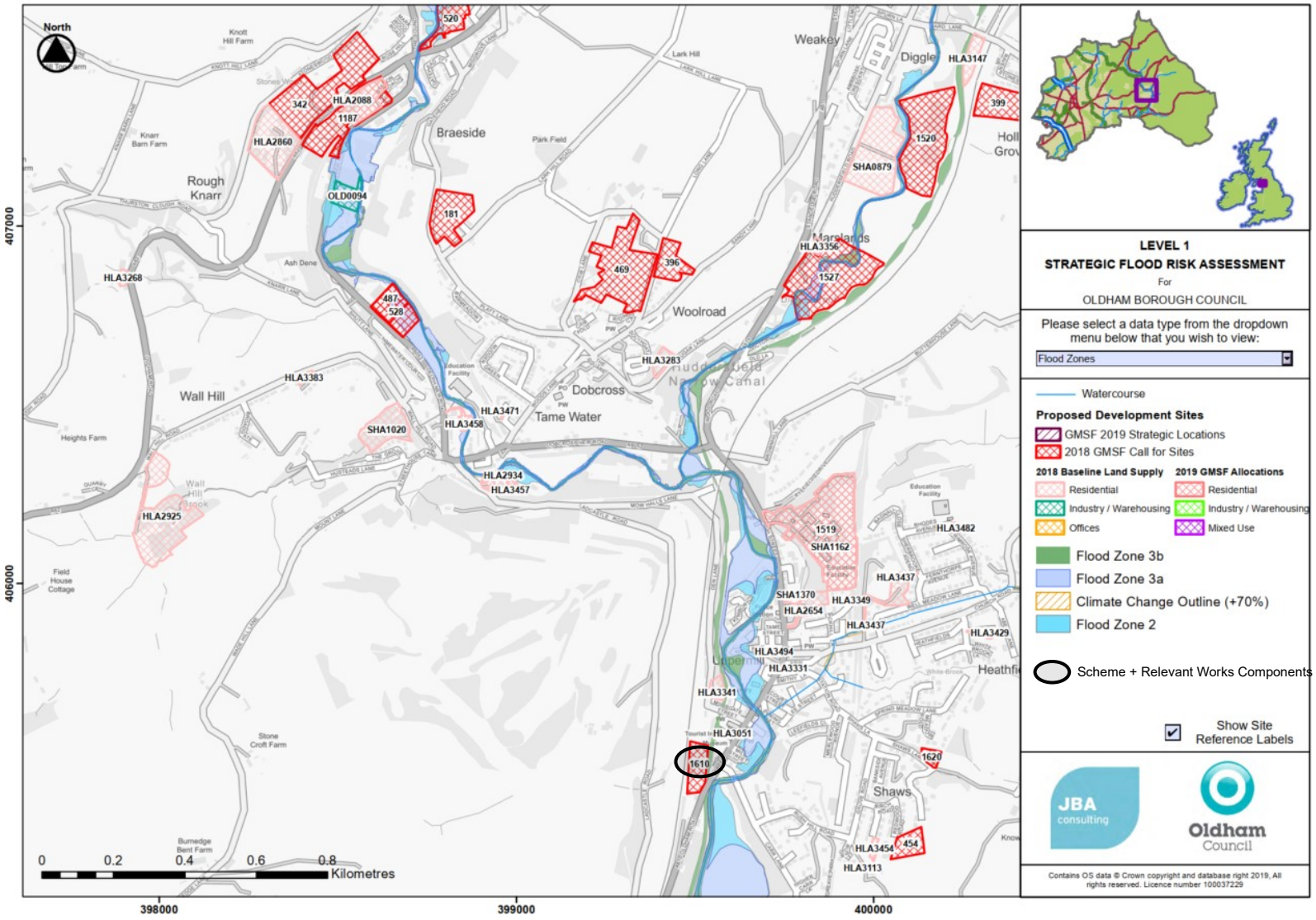


Annex E3: Oldham[14]



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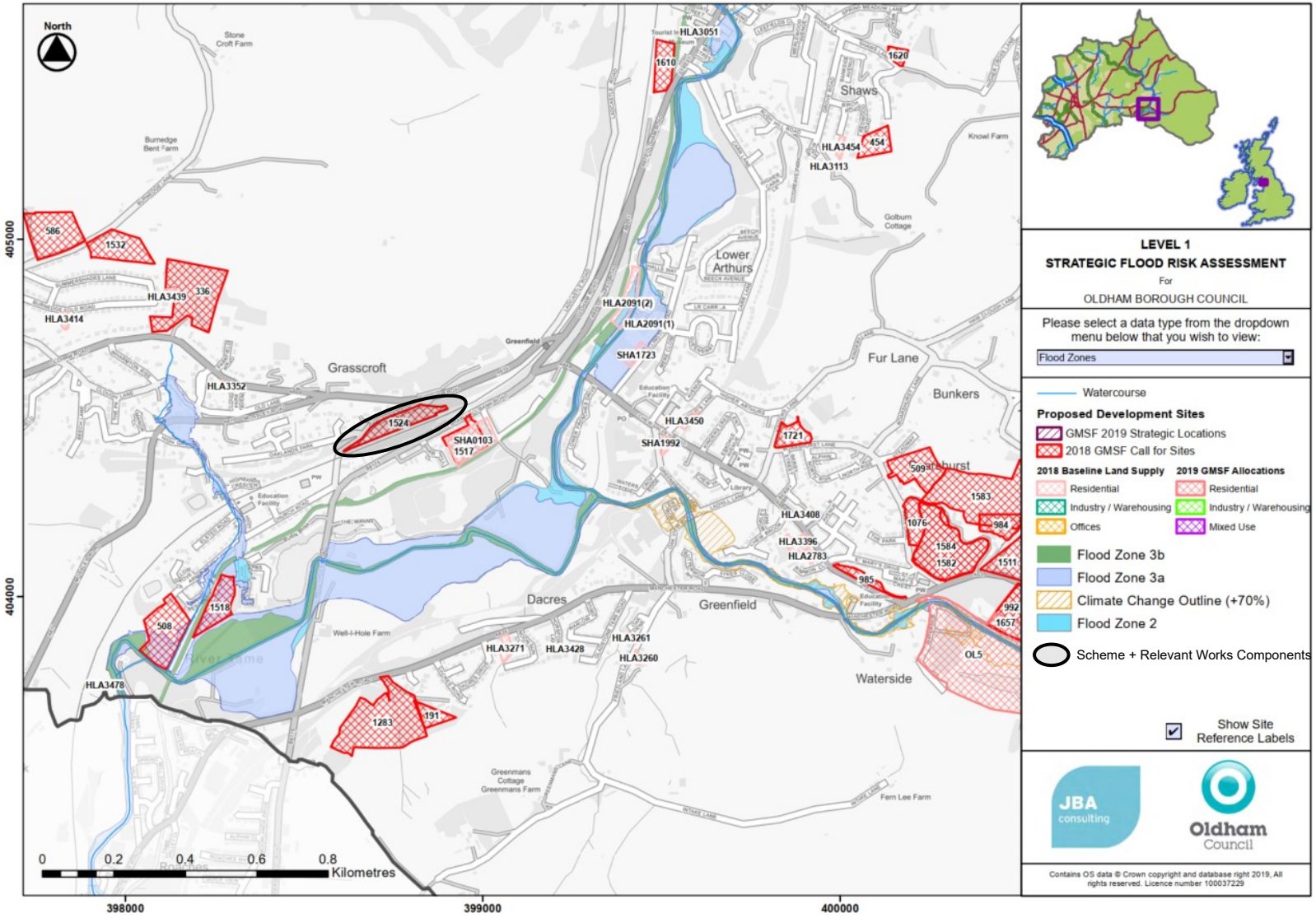

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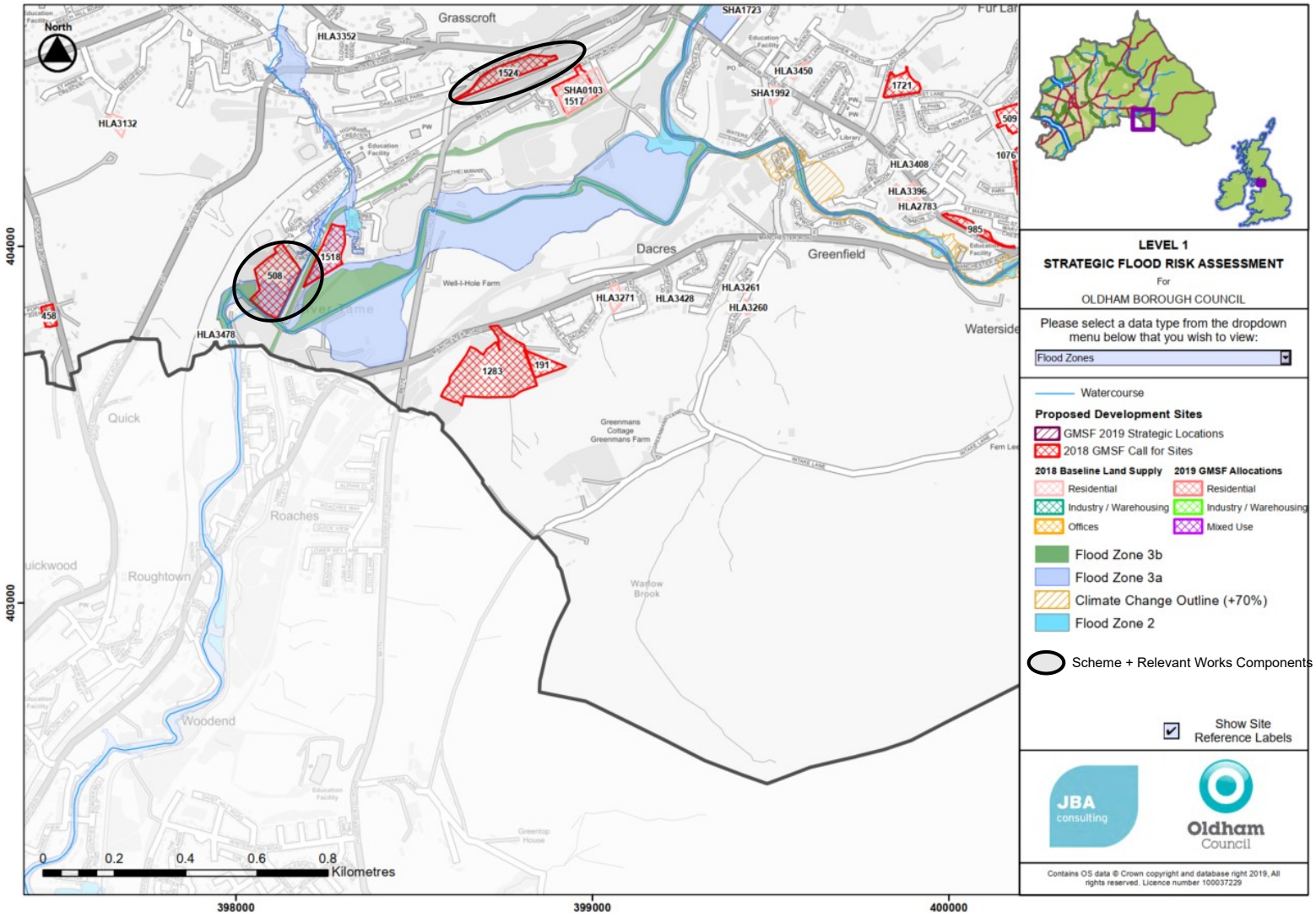
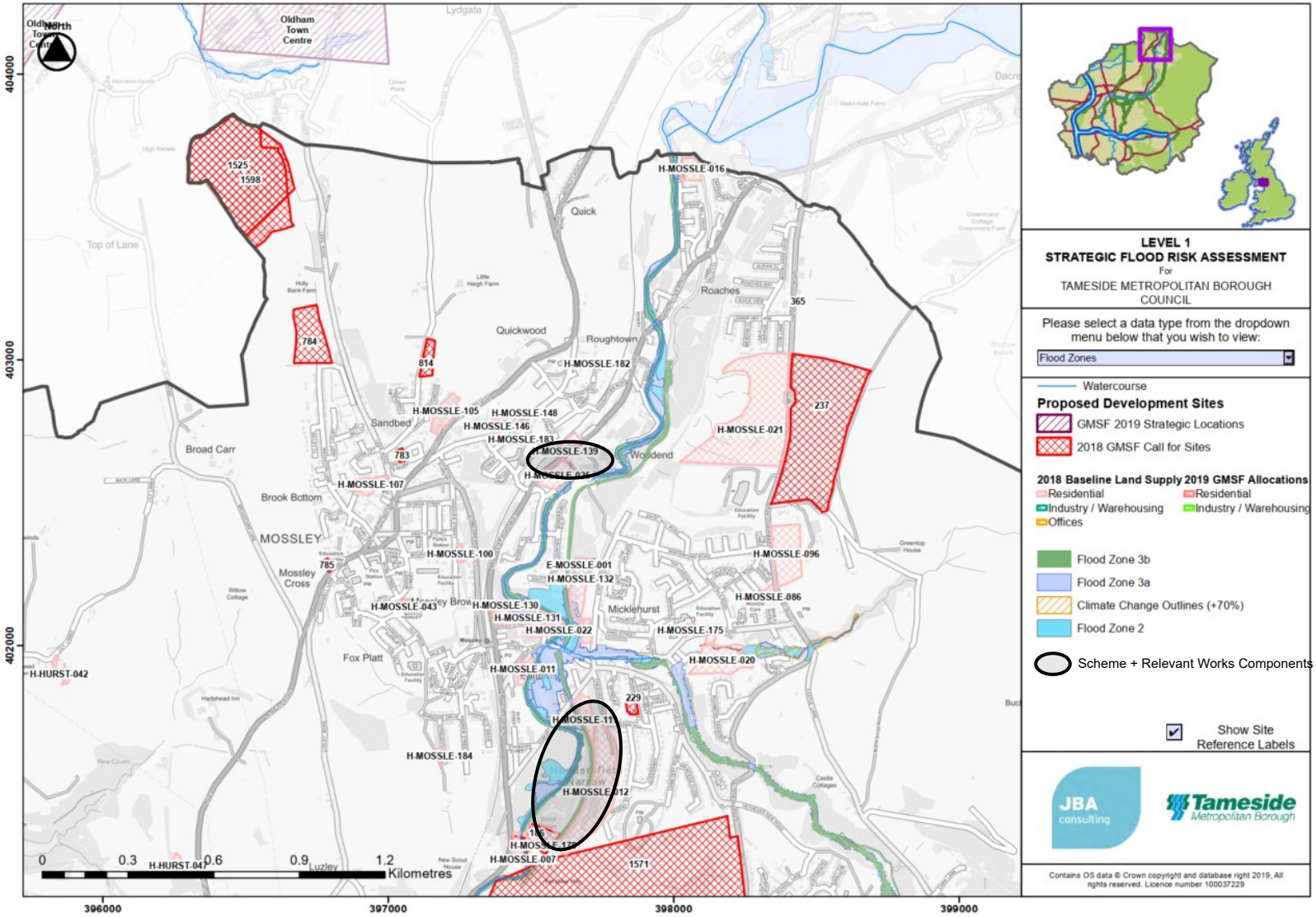


Annex E6: Tameside[15]



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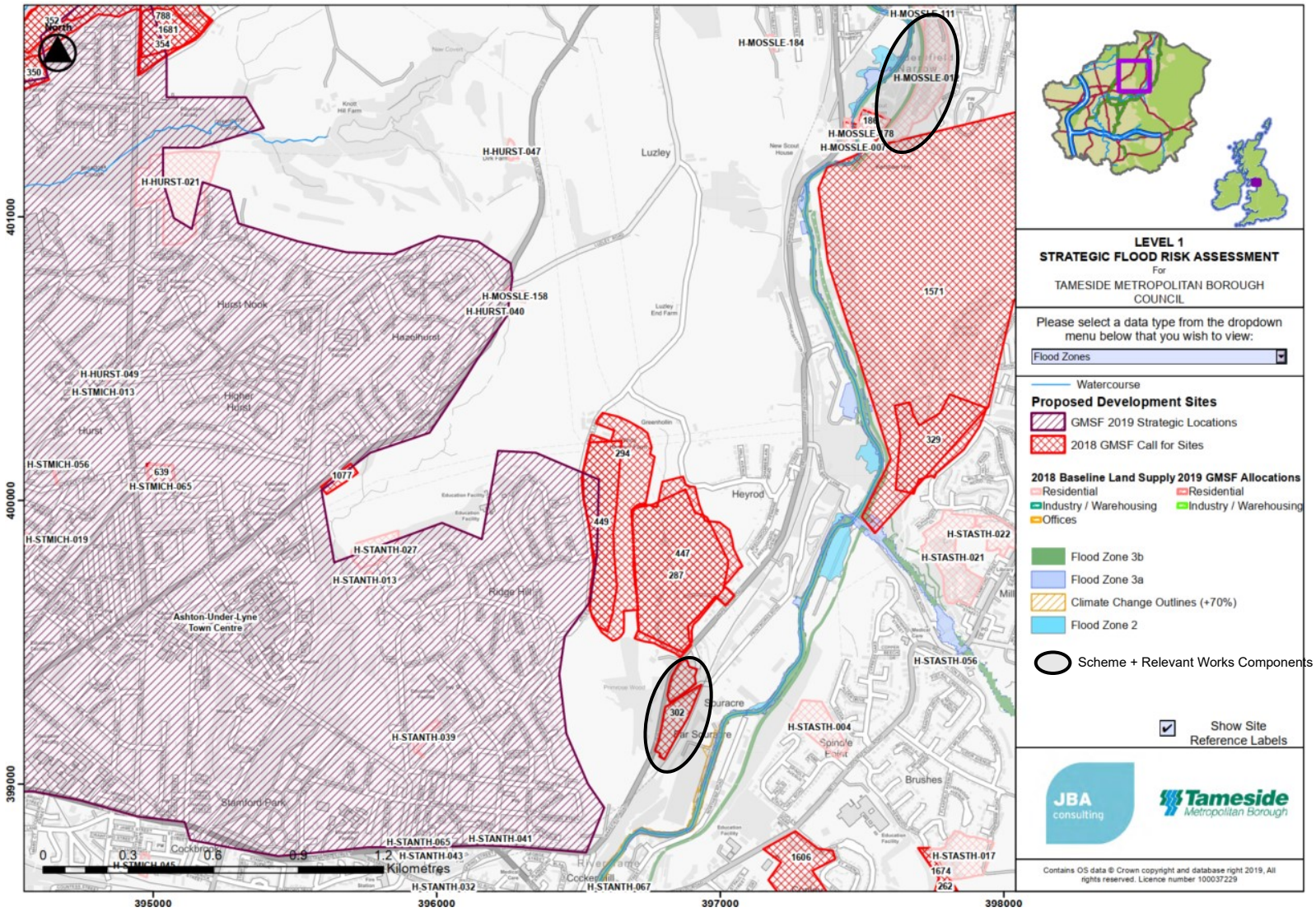

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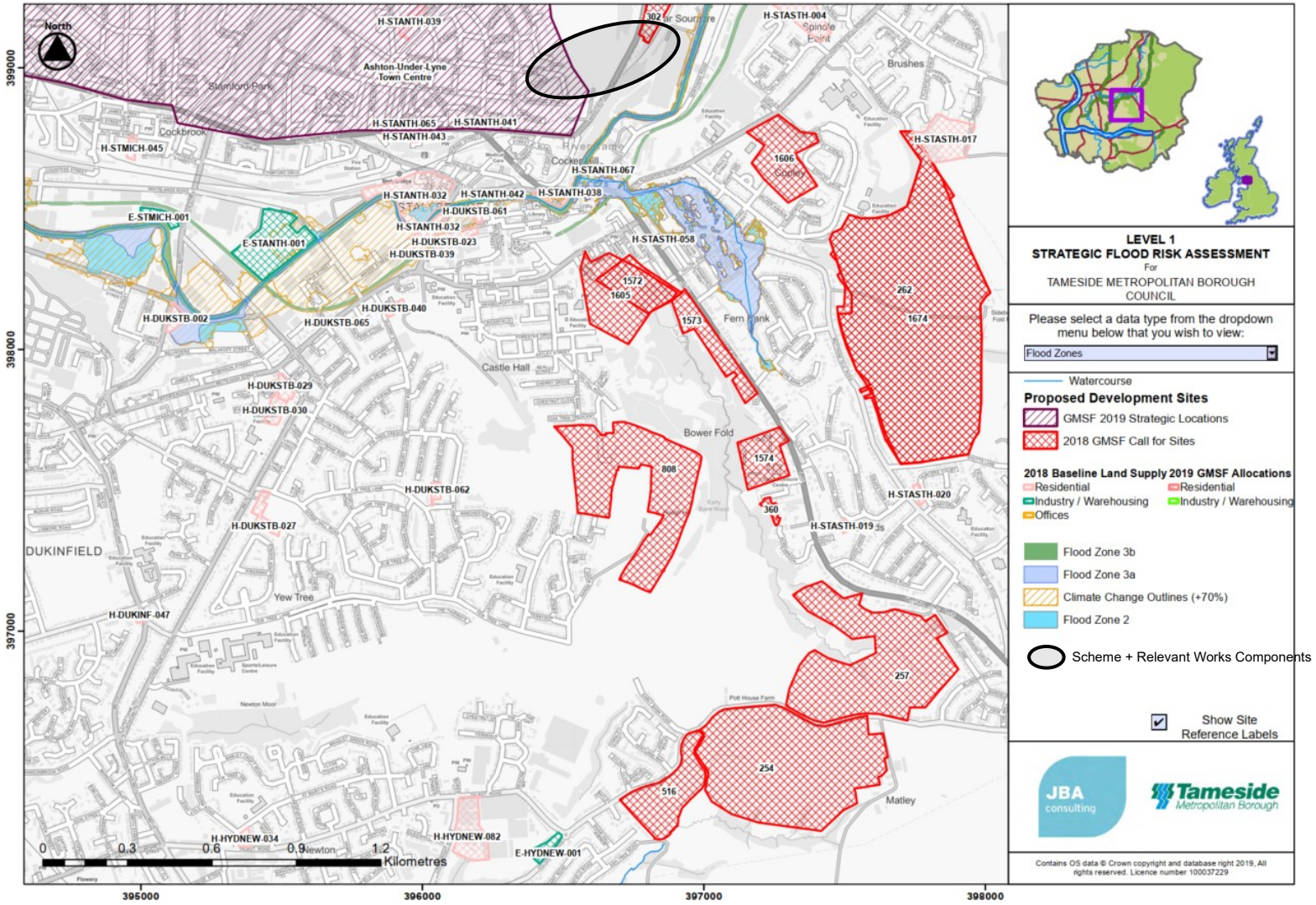
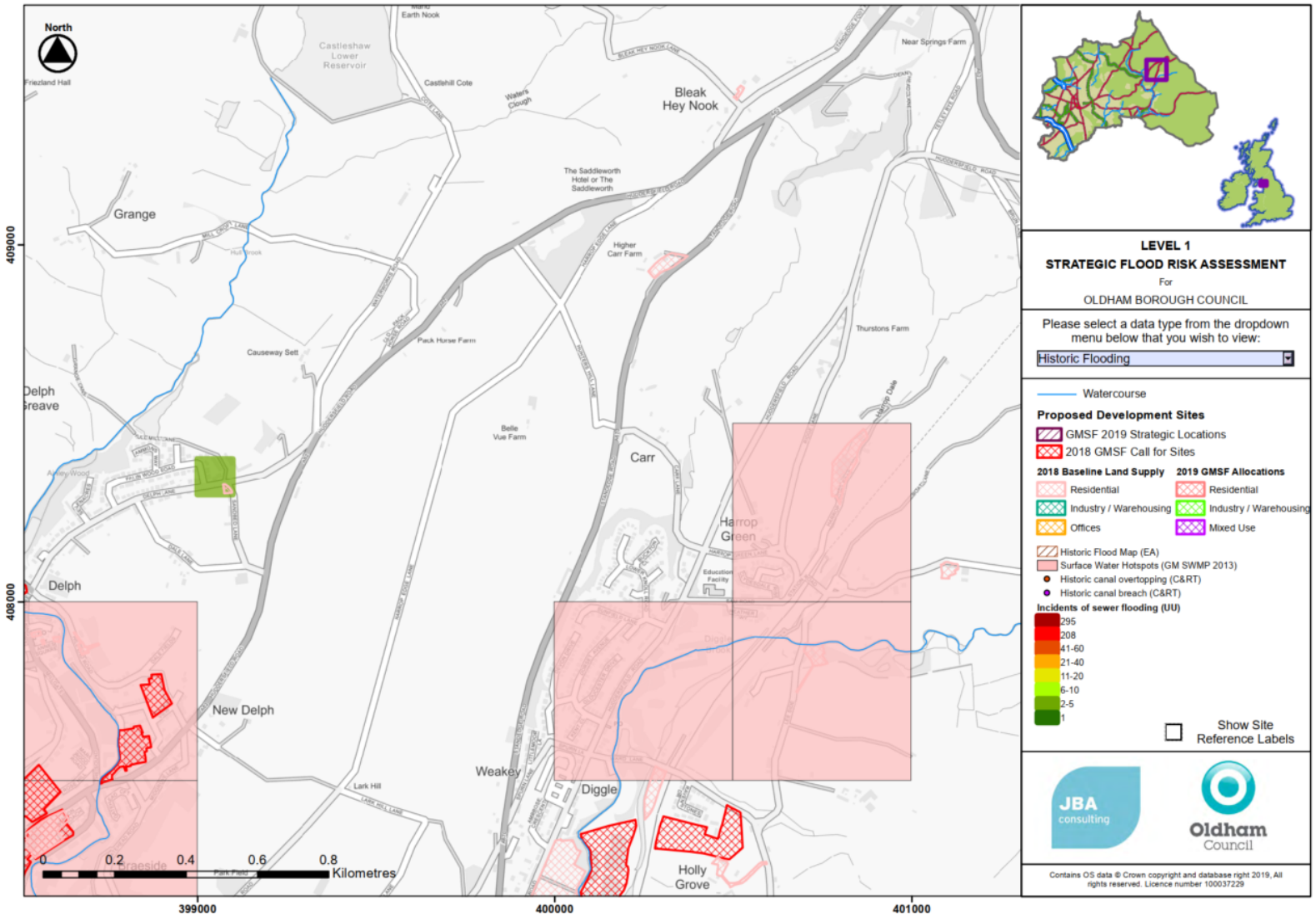


ANNEX F: SFRA MAPS OF HISTORIC FLOODING

Annex F1: Oldham[14]



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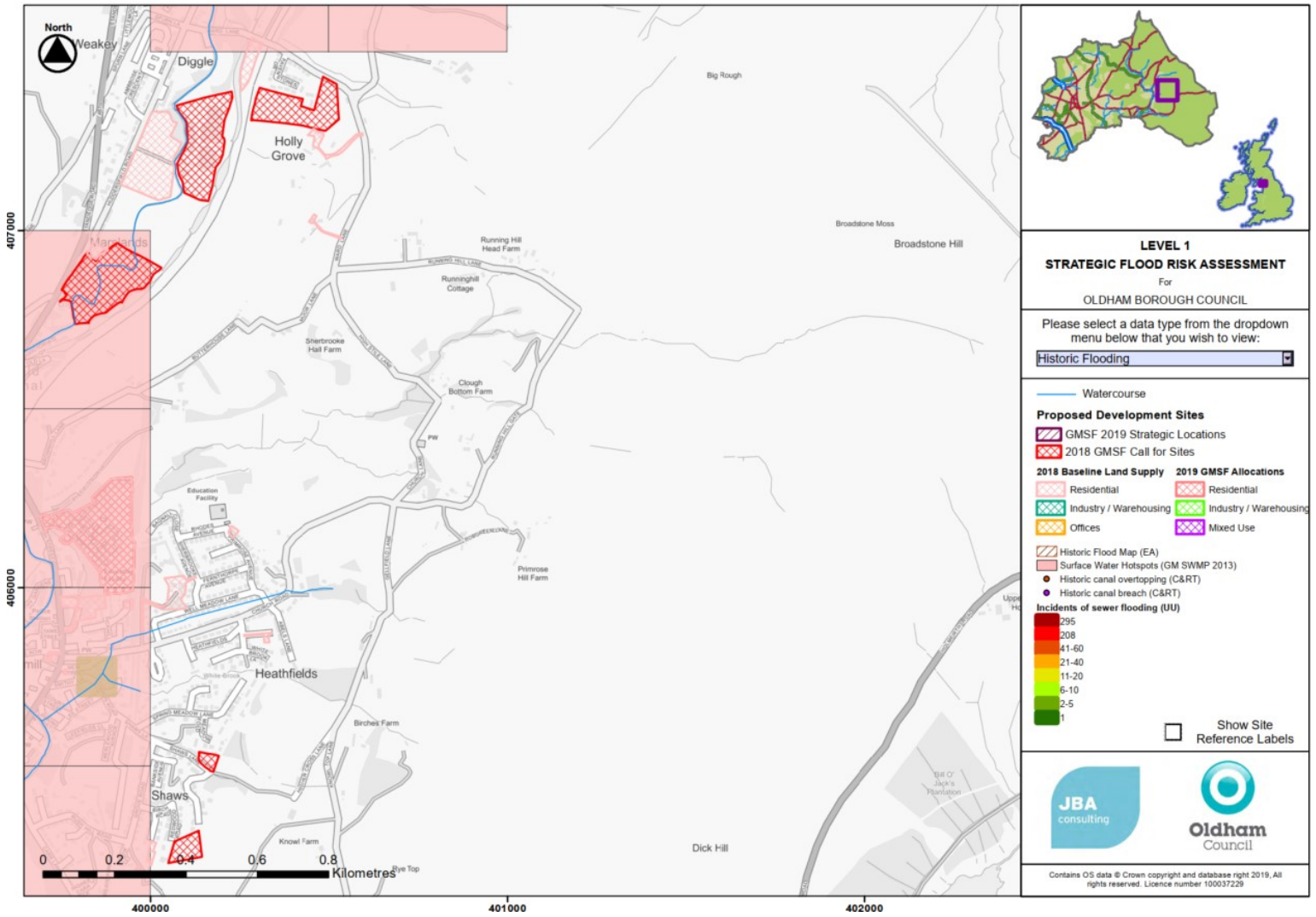

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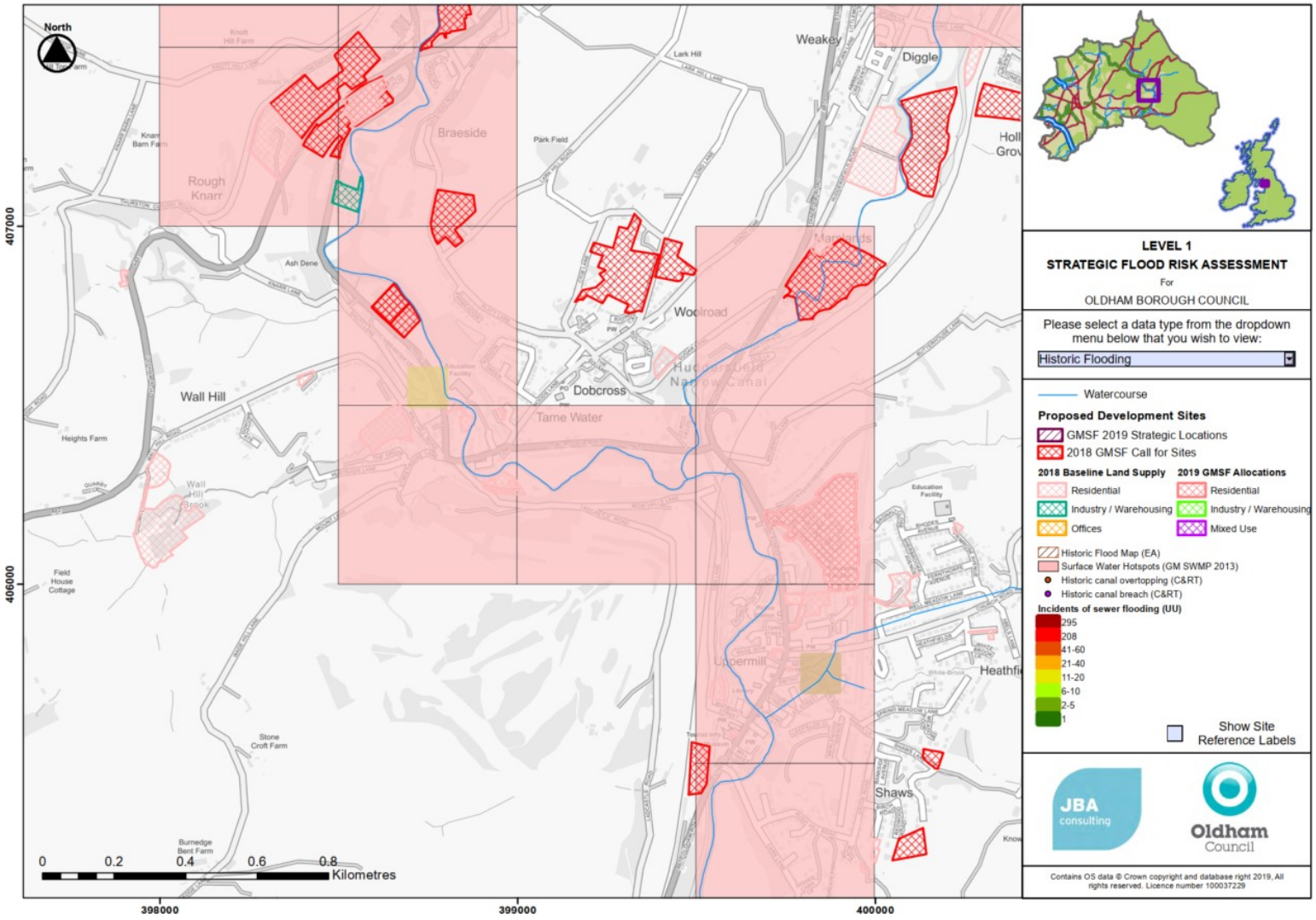

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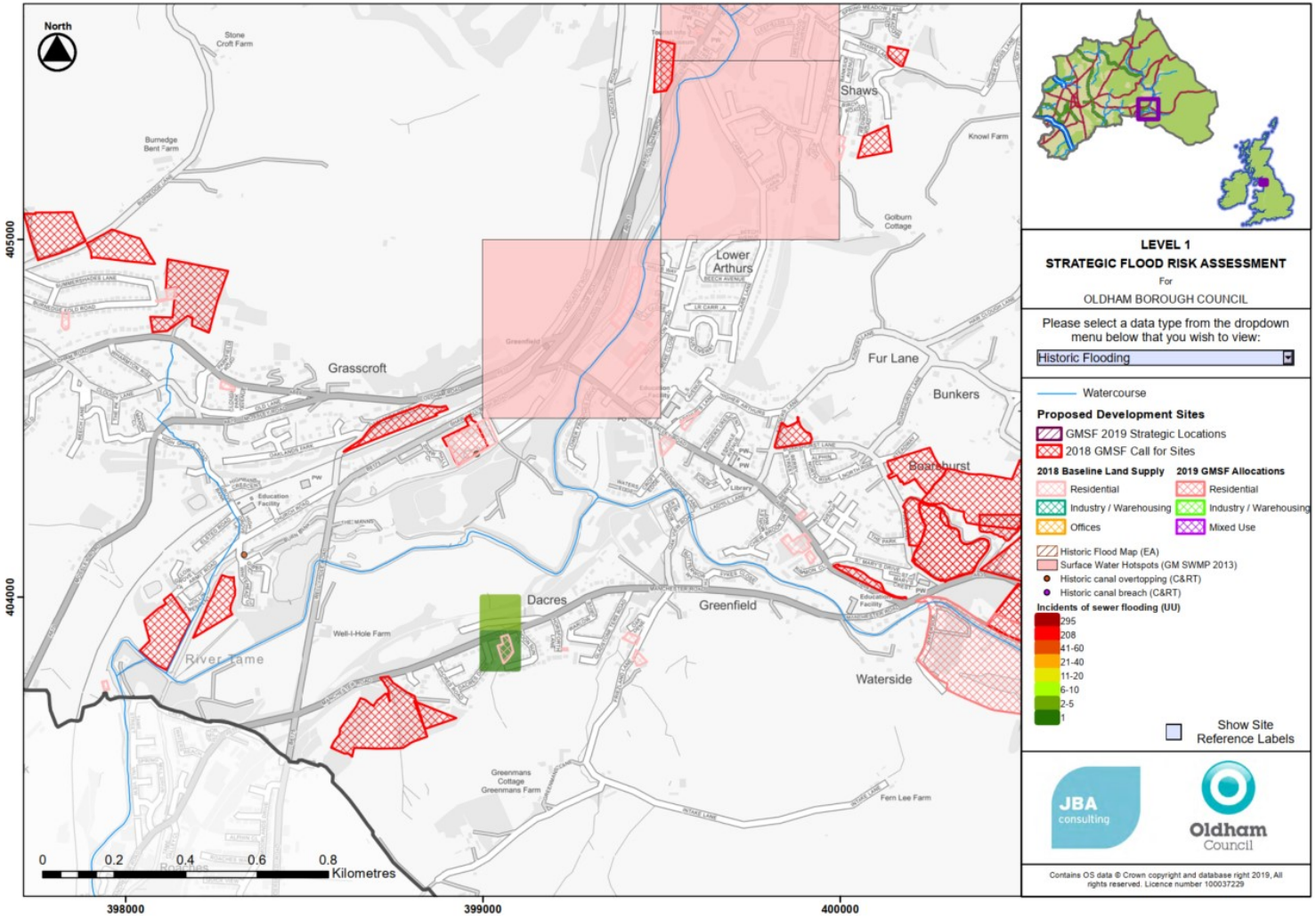
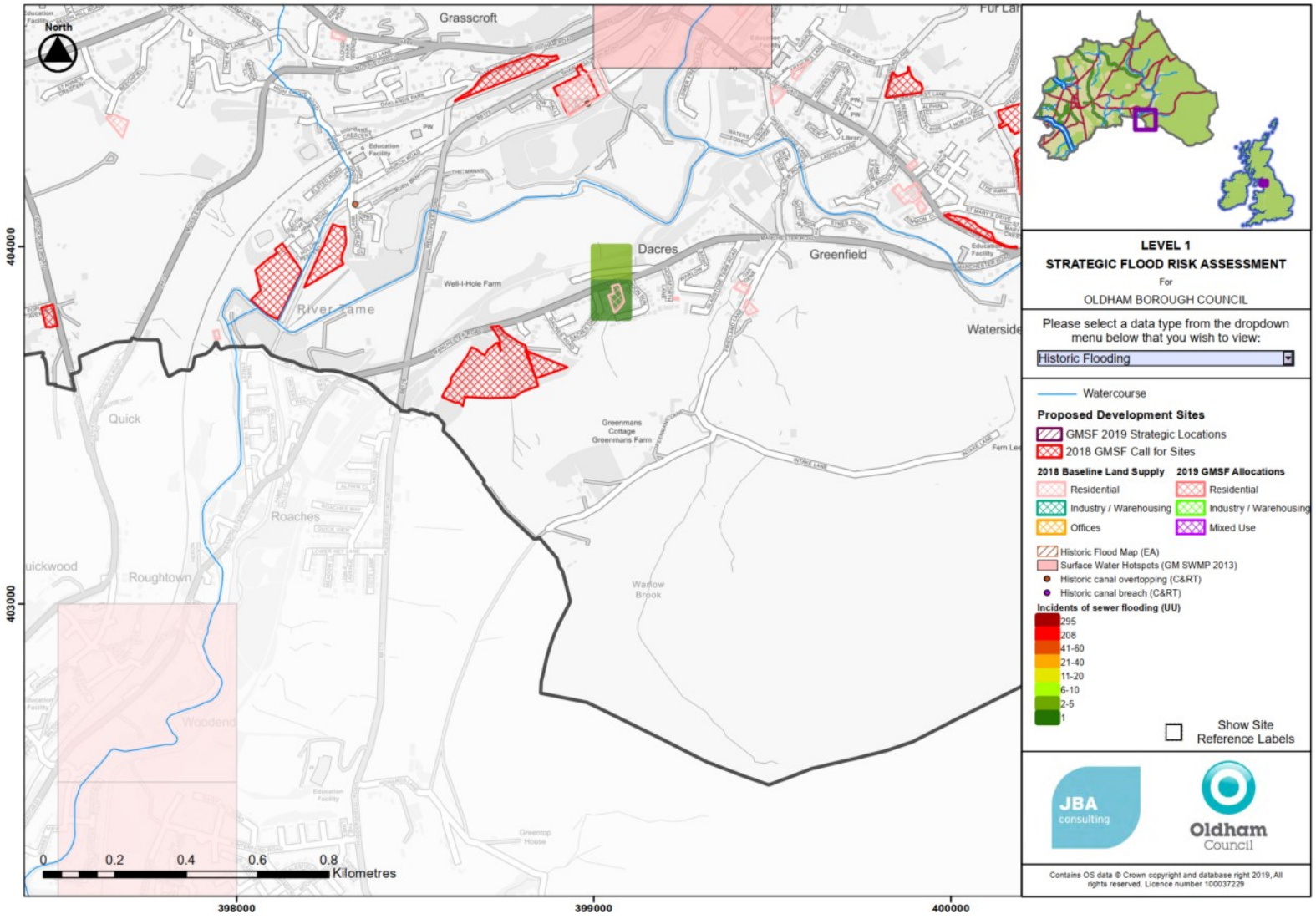
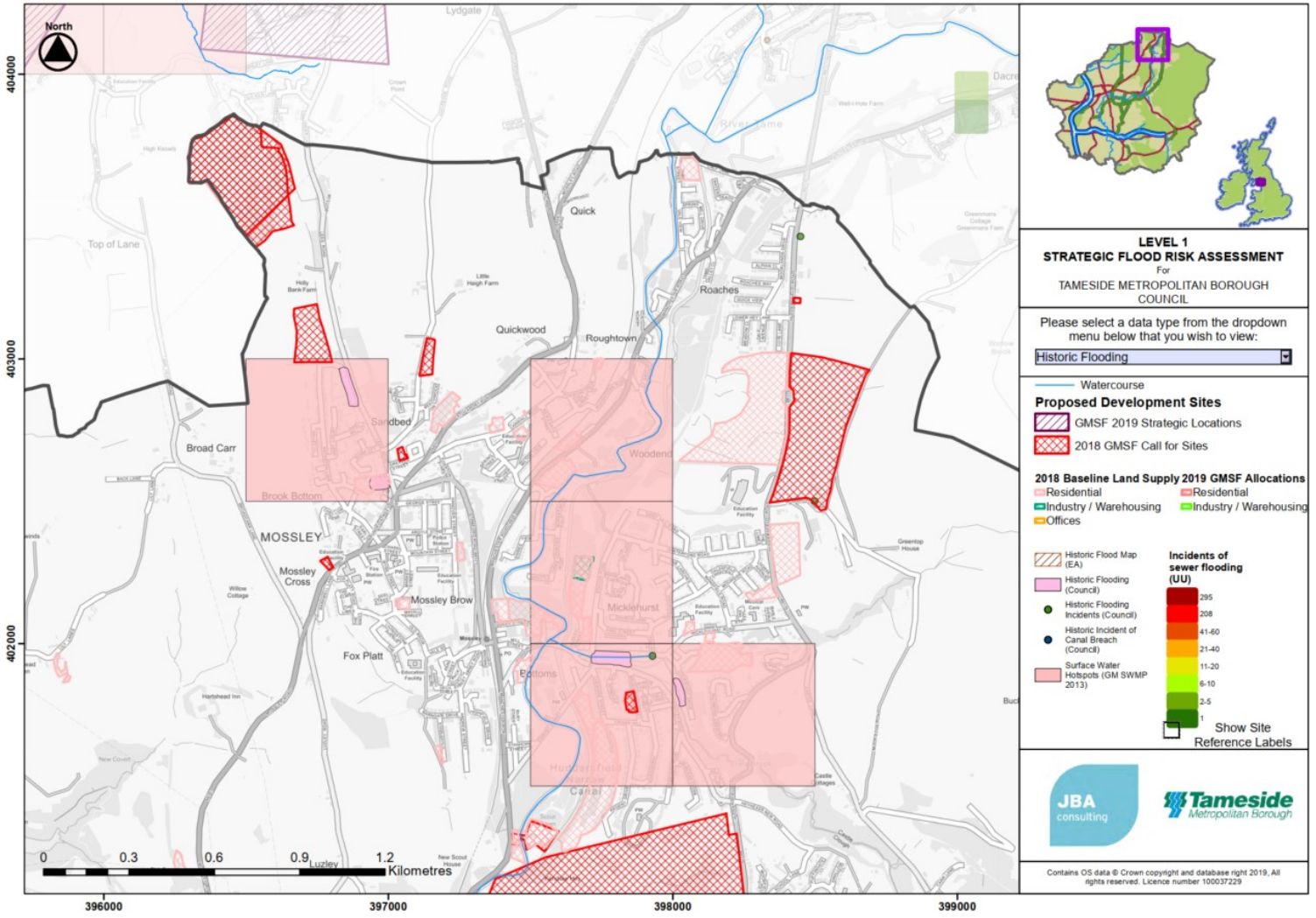


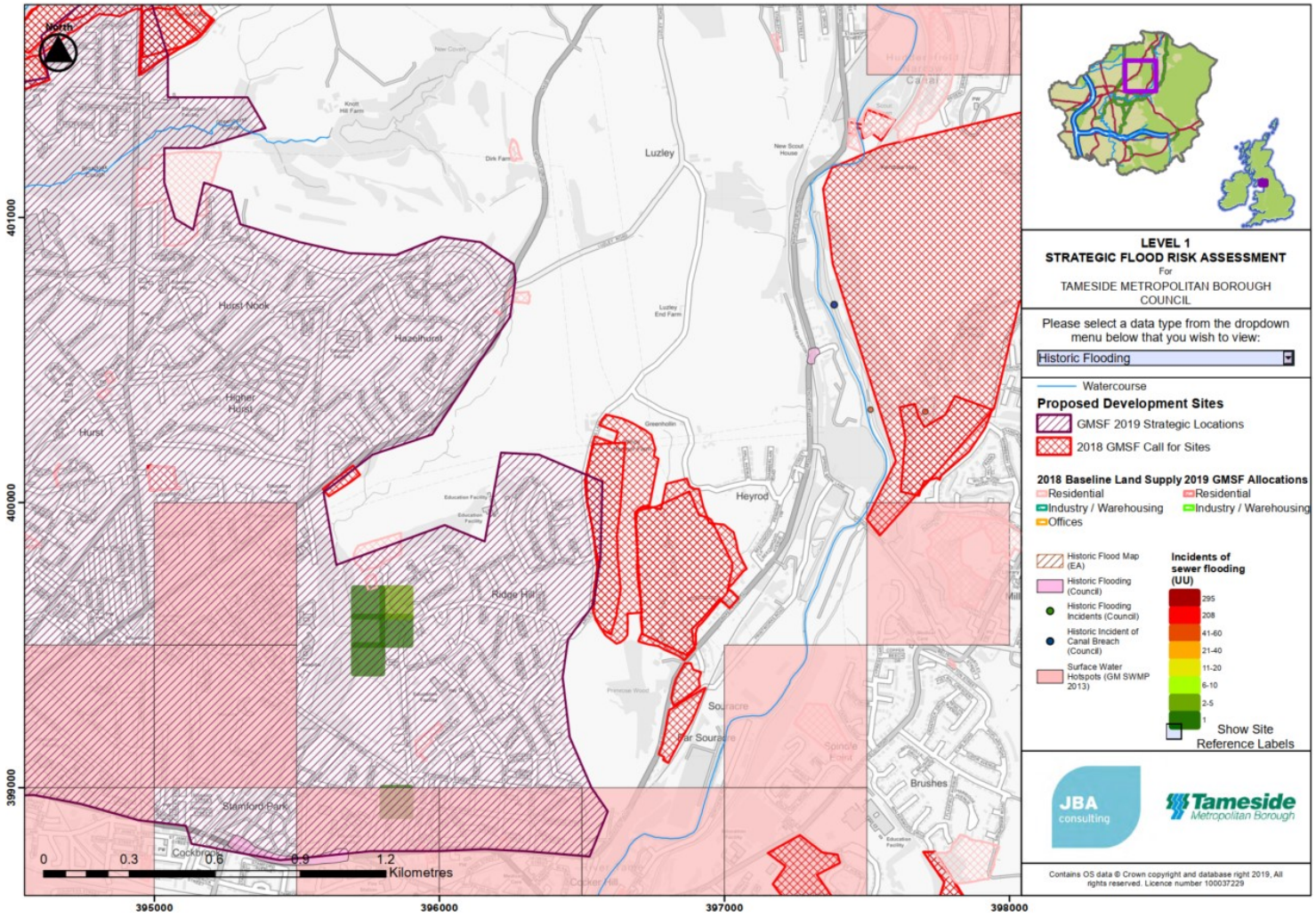
Annex F5: Oldham[14]



Annex F6: Tameside[15]



Annex F7: Tameside[15]



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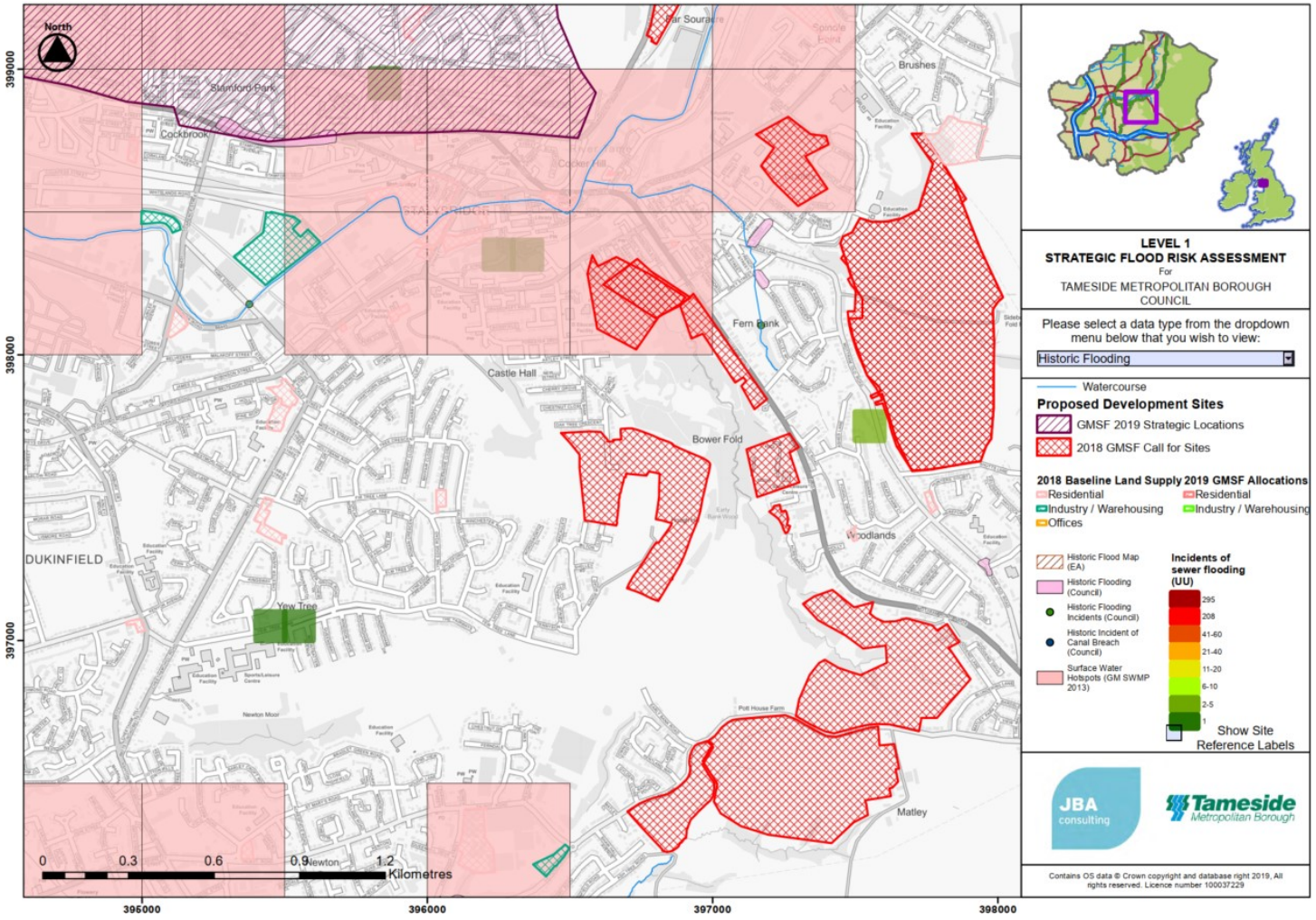
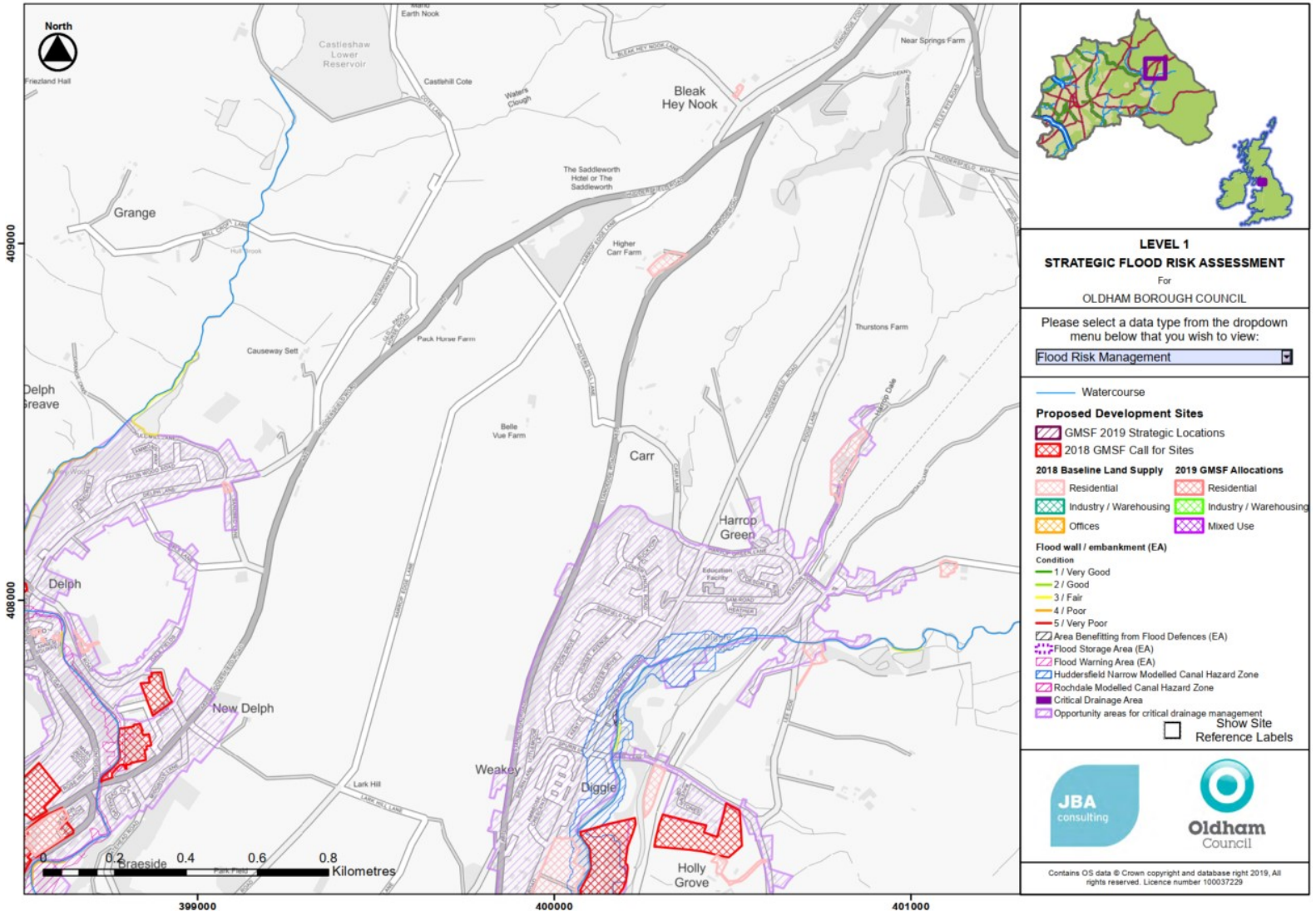
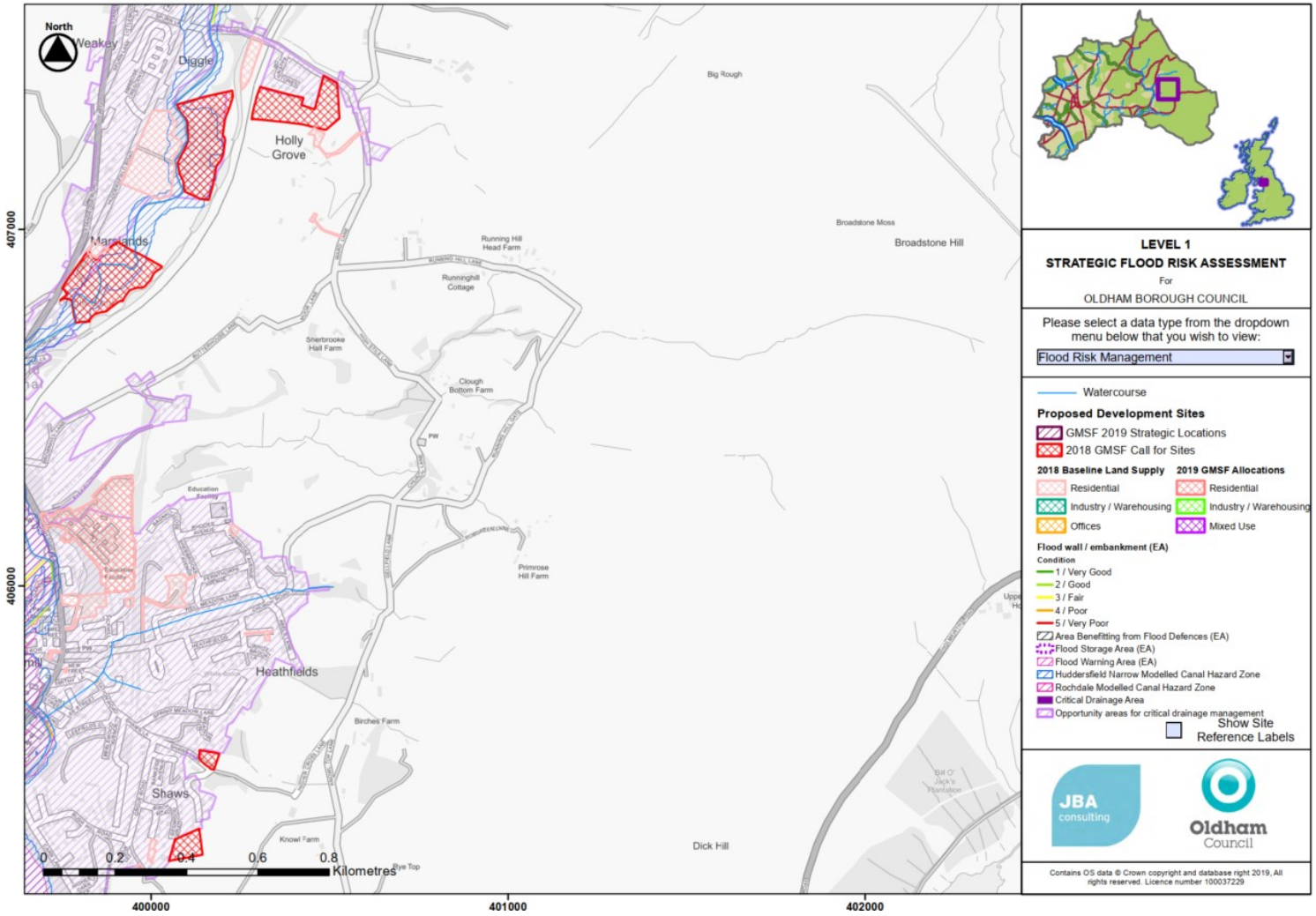


ANNEX G: SFRA MAPS OF FLOOD RISK MANAGEMENT

Annex G1: Oldham[14]



Annex G2: Oldham[14]



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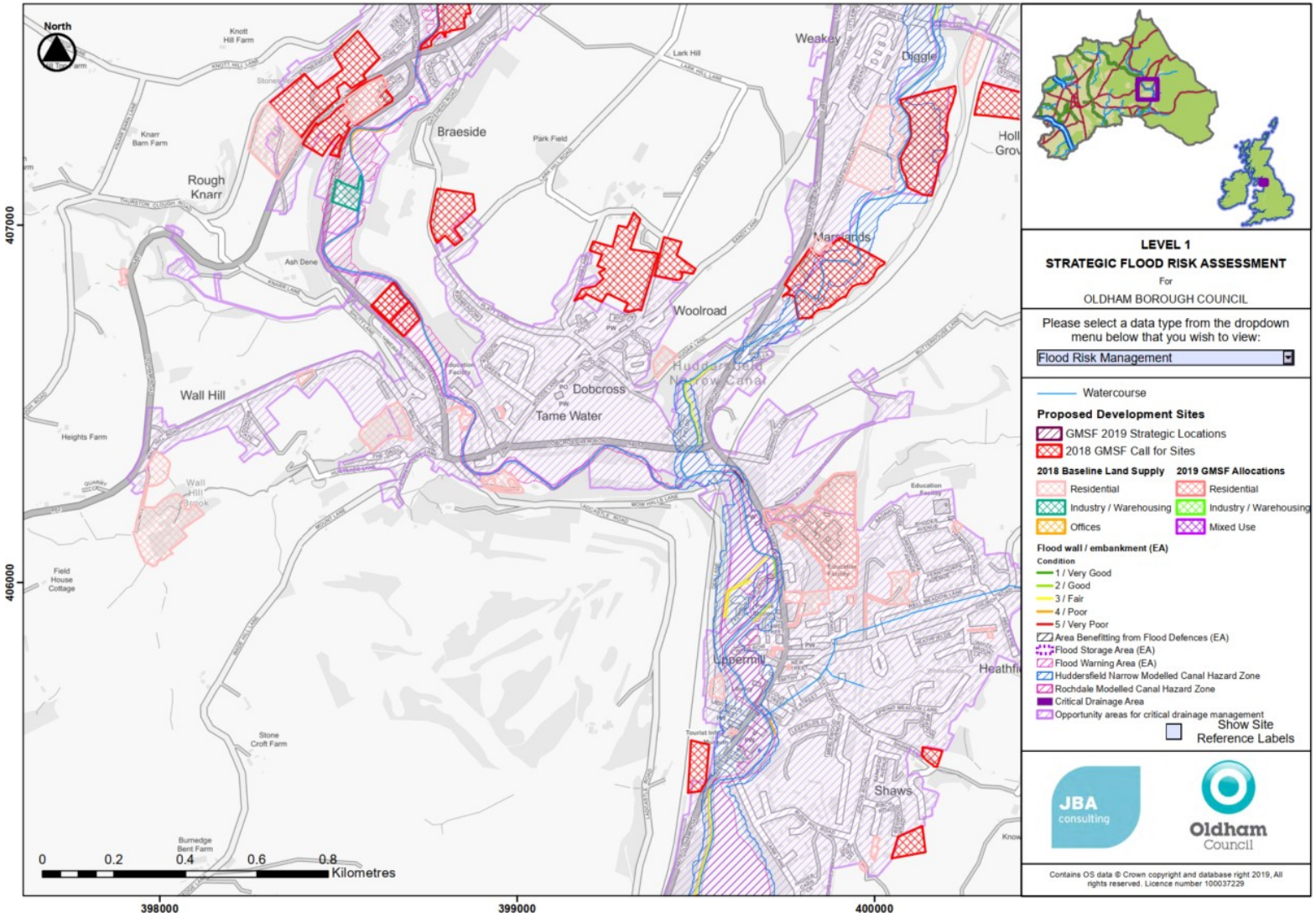

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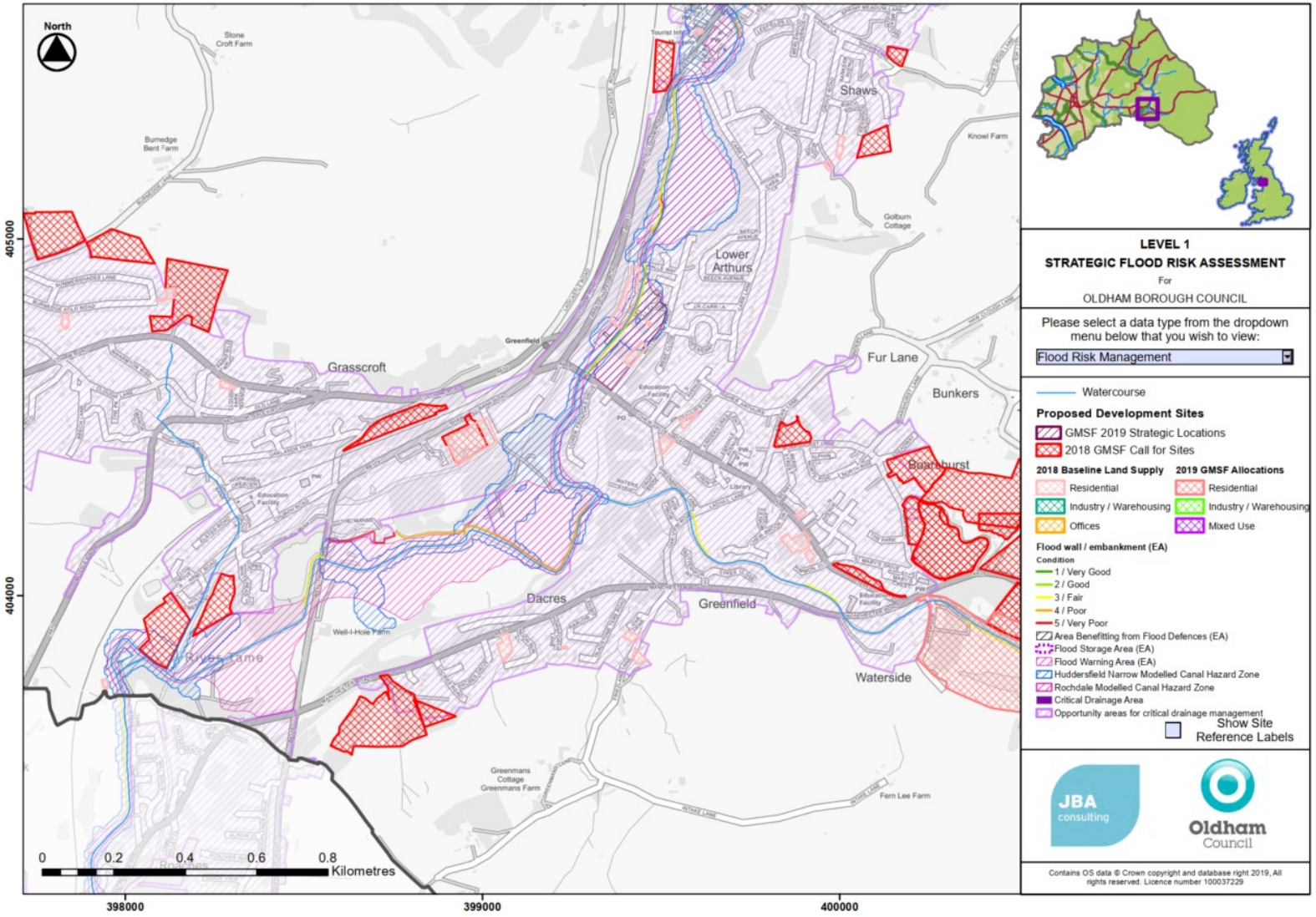

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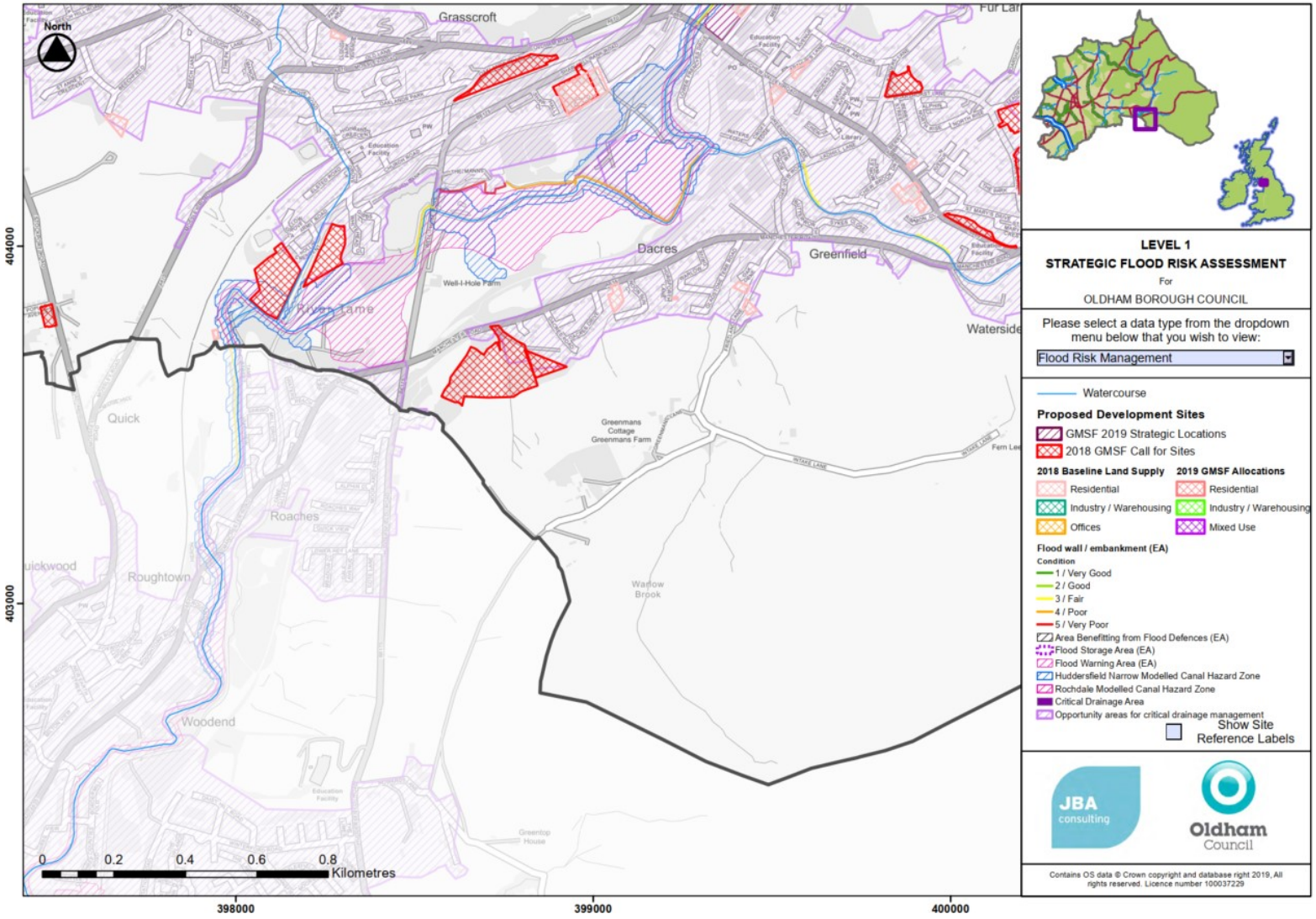

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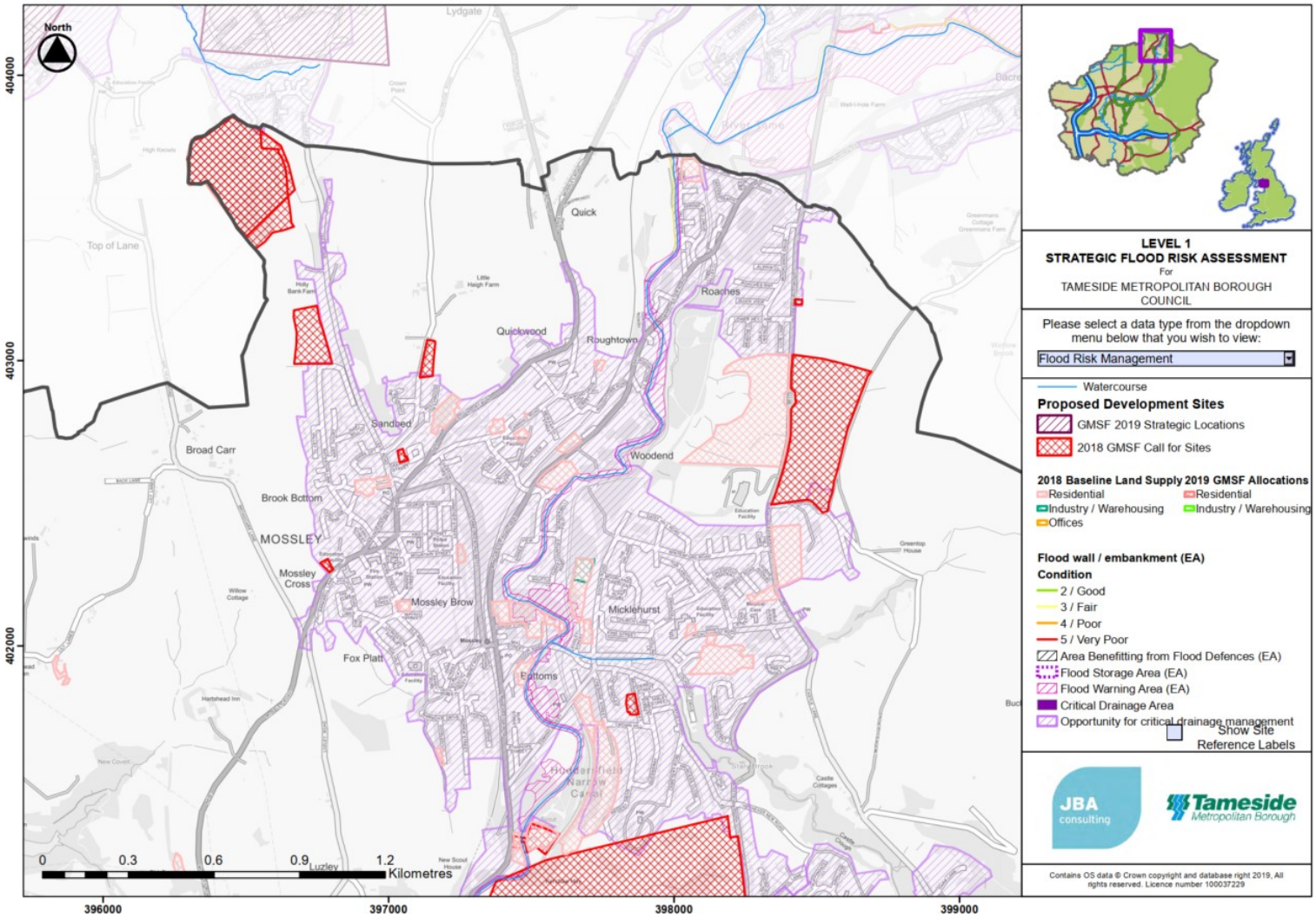

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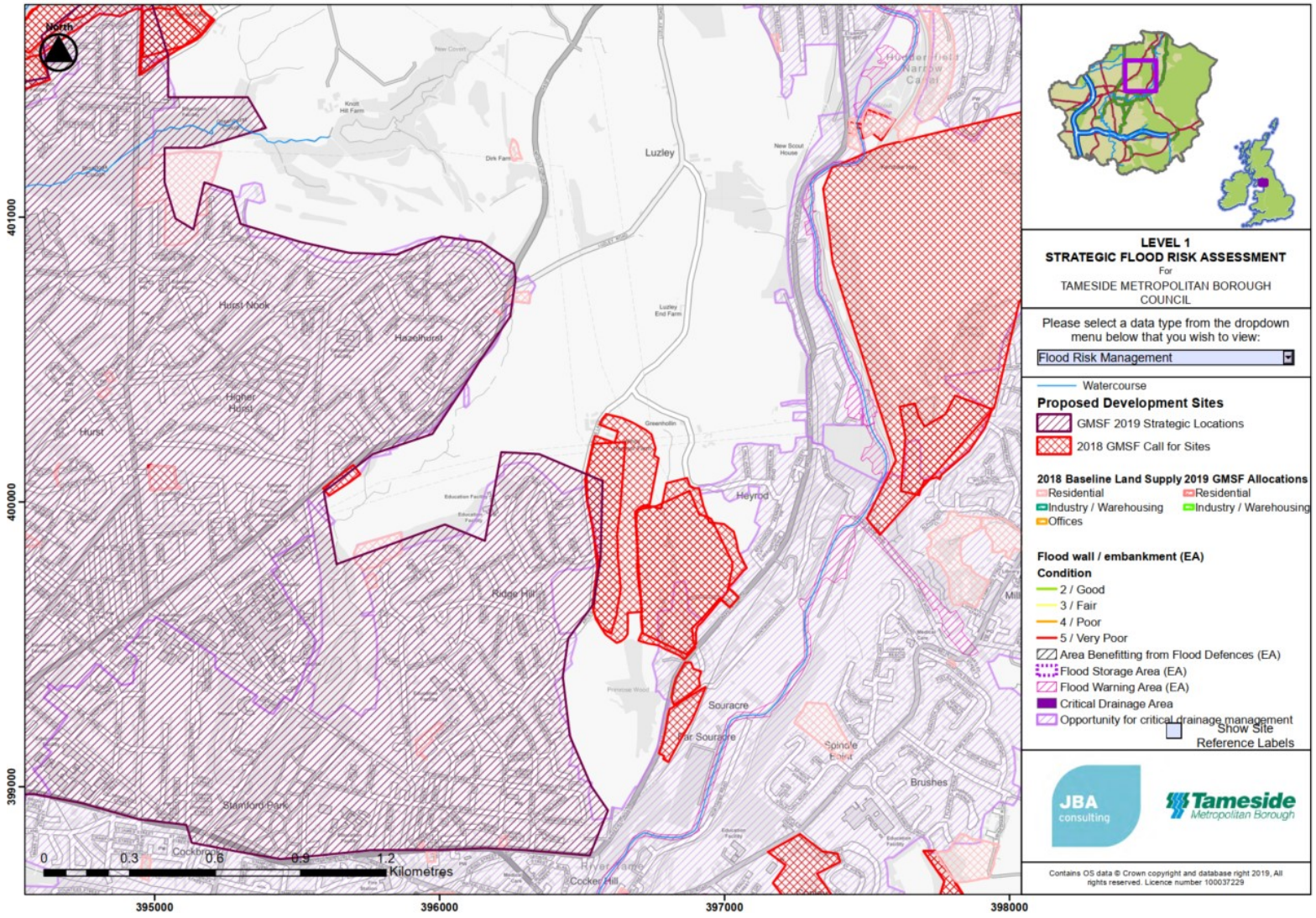
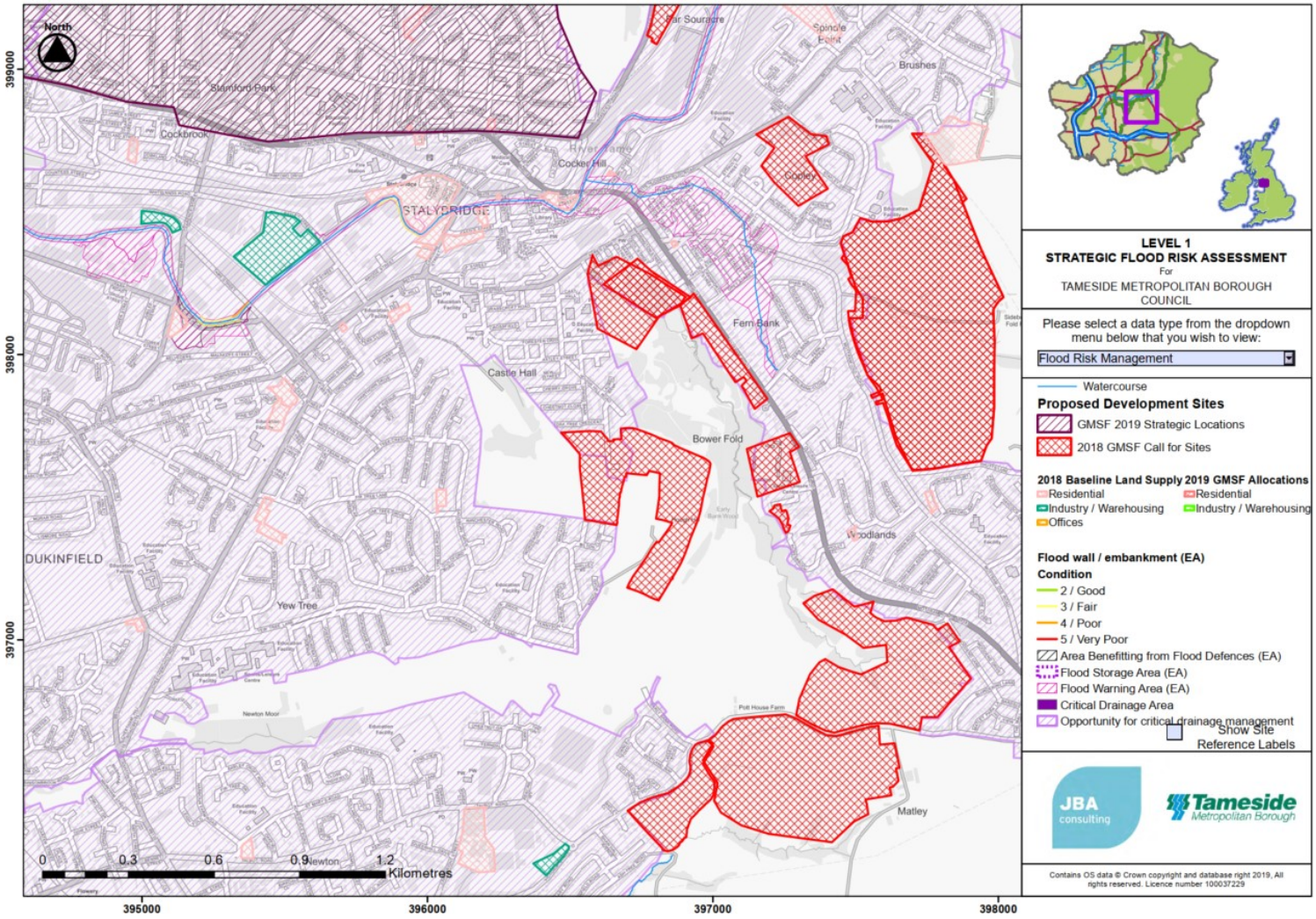


Annex G8: Tameside[15]



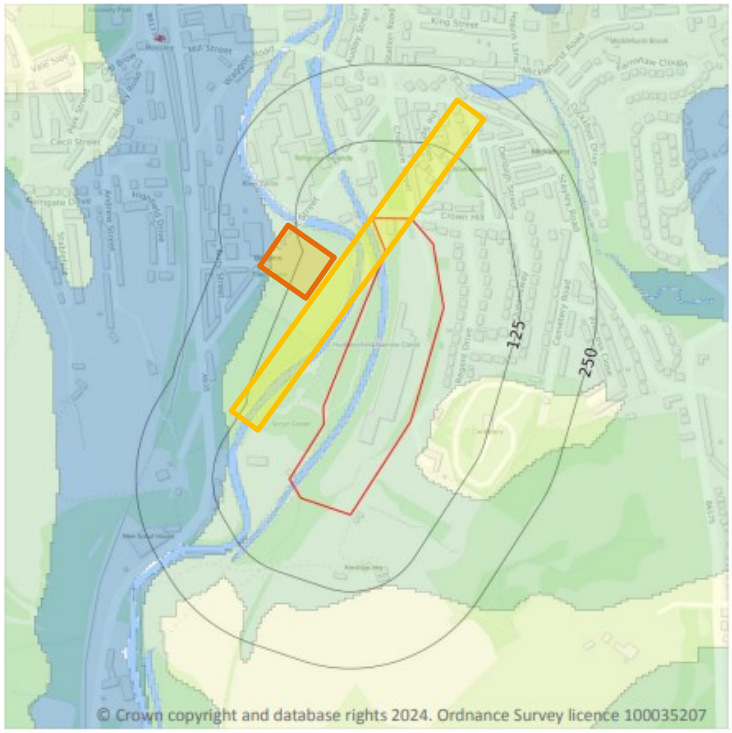
ANNEX H: GROUNDSURE REPORT OF PLEVINS SITE COMPOUND WORKS GROUNDWATER FLOOD RISK

Groundsure
LOCATION INTELLIGENCE

TWAO Main Office

Ref: GS-8D9-VXZ-U2J-COV
Your ref: 5228534-210-TWAO_Main_Office
Grid ref: 397701 401471

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

Temporary right of access of Egmont Street to Plevins Site Compound Works

Temporary land take for Egmont Street Replacement Car park

9.1 Groundwater flooding

Highest risk on site	**Low**
Highest risk within 50m	**Moderate**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on page 99 >

This data is sourced from Ambiental Risk Analytics.

Contact us with any questions at:
info@groundsure.com
01273 257 755

Date: 2 October 2024

99

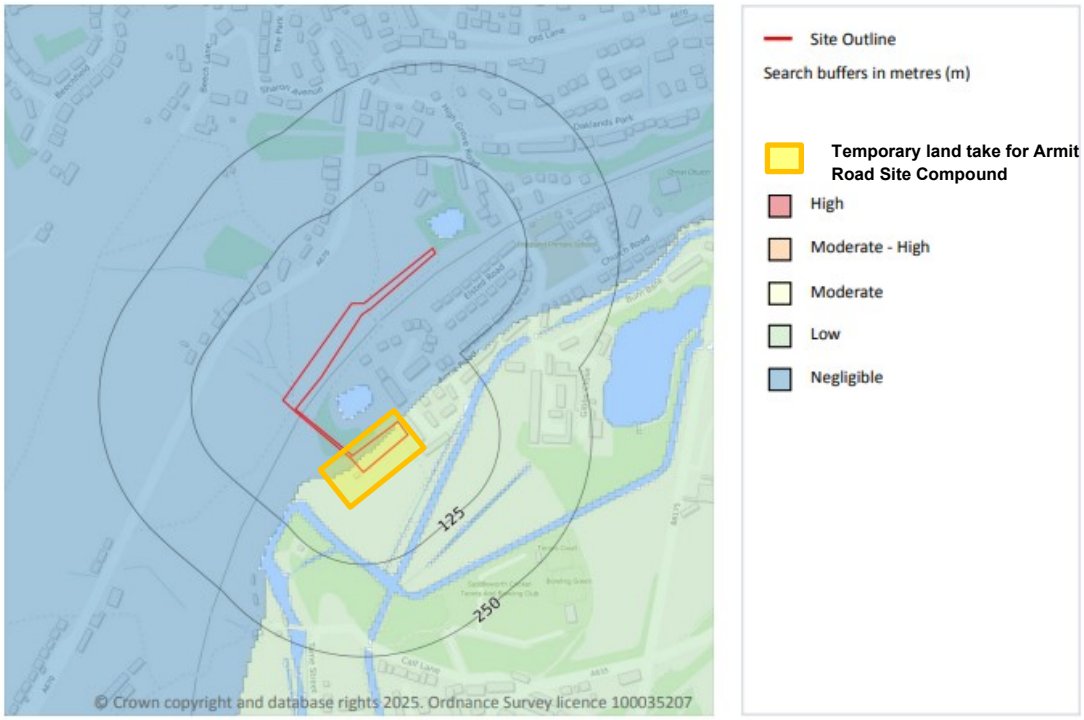
ANNEX I: GROUNDSURE REPORT OF ARMIT ROAD SITE COMPOUND GROUNDWATER FLOOD RISK

Groundsure
LOCATION INTELLIGENCE

Armit Lane Compound

Ref: GS-LHE-639-WE6-VAS
Your ref: 100093512-864
Grid ref: 398071 404062

9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site	**Low**
Highest risk within 50m	**Low**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on page 90 >

This data is sourced from Ambiental Risk Analytics.

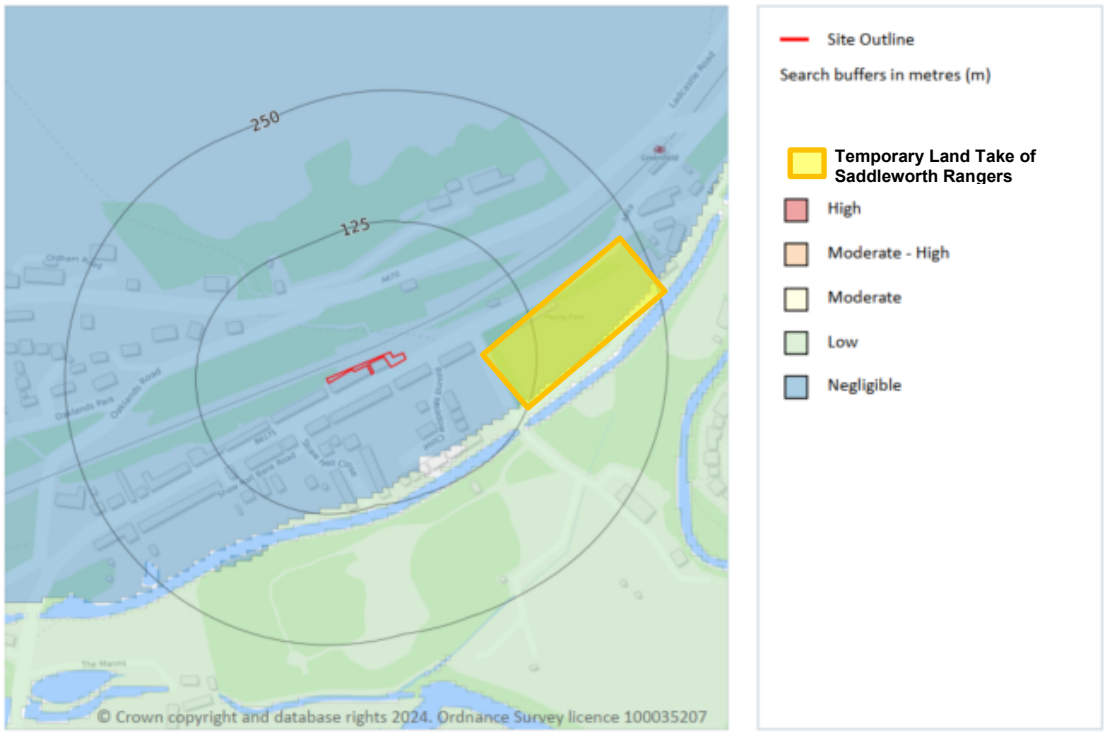
ANNEX J: GROUNDSURE REPORT OF SADDLEWORTH RANGERS REPLACEMENT CAR PARK GROUNDWATER FLOOD RISK

Groundsure
LOCATION INTELLIGENCE

Opposite Oaklands Road

Ref: GS-COY-4JX-HAJ-46V
Your ref: 5228534-210-Opposite_Oaklands_Road
Grid ref: 398906 404497

9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on page 81 >

This data is sourced from Ambiental Risk Analytics.

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81

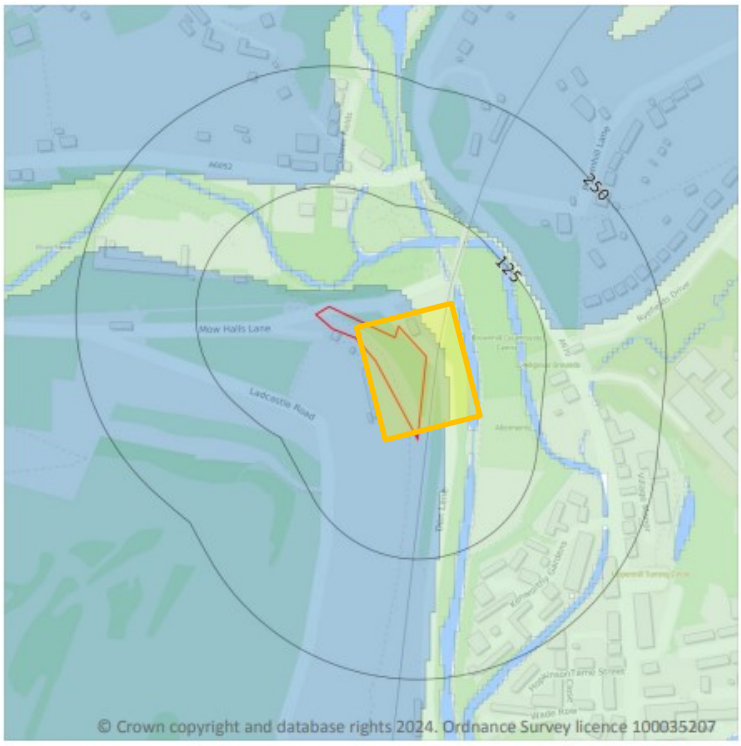
ANNEX K: GROUNDWATER REPORT OF HIGH STREET, NEAR UPPERMILL VIADUCT (MVL3/31), GROUNDWATER FLOOD RISK

Groundsure
LOCATION INTELLIGENCE

Saddleworth Vehicle

Ref: GS-IWW-P65-MNV-7DC
Your ref: 5228534-210-Saddleworth_Vehicle
Grid ref: 399501 406187

9 Groundwater flooding



Site Outline
Search buffers in metres (m)
Temporary land take adjacent to High Street, near Uppermill Viaduct (MVL3/31)
High
Moderate - High
Moderate
Low
Negligible

9.1 Groundwater flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**Low**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on page 78 >

This data is sourced from Ambiental Risk Analytics.

ANNEX L: GROUNDSURE REPORT DIGGLE ACCESS AND DIVERSION WORKS GROUNDWATER FLOOD RISK

Groundsure
LOCATION INTELLIGENCE

Diggle TWAO Compound

Ref: GS-TUD-B38-6YS-G9T
Your ref: 5228534-210-Diggle_TWAO_Compound
Grid ref: 400507 407743

9 Groundwater flooding

Site Outline
Search buffers in metres (m)
Temporary land take for Diggle Access and Diversion Works
High
Moderate - High
Moderate
Low
Negligible

9.1 Groundwater flooding

Highest risk on site	**Low**
Highest risk within 50m	**Low**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on page 85 >

This data is sourced from Ambiental Risk Analytics.

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info@groundsure.com
01273 257 755

Date: 2 October 2024

85

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

DOCUMENT : NR14 VOLUME 3 ENVIRONMENTAL REPORT VOLUME 3 APPENDIX 12C – SURFACE WATER ASSESSMENT

Document Reference	167037-NWR-2BC-MVL3-REP-W-EN-000033
Author	Network Rail
Date	November 2025
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CONTENTS

EXCUTIVE SUMMARY 1
1. INTRODUCTION 3
1.1 Purpose 3
1.2 Figures 3
2. METHODOLOGY 4
2.1 Overview 4
2.2 Desk Study 4
2.3 Determining Sensitivity 5
2.4 Impact Assessment 6
2.5 Significance of Effect 8
2.6 Assumptions 9
3. BASELINE 10
3.1 Study Area 10
3.2 Surface Waters and WFD Status 17
3.3 EA Surface Water Quality Monitoring 22
4. POTENTIAL EFFECTS 24
4.1 Overview 24
4.2 Construction Impacts 24
4.3 Operational Impacts 28
4.4 Scoping 29
5. SIGNIFICANCE OF EFFECTS 35
5.1 Construction – Water Quality 35
5.2 Construction – Hydromorphology 37
5.3 Operation – Water Quality 40
5.4 Operation – Hydromorphology 42

5.5 Mitigation Measures 43

5.6 Residual Effects (Overall).....44

6. CONCLUSIONS 46

6.1 Summary.....46

6.2 Limitations 46

EXCUTIVE SUMMARY

This Technical Note presents the surface water assessment for the proposed Network Rail (Stalybridge to Diggle Enhancements Order) Transport and Works Act Order (TWAO) (hereafter referred to as "the Order Scheme"). The assessment has considered impacts to surface water quality and hydromorphology only. Impacts to groundwater quantity/flow and flood risk can be found in Volume 3, Appendix 12A (Water Framework Directive Assessment) and 12B (Flood Risk Assessment) of this document [**NR14**].

Impacts to the following surface water receptors within the Order Scheme have been assessed:

- Diggle Brook
- River Tame
- Huddersfield Narrow Canal
- Unnamed watercourse near Standedge Tunnel
- Ordinary Watercourse (OW) 7, as defined in Section 3.
- OW 13
- OW 14

With the implementation of the proposed Code of Construction Practice (CoCP) which will be secured through the implementation of planning conditions as included in the Order application document 'Request for deemed planning permission and statement of proposed conditions' [**NR11**], surface water management measures outlined in the Pollution Prevention and Incident Control Plan (PPICP), and additional specific mitigation measures, no significant adverse (or beneficial) effects on any identified surface water receptor within the water environment are predicted during either construction or operation of the Order Scheme.

1. INTRODUCTION

1.1 Purpose

1.1.1 This report presents the surface water assessment for the proposed Network Rail (Stalybridge to Diggle Enhancements) Order (hereafter referred to as "the Order Scheme").

1.1.2 A detailed description of the Order Scheme is provided in Volume 1 of the Environment Report [**NR14**]. All Appendices and Figures referred to in this chapter are provided in Volumes 2 and 3 of the Environment Report [**NR14**], respectively.

1.1.3 The consultation responses relevant to the water environment are provided in the Consultation Report [**NR07**] of the Order Scheme.

1.1.4 The scope of the report will comprise impacts to surface water receptors. The impact assessment will consider surface water quality and hydromorphology separately.

1.1.5 A Water Framework Directive (WFD) assessment has been undertaken and is presented in Volume 3, Appendix 12A of this Report [**NR14**]. The WFD assessment provides an assessment of likely significant effects of the Order Scheme in accordance with the WFD and considers opportunities for betterment to help meet the objectives of the WFD (to protect the water environment) where appropriate.

1.2 Figures

1.2.1 In Volume 2 of the Environmental Report [**NR14**], the following figures provide relevant background information and can be referred to in the context of this document:

- Figure 12C.3.1 WFD surface waterbodies within a 1 km buffer of the Order Scheme boundary.
- Figure 12C.4.1 Surface water receptors scoped in for further assessment

2. METHODOLOGY

2.1 Overview

2.1.1 The surface water assessment has been undertaken utilising the following key steps:

- Baseline – the water environment baseline within the Order Scheme is summarised.
- Potential effects – the potential impacts and effects (both beneficial and adverse) on receptors in the Order Scheme during construction and operation are characterised.
- Mitigation measures – avoidance, mitigation, compensation and enhancement measures are described.
- Residual effects – the significance of residual effects (both beneficial and adverse) on receptors following the implementation of mitigation measures is assessed.

2.2 Desk Study

2.2.1 A desk study was undertaken to identify surface water receptors which could potentially be impacted by the Order Scheme and to establish the water baseline environment.

2.2.2 The following sources of information were used to undertake the desk-based study:

- Ordnance Survey (OS) Open Data[1];
- The Environment Agency (EA) website[2];
- The EA Catchment Data Explorer website[3];
- Multi-Agency Geographic Information for the Countryside (MAGIC) Map[4];
- The EA Water Quality Data archive website[5];
- High-resolution aerial photography, e.g. Google Earth.

[1] Free OS OpenData Map Downloads | Free Vector & Raster Map Data | OS Data Hub

[2] Environment Agency - GOV.UK

[3] England | Catchment Data Explorer

[4] MAGIC - Map Page new URL

[5] Open WIMS data

2.2.3 Reportable WFD watercourses are assessed under the WFD and assigned a WFD status. Non-reportable watercourses drain into reportable WFD watercourses and although not assessed and assigned a WFD status are part of the WFD water body catchment. It is therefore necessary that consideration should be given to their impact upon the status of the wider WFD water body.

2.2.4 Watercourses are classified as either Main River or Ordinary Watercourses. Ordinary Watercourses are all other watercourses which are not classified as Main River. Main Rivers fall under the legal powers and responsibility of the EA, whereas Ordinary Watercourses are the responsibility of Internal Drainage Boards (IDBs) and the Local Lead Flood Authority (LLFA).

2.3 Determining Sensitivity

2.3.1 The methodology presented in DMRB LA 113[6] has been applied to assign the sensitivity of the surface water receptors (See Table 2-1).

2.3.2 Where the information provided in Table 2-1 is unknown; professional judgement was used to determine importance.

Table 2-1 Criteria for determining the sensitivity for water environment receptors.

Receptor importance	Receptor	Typical examples
Very High	Surface water	• Nationally significant attribute of high importance. • Watercourse having a WFD classification shown in a RBMP and a Q95 ≥ 1.0 m^3/s. • Site protected / designated under European Commission (EC) or UK legislation (SAC, SPA, SSSI, Ramsar site, salmonid water) / Species protected by EC legislation LA 108.
High	Surface water	• Locally significant attribute of high importance. • Watercourse having a WFD classification shown in a RBMP and a Q95 < 1.0 m^3/s.

[6] Highways England LA 113 Road Drainage and the water environment Revision 1

Receptor importance	Receptor	Typical examples
		• Species protected under EC or UK legislation LA 108.
Medium	Surface water	• Watercourse/ attribute of moderate quality or rarity • Watercourse not having a WFD classification shown in a RBMP and a Q95 > 0.001 m^3/s
Low	Surface water	• Watercourse with a lower quality. • Watercourse not having a WFD classification shown in a RBMP and a Q95 ≤ 0.001 m^3/s.

2.4 Impact Assessment

2.4.1 Potential impacts to surface water receptors are identified by considering activities during the construction and operation of the Order Scheme.

2.4.2 If an impact is identified, the feasibility of mitigating it is evaluated, and the corresponding mitigation measures are outlined. The mitigated impact is then assigned a magnitude according to the established criteria in Table 2-2.

Table 2-2 Magnitude of Impact

Magnitude of impact	Criteria	Typical example	
Major adverse	Results in loss of attribute and/or quality and integrity of the attribute.	Surface water:	• Loss or extensive change to a fishery. • Loss of regionally important public water supply. • Loss or extensive change to a designated nature conservation site. • Reduction in water body WFD classification.

Magnitude of impact	Criteria	Typical example	
Moderate adverse	Results in effect on integrity of attribute, or loss of part of attribute.	Surface water:	• Partial loss in productivity of a fishery. • Degradation of regionally important public water supply or loss of major commercial/ industrial/ agricultural supplies. • Contribution to reduction in water body WFD classification. • The required pollution hazard indices in the CIRIA simple index approach are not met for two of TSS, metals or hydrocarbons.
Minor adverse	Results in some measurable change in attributes, quality or vulnerability.	Surface water:	• Minor effects on water supplies. • The required pollution hazard indices in the CIRIA simple index approach are not met for one of TSS, metals or hydrocarbons.
Negligible	Results in effect on attribute, but of insufficient magnitude to affect the use or integrity.	Surface water:	• The required pollution hazard indices in the CIRIA simple index approach for TSS, metals and hydrocarbons are met.
Minor beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring.	Surface water:	• Improvement from a baseline where one of TSS, metals or hydrocarbons were not meeting the required pollution hazard index in the CIRIA simple index approach.
Moderate beneficial	Results in moderate	Surface water:	• Contribution to improvement in water

Magnitude of impact	Criteria	Typical example	
	improvement of attribute quality.		body WFD classification. • Improvement from a baseline where two of TSS, metals or hydrocarbons were not meeting the required pollution hazard indices in the CIRIA simple index approach.
Major beneficial	Results in major improvement of attribute quality.	Surface water:	• Improvement in water body WFD classification. • Improvement from a baseline where all three of TSS, metals or hydrocarbons were not meeting the required pollution hazard indices in the CIRIA simple index approach.
No change			• No loss or alteration of characteristics, features or elements; no observable impact in either direction.

2.5 Significance of Effect

2.5.1 The significance of effect is determined by considering the relationship between sensitivity of the receptor and the impact magnitude, as shown in Table 2-3. Very large, large or moderate effects are deemed to be significant. minor and negligible effects are deemed to be not significant. This has been determined based on the methodology set out in DMRB LA 104[7].

2.5.2 It is important to note that this approach acts as a guide to demonstrate a clear thought process in determining whether an effect will be significant or not. It is not intended to replace the professional judgement exercised by the assessor which will be the main determining factor for attributing effect significance.

[7] Highways England LA 113 Road Drainage and the water environment Revision 1

Table 2-3 Significance of Effect

		Impact Magnitude				
		Major	**Moderate**	**Minor**	**Negligible**	**No Change**
Receptor Sensitivity	**Very High**	Very large	Very large or Large	Large or Moderate	Slight	Neutral
	High	Very large or Large	Large or Moderate	Moderate or Slight	Slight	Neutral
	Medium	Large or Moderate	Moderate	Slight	Slight/ Neutral	Neutral
	Low	Slight or Moderate	Slight	Slight of Neutral	Slight/ Neutral	Neutral
	Negligible	Slight	Neutral or Slight	Neutral or Slight	Neutral/ Slight	Neutral

2.6 Assumptions

2.6.1 The following assumptions have been used when undertaking the surface water assessment:

- During construction best practice environmental management measures will be implemented on site.
- It is assumed that all earthworks have been designed and will be undertaken in accordance with relevant guidance and industry best practice to ensure protection of the environment.
- There will be like for like replacement or improvements to drainage design.
- Outfalls and culverts: Works will be undertaken using best practice and appropriate mitigation measures. Changes to culvert designs will either be like for like or improved (taking into account any downstream flood risk receptors).
- Discharges and abstractions: All discharges and abstractions will be undertaken in accordance with regulatory requirements and as such will not cause deterioration to the impacted receptors. Appropriate protective provisions will be acquired for any additional drainage works not included in the Order.

3. BASELINE

3.1 Study Area

3.1.1 Surface water receptors have been identified within a 1 km buffer of the Order Scheme boundary, which runs approximately from Diggle to Stalybridge, as shown in Figure 12C.3.1 in Volume 2 of the Environmental Report [**NR14**].

3.1.2 Six WFD water bodies are located within the Order Scheme, four rivers and two canals. Four WFD river catchments cover 32 watercourses and two canals, as shown in Table 3-1.

Table 3-1 Surface watercourses within 1 km buffer of the Order Scheme boundary

Surface watercourses	WFD reportable watercourse	Main River/ Ordinary Watercourse	Summary
Tame (Source to Chew Brook) GB112069064741			
Diggle Brook	No	Main River	Diggle Brook is a designated Main River located in the north of the study area. It flows in a south westerly direction from Diggle Reservoir before crossing the Huddersfield trainline and Huddersfield Narrow Canal in Diggle Village centre. At this point, the watercourse flows southerly direction, through the centre of the study area to join the River Tame at Brownhill Nature Garden.
River Tame	Yes	Main River	The Rive Tame flows in a generally southerly direction. The River Tame originates on Denshaw Moor in Greater Manchester (outside of the Order Scheme boundary), close to the border with West Yorkshire. The river flows through towns such as Uppermill, Mossley and Stalybridge, before joining the River Goyt in Stockport to form the River Mersey, approximately 9.2 km southwest of the study area.

Surface watercourses	WFD reportable watercourse	Main River/ Ordinary Watercourse	Summary
Will Clough	No	Ordinary Watercourse	Will Clough is a short tributary of the unnamed watercourse near Standedge Tunnel. It flows in a westerly direction and is situated due south of Brunclough reservoir.
Unnamed watercourse - Uppermill Village	No	Main River	There is an unnamed designated Main River located in Uppermill Village towards the north of the study area. The watercourse is culverted throughout the study area and flows in a south-westerly direction from Church Road before discharging to the River Tame near the A670.
Unnamed watercourse near Standedge Tunnel	No	Ordinary Watercourse	The unnamed watercourse near Standedge Tunnel is an Ordinary Watercourse which flows in a southerly direction joining Diggle Brook upstream of Diggle Village.
Wall Hill Brook	No	Ordinary Watercourse	Wall Hill Brook is an Ordinary Watercourse located in the northwest of the study area. Wall Hill Brook flows is a tributary of the River Tame, it flows in a north-easterly direction from near Husteads Lane to join the Tame, south of Holy Trinity Church of England Primary School.
White Brook	No	Ordinary Watercourse	White Brook is an Ordinary Watercourse located to the east of the study area. It generally flows in a westerly direction from Knowl Top Lane before being culverted beneath Uppermill Village and out falling to the River Tame.
Pickhill Brook	No	Ordinary Watercourse	Pickhill Brook is an Ordinary Watercourse located to the north-east of the study area. The watercourse generally flows in a south-westerly direction from

Surface watercourses	WFD reportable watercourse	Main River/ Ordinary Watercourse	Summary
			Broadstone outside of the study area to its discharge to the River Tame south of A670 – High Street.
OW 1	No	Ordinary Watercourse	OW 1 is located in the northern section of the study area, it slows in a southerly direction from south of Huddersfield Road to join Diggle Brook in Diggle Village.
OW 2	No	Ordinary Watercourse	OW 2 is a small watercourse located in the northern section of the study area. It generally flows in a southerly direction to join the Unnamed watercourse near Standedge Tunnel.
OW 3	No	Ordinary Watercourse	OW 3 and OW 4 are small tributaries of the Unnamed watercourse near Standedge Tunnel. They both flow in a north- westerly direction and cross Standedge Tunnel and Huddersfield Narrow Canal to join the watercourse.
OW 4	No	Ordinary Watercourse	
OW 5	No	Ordinary Watercourse	OW 5 and OW 6 are small tributaries of the Unnamed watercourse - Uppermill Village. OW 5 flows in a southerly direction and OW 6 flows in a westerly direction to join the watercourse south of Church Lane.
OW 6	No	Ordinary Watercourse	
OW 7	No	Ordinary Watercourse	OW 7 flows in a westerly direction draining an area of grazed pasture to the east of the Order Scheme boundary. The watercourse is culverted beneath the existing rail line and then passes above the Huddersfield Narrow canal, in an open piped structure, before entering a pond adjacent to Diggle Brook.
Tame (Chew Brook to Swineshaw Brook) GB112069061111			

Surface watercourses	WFD reportable watercourse	Main River/ Ordinary Watercourse	Summary
Staly Brook	No	Main River	Staly Brook is a Main River located near Moorgate in Greater Manchester. It flows in a north- westerly direction to join Micklehurst Brook in Mossley, south-east of the study area.
Unnamed river - Grasscroft Village	No	Main River	There is an unnamed designated Main River located in Grasscroft Village towards the centre of the study area. The watercourse is culverted throughout the study area and flows in a southerly direction from Oldham Road before discharging to the River Tame near Saddleworth Cricket and Tennis Club.
Unnamed river - Stalybridge	No	Main River	There is an unnamed designated Main River located in Stalybridge in the south of the study area. The watercourse is culverted throughout the study area; it flows in a north-westerly direction from Fern Bank Recreation Ground to outfall at the River Tame near Higher Tame Street.
Swineshaw Brook	No	Ordinary Watercourse	Swineshaw Brook is an Ordinary Watercourse located to the south- east of the study area. The watercourse flows in a north- westerly direction through Millbrook Village to join Huddersfield Narrow Canal near Grove Road.
Micklehurst Brook	No	Ordinary Watercourse	Micklehurst Brook an Ordinary Watercourse located to the east of the study area. Micklehurst Brook generally flows in a westerly direction, parallel to Micklehurst Road before flowing into the River Tame.
Acres Brook	No	Ordinary Watercourse	Acres Brook is an Ordinary Watercourse which flows in a north westerly direction form near Cheetham Park to discharge to the River Tame near Higher Tame Street.

Surface watercourses	WFD reportable watercourse	Main River/ Ordinary Watercourse	Summary
Stocks Brook	No	Ordinary Watercourse	Stocks Brook flows in a north- westerly direction from the Stocks area to join Acres Brook north of Mottram Road and Huddersfield Road junction.
OW 9	No	Ordinary Watercourse	OW 9 is located south-west of Greenfield Village, in the centre of the study area. The watercourse is mainly culverted as it flows in a northerly direction through a residential area and under Manchester Road. The watercourse then flows through fields to join the River Tame.
OW 11	No	Ordinary Watercourse	OW 11 is located in Heyrod in the southern section of the study area. It appears to flow in a southerly direction and then is hydrologically connected to a pond. It is unclear from the background mapping if there are any further connections to other watercourses.
OW 12	No	Ordinary Watercourse	OW 12 is located in Buckton Value in the southern section of the study area. It appears to flow in a south- westerly direction and then is hydrologically connected to a pond. It is unclear from the background mapping if there are any further connections to other watercourses.
River Tame	Yes	Main River	See text above
OW 13	No	Ordinary Watercourse	The watercourse flows in a south- easterly direction draining an area of pasture/scrub. The watercourse crosses a rail line presumably via a culvert. The hydrology downstream of this point is uncertain however it is likely that some of the flow feeds the pond adjacent to Low Grove Lane.
OW 14	No	Ordinary Watercourse	OW 14 is not currently marked on Ordnance survey mapping. It is our understanding that the watercourse is culverted beneath ground through a 1500

Surface watercourses	WFD reportable watercourse	Main River/ Ordinary Watercourse	Summary
			mm diameter culvert beneath the proposed location for Mossley Station before out falling to the River Tame.
Chew Brook GB112069061300			
Chew Brook	Yes	Main River	Chew Brook is a designated Main River located to the east of the study area. Chew Brook flows in a north-easterly direction through Greenfield Village before joining the River Tame north of Friezland Bowling Club
Warlow Brook	No	Ordinary Watercourse	Warlow Brook is an Ordinary Watercourse located east of the study area. Warlow Brook flows north from the residential area south the A635 – Manchester Road, to join Chew Brook near Croft Edge.
OW 8	No	Ordinary Watercourse	OW 8 is a small tributary of the River Tame which flows in a northerly direction bisecting Manchester Road near the village of Greenfield.
OW 10	No	Ordinary Watercourse	OW 9 is located towards the centre of the study area. The watercourse flows in a north-westerly direction, before being culverted beneath Friezland Lane and joining Warlow Brook.
Tame (Swineshaw Brook to Mersey) GB112069061112			
River Tame	Yes	Main River	See text above

Surface watercourses	WFD reportable watercourse	Main River/ Ordinary Watercourse	Summary
Huddersfield Narrow Canal west section GB71210268			Huddersfield Narrow Canal is an Ordinary Watercourse that stretches across the entire length of the study area. The northern section of the canal is tunnelled, this tunnel is identified as Standedge Tunnels and it stretches from Marsden, located approximately 3.5 km north-east of the study area to Diggle Village in the north of the study area. From this point, Huddersfield Narrow Canal spans south through the centre of the study area before exiting the study area at Stalybridge.
Huddersfield Narrow Canal summit section GB70410520			

3.2 Surface Waters and WFD Status

3.2.1 The WFD is implemented through River Basin Management Plans (RBMPs) which set out statutory objectives for river, canal, lake, groundwater, estuarine and coastal water bodies and summarise the measures needed to achieve them. The Order Scheme is covered by the north-west RBMP (EA, 2022[8]) and includes WFD surface water bodies and one groundwater WFD water body; these are discussed further as follows.

3.2.2 As described previously, there are four river and two canal water bodies within the Order Scheme boundary. Details of the current status for the WFD for each river and canal waterbody is provided in Table 3-2 and Table 3-3 respectively.

3.2.3 All the river water bodies are designated as Heavily Modified Water Bodies (HMWBs), which means that they are substantially altered. Consequently, rather than achieving Good 'status' they aspire to achieving Good 'potential'.

3.2.4 Currently all river water bodies have an overall status/potential of Moderate and Moderate ecological status/potential Table 3-2.

3.2.5 The canal water bodies are Artificial Water Bodies (AWB), which means that they have been created where no natural water body existed previously. The Huddersfield Narrow Canal west section water body has overall Moderate potential, whereas the Huddersfield Narrow Canal summit section water body has overall Good potential *Currently reported but noting timeframe has now passed.

3.2.6 Table 3-3 below shows the river WFD water bodies within the study area (2022 status).

Table 3-2 River WFD water bodies within the study area (2022 status)

Water Body Name	Tame (Source to Chew Brook)	Chew Brook	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)
Water Body ID	GB112069064741	GB112069061300	GB112069061111	GB112069061112
Hydromorphological Designation	Heavily modified	Heavily modified	Heavily modified	Heavily modified
Cycle 3 2019 or 2022	2019	2022	2019	2022
Classification	Moderate	Moderate	Moderate	Moderate

[8] River basin management plans, updated 2022: introduction - GOV.UK

Water Body Name	Tame (Source to Chew Brook)	Chew Brook	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)
Objectives	Good by 2027	Good by 2027	Moderate by 2015*	Moderate by 2015*
Ecological	Moderate	Moderate	Moderate	Moderate
Supporting elements (surface water)	Moderate	Moderate	Moderate	Moderate
Mitigation Measures Assessment	Moderate or less	Moderate or less	Moderate or less	Moderate or less
Biological quality elements	Moderate	Poor	Moderate	Poor
Macrophytes and Phytobenthos	Good	Not assessed	Not assessed	Moderate
Fish	Moderate	Poor	Not assessed	Poor
Invertebrates	Good	Poor	Moderate	Poor
Hydromorphological supporting elements	Not assessed	Not assessed	Not assessed	Not assessed
Specific pollutants	Not assessed	Not assessed	High	High
Chemical	Fail	Does not require assessment	Fail	Does not require assessment
Priority substances	Fail	Does not require assessment	Fail	Does not require assessment
Other pollutants	Does not require assessment	Does not require assessment	Does not require assessment	Does not require assessment
Priority hazardous substances	Fail	Does not require assessment	Fail	Does not require assessment
RNAG (2019)	Phosphate Water industry Urban & transport	PBDE Fish Urban and transport	Perfluorooctane sulphonate (PFOS) PBDE Phosphate	Invertebrates PBDE Urban and transport

Water Body Name	Tame (Source to Chew Brook)	Chew Brook	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)
	Mercury and Its Compounds Polybrominated diphenyl ethers (PBDE)	Water industry	Mercury and Its Compounds Water industry Ammonia (Phys-Chem)	PFOS Phosphate Fish Ammonia (Phys-Chem) Macrophytes and Phytobenthos Combined Mercury and Its Compounds
Linked Protected Areas	South Pennine Moors (UK0030280) South Pennine Moors Phase 2 (UK9007022) Peak District Moors (South Pennine Moors Phase 1) (UK9007021)	South Pennine Moors (UK0030280) Peak District Moors (South Pennine Moors Phase 1) (UK9007021)	South Pennine Moors (UK0030280) Peak District Moors (South Pennine Moors Phase 1) (UK9007021) River Tame (UKENRI144)	River Tame (UKENRI144)

*Currently reported but noting timeframe has now passed.

Table 3-3 Canal WFD water bodies within the study area (2019 status)

Water Body Name	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Water Body ID	GB71210268	GB70410520
Hydromorphological Designation	Artificial	Artificial
Cycle 3	2019	2019
Classification	Moderate	Good
Objectives	Good by 2027	Good by 2015*

Water Body Name	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Ecological	Moderate	Good
Supporting elements (surface water)	Moderate	Good
Mitigation Measures Assessment	Moderate or less	Good
Chemical	Fail	Fail
Other Pollutants	Does not require assessment	Does not require assessment
RNAG (2019)	Mercury and Its Compounds Polybrominated diphenyl ethers (PBDE)	Mercury and Its Compounds Polybrominated diphenyl ethers (PBDE)
Linked Protected Areas	N/A	N/A

*Currently reported but noting timeframe has now passed.

3.2.7 Baseline water quality for each waterbody has been assessed using the water quality parameters considered as part of the WFD classification for each respective waterbody and any relevant EA water quality monitoring data.

3.2.8 Table 3-4 shows a breakdown of the physico-chemical quality elements for the four river water bodies within the Order Scheme boundary. Two of the water bodies (Tame (Source to Chew Brook) and Tame (Chew Brook to Swineshaw Brook)) have Moderate physico-chemical status, with the less than good status being driven by phosphate in both water bodies. Chew Brook and Tame (Swineshaw Brook to Mersey) water bodies have High physico-chemical status, being driven by ammonia, biological oxygen demand (BOD) and phosphate.

3.2.9 Physico-chemical quality elements were not assessed for canal waterbodies during the latest cycle of WFD classifications.

3.2.10 Table 3-4 Water quality under the WFD for river water bodies within the Order Scheme boundary (2022 status) shows a breakdown of the priority hazardous and priority substances assessed during the most recent WFD cycle (2019) for the relevant canal waterbodies.

Table 3-4 Water quality under the WFD for river water bodies within the Order Scheme boundary (2022 status)

River Waterbody	Tame (Source to Chew Brook)	Chew Brook	Tame (Chew Brook to Swineshaw Brook)	Tame (Swineshaw Brook to Mersey)
Waterbody ID	**GB11206906474 1**	**GB11206906130 0**	**GB11206906111 1**	**GB11206906111 2**
Physico-chemical quality elements	Moderate	High	Moderate	High
Ammonia (phys-chem)	High	High	Moderate	Good
Biochemical Oxygen Demand (BOD)	Not assessed	Not assessed	High	High
Dissolved oxygen	High	High	High	High
pH	High	High	High	High
Phosphate	Moderate	High	Poor	Poor
Temperature	High	High	High	High
Acid neutralising capacity	Not assessed	Not assessed	High	High

Table 3-5 Water quality under the WFD for canal water body within study area (2019 status)

Canal Waterbody	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Waterbody ID	GB71210268	GB70410520
Priority hazardous substances	Fail	Fail
Benzo(a)pyrene	Good	Good
Dioxins and dioxin-like compounds	Good	Good
Heptachlor and cis-Heptachlor epoxide	Good	Good
Hexabromocyclododecane (HBCDD)	Good	Good

Canal Waterbody	Huddersfield Narrow Canal west section	Huddersfield Narrow Canal summit section
Hexachlorobenzene	Good	Good
Hexachlorobutadiene	Good	Good
Mercury and Its Compounds	Fail	Fail
Perfluorooctane sulphonate (PFOS)	Good	Good
Polybrominated diphenyl ethers (PBDE)	Good	Fail
Priority substances	Good	Good
Fluoranthene	Good	Good

3.3 EA Surface Water Quality Monitoring

3.3.1 Surface water quality is routinely monitored by the EA at several locations on the River Tame (see Table 3-6).

3.3.2 Routine wastewater monitoring locations are also presented in Table 3-6 which monitor discharge from wastewater treatment works (WwTW). This includes Ashton Under Lyne WwTW, Dunkinfield WwTW, Mossley WwTW and Saddleworth WwTW.

Table 3-6 EA water quality monitoring locations.

Sampling location	Sampling type
River Tame at broomstairs Bridge Hyde	Freshwater – Rivers
Ashton-under-Lyne WwTW final effluent	Sewage Discharges – Final/Treated Effluent – Water Company
Dukinfield stw final effluent sampled from open channel to river after humus tanks	Sewage Discharges – Final/Treated Effluent – Water Company
River tame below Dukinfield bridge at Whitelands	Freshwater – Rivers
Swineshaw brook u/s of the river tame	Freshwater – Rivers
Mossley stw final effluent sampled from open channel to river	Sewage Discharges – Final/Treated Effluent – Water Company
River tame at Egmont Street Bridge	Freshwater – Rivers

Sampling location	Sampling type
Saddleworth wwtw final effluent	Sewage Discharges – Final/Treated Effluent – Water Company
Chew Brook above confluence with River Tame	Freshwater – Rivers
Chew Brook at Stable Bridge	Freshwater – Rivers
River Tame above confluence with Chew Brook	Freshwater – Rivers

4. POTENTIAL EFFECTS

4.1 Overview

4.1.1 Potential effects are split into two categories: construction and operation. For the purpose of this assessment construction impacts are mainly reported to be short-term which occur during the construction phase only. Operational impacts are long-term or permanent impacts affecting surface water receptors after the construction phase is complete.

4.2 Construction Impacts

4.2.1 The potential impacts during construction to water quality are summarised in Table 4-1 and are discussed in further detail below.

Table 4-1 Potential water quality impacts during construction

Activity	Potential impact to water quality
Direct works to/within watercourses and indirect/associated works such as earthworks, bridge structures and temporary works.	Increased risk of pollution to watercourses due to runoff containing elevated levels of suspended solids and resuspension of potentially contaminated sediments. Runoff with high sediment load can have direct adverse effects on adjacent watercourses through increasing turbidity and sedimentation.
Vehicles/ plant movement and operation.	Risk of release of hydrocarbons and oils, leading to polluted runoff migrating to surface water and groundwater. Hydrocarbons within surface water can chemically impair biological functions of freshwater organisms such as fish and invertebrates.
Storage and use of construction materials/ chemicals (e.g. solvents, degreasers) on site	Risk of accidental releases of contaminants to surface water and infiltration to groundwaters where materials and chemicals are not stored/ used correctly.
Changes to existing drainage network	Where drainage is not sufficiently attenuated changes to physio-chemical water quality parameters e.g. dissolved oxygen may occur in receptor watercourse.
Runoff from construction compounds – stockpiles, drainage, wheel washings and material movements	Construction compound runoff typically contains elevated suspended solids levels. Runoff with high sediment load can have direct adverse effects on adjacent watercourses through increased turbidity and sedimentation.

1.1.1 The potential impacts during construction to hydromorphology are summarised in Table 4-2.

Table 4-2 Potential impacts to hydromorphology during construction

Activity	Potential impact
Works to watercourses, including temporary structures in-channel to facilitate structural works and works in the floodplain	In-channel structures can act as a barrier to flow which may cause local changes in velocities and cause increased erosional and depositional processes. This can limit available habitat for aquatic flora and fauna and may also impede the movement of any fish present within the watercourse. Construction activities in the floodplain may alter natural functioning (floodplain connectivity and storage), runoff rates and velocities which contribute to the adjacent watercourse and may also contain elevated levels of suspended solids which can cause increased turbidity and may smother vegetation and bed substrates.
Runoff from construction compounds – stockpiles, drainage, wheel washings and material movements	Construction compound runoff typically contains elevated suspended solids levels. Runoff with high sediment load can have direct adverse effects on watercourse hydromorphology as a result of sedimentation.
Installation of culverts	Dewatering and over pumping activities, in relation to the installation of culverts, to allow for a dry and stable environment. The removal of water can increase the velocity of remaining flows, leading to erosion of riverbanks and beds. Dewatering can also mobilise contaminants in the soil, which can then enter the watercourse. Changes in water levels and flow patterns can disrupt habitats for fish and other aquatic organisms.

4.2.2 Construction works associated with the Order Scheme which are considered to have a potential impact on the water quality/hydromorphology (and therefore require assessment) are provided below. A detailed description of the works is provided in Volume 1 of the Environment Report [**NR14**].

Culverts

4.2.3 One new culvert is proposed for the Order Scheme: MVL3/39B – Bywash (Ordnance Survey Nation Grid Reference (OS NGR): SE 00759 08132).

4.2.4 The existing rivetted plate steel underbridge over the Huddersfield Narrow Canal, supporting longitudinal timber sleeper track, is to be reconstructed with a precast reinforced concrete culvert to accommodate the new track alignment. The culvert will comprise four precast segments which shall be tied together transversely by eight stainless steel post-tensioned bars. Installation of the culvert sections will also require local demolition of the abutment walls supporting the existing structure. The adjacent walls on the approach to the structure are to be retained as much as possible, with the section of walls immediately adjacent to the existing deck being taken down and rebuilt to tie into the new culvert. Precast robust kerb L-units with edge protection will be installed onto the top of the culvert structure and bolted to the culvert via resin anchors. Over-pumping and dewatering of the unnamed watercourse near Standedge Tunnel will be required to facilitate the works.

4.2.5 The proposed works are likely to result in the mobilisation of sediments both within the Huddersfield Narrow Canal and the unnamed watercourse near Standedge Tunnel which could results in the deterioration of water quality parameters such as reduced concentrations of dissolved oxygen and increased turbidity.

4.2.6 During the works there will be an increased risk of pollution to the Huddersfield Narrow Canal as a result of surface water runoff from works areas adjacent to the watercourse.

Drainage/Outfalls

4.2.7 There is one new drainage outfall associated with the works:

- Firstly, at Mossley Station a positive drainage system shall be installed for the station access loop and accessible parking, link road, station building and platforms. This system requires attenuation and therefore an additional excavation of approximately 1.5 m in depth is required below the access loop and accessible car park for the proposed attenuation tank. In addition to the collector pipes, gullies and channel drains, the system requires to outfall into the wider water network. The outfall location will be a 1500 diameter culverted watercourse (OW 14) that outfalls to the River Tame approximate OS NGR: SD 97530 02537) roughly 50 m downstream of the proposed tie in location.

Structures

4.2.8 There are works at five structures that could pose an impact at the construction stage due to their proximity to surface watercourses and potential for surface water run off to watercourses:

- Reconstruction of the existing Wrights overbridge superstructure MVL3/23: The existing stone arch overbridge superstructure is to be removed as it does not have sufficient headroom to accommodate installation of OLE (OS NGR: SD 98109 04139). The public right of way (PRoW) over the structure is to be diverted via the adjacent MVL3/22 Hobble Hole underbridge.
- Reconstruction of existing overbridge superstructure on Ward Lane (MVL3/36): The existing overbridge superstructure is to be reconstructed as it does not have sufficient headroom to accommodate installation of OLE and is in poor condition (OS NGR: SE 00280 07551). The footbridge is not over the canal; however, the works are adjacent, and the Order Scheme boundary contains a small section of the Huddersfield Barrow Canal West Section. The construction methodology is yet to be finalised.
- Reconstruction of Diggle Road overbridge (MVL3/39): Reconstruction of span 1 on the Diggle Road overbridge on Station Road in Diggle, approximately 90 metres south of Standedge Tunnel (OS NGR: SE 00711 08065).
- Extension of canal bridge (MVL3/39A): The key issue relating to construction of MVL3/36 is access to site for large capacity cranes and heavy bridge components, as there is limited space at track level to site a large crane and access to site would require traversing over the portion of MVL3/39A Standedge canal tunnel (OS NGR: SE 00680 08021). The design for strengthening of the canal structure is unknown at this stage. The construction methodology is yet to be finalised.
- Reconstruction of existing rivetted plate steel underbridge (MVL3/39b): The existing rivetted plate steel underbridge over the Huddersfield Narrow Canal, supporting longitudinal timber sleeper track, is to be reconstructed with a precast reinforced concrete culvert to accommodate the new track alignment (OS NGR: SD 98109 04139). Works will require temporary damming and over-pumping of the unnamed watercourse near Standedge Tunnel (with water pumped partially into canal tunnel inlet and partially downstream towards Diggle ponds).

Temporary Compounds

4.2.9 The following temporary compounds could pose an impact to surface water due to their proximity to surface watercourses and potential for surface water run off to watercourses:

- Diggle Compound works.
  - Diggle Welfare rail hub and office compound (OS NGR: SE 00598 07868).
  - Sam Road Car Park Compound (OS NGR: SE 00621 07970).
- Plevins Compound (OS NGR: SD 97757 01536).
- Scout Spoil Point compound (OS NGR : SD 97331 01196).
- Manchester Road Scout West Compound (OS NGR: SD 97448 01241).
- Ward Lane Site compound works.
  - Ward Lane Satellite Compound (OS NGR: SE 00300 07517).
  - Grandpa Greens Site 2 Compound (OS NGR: SE 00370 07697).

4.3 Operational Impacts

4.3.1 The potential impacts to water quality during operation of the Order Scheme are detailed in Table 4-3.

Table 4-3 Potential water quality impacts during operation

Activity	Potential impact
Changes to drainage	Various drainage works are required as part of the Order Scheme which could result in changes to water quality in surface water receptors.

4.3.2 The potential impacts to hydromorphology during operation are summarised in Table 4-4.

Table 4-4 Potential hydromorphological impacts during operation.

Activity	Potential impact
Changes to drainage	Changes to surface water discharge, resulting from changes to the drainage network, has the potential to cause localised changes in flow and sediment dynamics in receptor watercourses.

4.3.3 Operational aspects of the Order Scheme which are considered to have a potential impact on the water environment (and therefore require assessment) are detailed below. A detailed description of the works is provided Volume 1 of the Environment Report [**NR14**].

Culverts

4.3.4 Installation of the culvert on the Huddersfield Narrow Canal is likely to result in localised permanent changes to the physical characteristic of the canal namely wetted width and water depth.

4.3.5 Furthermore, over-pumping and dewatering of the unnamed watercourse near Standedge Tunnel will be required to facilitate the works at MVL3/39B – Bywash. The works are likely to result in changes to the physical characteristic of the channel (width, water depth substrate composition etc.) when compared to baseline conditions.

Drainage/Outfalls

4.3.6 As previously mentioned, there is one new drainage outfall associated with the works at Mossley Station. Various other drainage works/upgrades will be required as part of the Order Scheme which do not outfall directly to watercourses.

4.3.7 It is assumed as part of this assessment that any new drainage measures will provide, as a minimum, equivalent levels of water attenuation. Using this assumption potential impacts to surface water quality/hydromorphology arising from surface water drainage changes/upgrades are considered negligible.

4.4 Scoping

4.4.1 Taking into consideration the potential effects to surface water quality and watercourse hydromorphology presented in section 4 the following surface water receptors, detailed in Table 4-5, have been scoped out of further assessment. Watercourses scoped in for further assessment are detailed in Table 4-6 below and Figure 12C.4.1 in Volume 2 of the Environmental Report [**NR14**].

Table 4-5 Surface water receptors not included as part of assessment.

Watercourse name	Reason for exclusion in assessment
Unnamed watercourse - Uppermill Village	No hydraulic connectivity
Wall Hill Brook	No hydraulic connectivity
White Brook	No hydraulic connectivity
Pickhill Brook	No hydraulic connectivity
Capper Clough	No hydraulic connectivity
Golburn Clough	No hydraulic connectivity
OW 1	No hydraulic connectivity
OW 2	No hydraulic connectivity
OW 3	No hydraulic connectivity
OW 4	No hydraulic connectivity
OW 5	No hydraulic connectivity
OW 6	No hydraulic connectivity
OW 8	No hydraulic connectivity
OW 9	No hydraulic connectivity
OW 10	No hydraulic connectivity
OW 11	No hydraulic connectivity
OW 12	No hydraulic connectivity
Staly Brook	No hydraulic connectivity

Watercourse name	Reason for exclusion in assessment
Unnamed watercourse - Grasscroft Village	No hydraulic connectivity
Unnamed river - Stalybridge	No hydraulic connectivity
Swineshaw Brook	No hydraulic connectivity
Micklehurst Brook	No hydraulic connectivity
Acres Brook	No hydraulic connectivity
Chew Brook	No hydraulic connectivity
Warlow Brook	No hydraulic connectivity

Table 4-6 Surface water receptors included as part of assessment.

Receptor	Descriptor		Importance		Overall	Reason for inclusion in assessment
	Water quality	Hydromorphology	Water quality	Hydromorphology		
Diggle Brook	Main Watercourse. Not assigned a WFD classification.	Main Watercourse. Not assigned a WFD classification.	Medium	Medium	Medium	Immediately downstream of works on the unnamed watercourse near Standedge Tunnel and immediately adjacent to Diggle Welfare Compound.
River Tame	Reportable WFD watercourse. Classified under the WFD as having Moderate Ecological Potential and Moderate/ High Physico-Chemical Quality Elements but	Reportable WFD watercourse. Designated “heavily modified”. Classified under the WFD as having Moderate Overall Status, Good/Moderate Ecological Potential. Hydromorphological Supporting	High	Medium	High	Flows immediately adjacent to the Order Scheme. A new outfall will be installed to OW 14 as part of the Mossley Station works which ultimately discharge to the River Tame. Several compounds lie in close proximity to River Tame.

Receptor	Descriptor		Importance		Overall	Reason for inclusion in assessment
	Water quality	Hydromorphology	Water quality	Hydromorphology		
	Fail Chemical status due to Priority Hazardous Substances.	Elements are not assessed.				
Huddersfield Narrow Canal	Classified under the WFD as having Moderate Overall Status and Good/Moderate Ecological Potential but Fail Chemical Status due to Priority Substances and Priority Hazardous Substances.	Reportable WFD watercourse. Designated “artificial”. Classified under the WFD as having Good/Moderate Overall Status and Good/Moderate Ecological Potential. Hydromorphological Supporting Elements of canal water body not assessed.	High	Low	High	Flows immediately adjacent to the Order Scheme. In-channel works required at Standedge Tunnel. Several compound locations lie immediately adjacent to the Huddersfield Narrow Canal.

Receptor	Descriptor		Importance		Overall	Reason for inclusion in assessment
	Water quality	Hydromorphology	Water quality	Hydromorphology		
Unnamed watercourse near Standedge Tunnel	Not assigned a WFD classification	Ordinary Watercourse. Not assigned a WFD classification.	Low	Low	Low	Temporary damming and over pumping of the watercourse will be required during the works.
OW 7	Not assigned a WFD classification	Ordinary Watercourse. Not assigned a WFD classification.	Low	Low	Low	Bridge reconstruction works will be undertaken immediately adjacent to watercourse.
OW 13	Not assigned a WFD classification	Ordinary Watercourse. Not assigned a WFD classification.	Low	Low	Low	Works to railway embankment will be undertaken immediately adjacent to the watercourse.
OW 14	Not assigned a WFD classification	Ordinary Watercourse. Not assigned a WFD classification.	Low	Low	Low	A new outfall will be installed to OW 14 as part of the Mossley Station works.

5. SIGNIFICANCE OF EFFECTS

5.1 Construction – Water Quality

5.1.1 Potential effects on surface water receptors (as a result of changes in water quality during construction) within the Order Scheme boundary are summarised in Table 5-1.

Table 5-1 Potential significance of effects during construction – water quality

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
Diggle Brook	Medium	Minor adverse	Slight	Diggle Brook lies immediately downstream of the proposed in-channel works on the unnamed watercourse near Standedge Tunnel and immediately adjacent to Diggle Welfare Compound. Mobilisation of fine sediments are likely to occur during the works leading to potential changes in water quality in Diggle Brook. Impacts will be restricted to the construction phase of the works and will therefore be temporary in nature. Furthermore, there is an increased risk of pollution to Diggle brook due to the watercourse's proximity to the proposed works/compound locations and potential for surface water runoff.
River Tame	High	Minor adverse	Slight	No direct in-channel works' will be required on the River Tame. Several compound locations immediately border the watercourse therefore there is potential for construction derived pollution to enter the

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
				Tame via surface water run-off. Additionally, there is a risk that construction derived pollutants may enter the watercourse during the outfall construction at OW 14, which has hydrological connectivity to the River Tame. Mobilisation of sediments within the culverted watercourse may also occur during the outfall construction resulting in increased turbidity and sedimentation within the River Tame.
Huddersfield Narrow Canal	High	Minor adverse	Slight	Sediment mobilisation from within the Huddersfield Narrow Canal is likely to occur during the culvert installation. There is also an increased risk of pollution to the Huddersfield Canal from runoff as the watercourse borders several compound locations.
Unnamed watercourse near Standedge Tunnel	Low	Minor adverse	Slight	Mobilisation of in-channel fine sediments are likely to occur during the in-channel works on the unnamed watercourse leading to potential changes in water quality. Impacts will be restricted to the construction phase of the works and will therefore be temporary in nature.

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
				Furthermore, there is an increased risk of pollution to unnamed watercourse from construction derived pollutants due to the watercourses proximity to the proposed works locations and potential for surface water runoff.
OW 7	Low	Minor adverse	Slight	Due to the proximity of the works to the watercourse there is an increased risk of construction derived pollution entering the watercourse via surface water runoff.
OW 13	Low	Minor adverse	Slight	Due to the proximity of the works to the watercourse there is an increased risk of construction derived pollution entering the watercourse via surface water runoff.
OW 14	Low	Minor adverse	Slight	During construction of the outfall at OW14 there is a risk that construction derived pollutants may enter the watercourse, via surface water runoff. Mobilisation of sediments within the culverted watercourse may also occur during the outfall construction resulting in increased turbidity and sedimentation within the River Tame.

5.2 Construction – Hydromorphology

5.2.1 The anticipated impact of the construction works upon the hydromorphology of the identified surface water receptors are summarised in Table 5-2.

Table 5-2 Potential significance of effects during construction – hydromorphology

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
Diggle Brook	Medium	Minor adverse	Slight	Diggle Brook lies immediately downstream of the proposed in-channel works on the unnamed watercourse near Standedge Tunnel and immediately adjacent to Diggle Welfare Compound. It is anticipated that mobilisation of in-channel fine sediments is likely to occur during the in-channel works on the unnamed watercourse leading to potential changes in sedimentation in Diggle Brook. Further sedimentation may occur as a result of runoff from temporary compound areas.
River Tame	High	Minor adverse	Slight	The new outfall construction to OW 14 may result in the mobilisation of fine sediment which may propagate to the River Tame due to hydrological connectivity.

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
				Further sedimentation may occur as a result of runoff from compound areas.
Huddersfield Narrow Canal	High	Minor adverse	Slight	Sediment mobilisation from within the Huddersfield Narrow Canal is likely to occur during the culvert installation and outfall construction resulting in localised changes in sedimentation. Further sedimentation may occur as a result of runoff from compound areas.
Unnamed watercourse near Standedge Tunnel	Low	Minor adverse	Slight	Mobilisation of in-channel fine sediments are likely to occur during the in-channel works on the unnamed watercourse leading to potential changes in sedimentation downstream. Further sedimentation may also occur as a result of runoff from

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
				construction/ compound areas.
OW 7	Low	Minor adverse	Slight	Sedimentation of the watercourse may occur as a result of runoff from construction areas.
OW 13	Low	Minor adverse	Slight	Sedimentation of the watercourse may also occur as a result of runoff from construction areas.
OW 14	Low	Minor adverse	Slight	The new outfall construction to OW 14 may result in the mobilisation of fine sediment which may propagate to the River Tame due to hydrological connectivity.

5.3 Operation – Water Quality

5.3.1 Potential effects on surface water receptors (as a result of changes in water quality during operation) within the Order Scheme boundary are summarised in Table 5-3.

Table 5-3 Potential significance of effects during operation – water quality

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
Diggle Brook	Medium	No change	Neutral	Once the works are complete there are no anticipated impacts to water quality during operation.
River Tame	High	No change	Neutral	Assuming drainage to the new outfall on OW 14 is sufficiently attenuated impacts to water quality associated with its operation are considered negligible.
Huddersfield Narrow Canal	High	No change	Neutral	Once the works are completed there are no impact pathways associated with the culverts works.
Unnamed watercourse near Standedge Tunnel	Low	No change	Neutral	Once the works are complete there are no anticipated impacts to water quality during operation.
OW 7	Low	No change	Neutral	Once the works are complete there are no anticipated impacts to water quality during operation.
Ow 13	Low	No change	Neutral	Once the works are complete there are no anticipated impacts to water quality during operation.
OW 14	Low	No change	Neutral	Assuming drainage to the new outfall at OW 14 is sufficiently attenuated impacts to water quality associated with operation are considered negligible.

5.4 Operation – Hydromorphology

5.4.1 The anticipated impacts upon the hydromorphology of the identified surface water receptors during operation of the Order Scheme are summarised in Table 5-4.

Table 5-4 Potential significance of effects during operation – hydromorphology

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
Diggle Brook	Medium	No change	Neutral	No impacts to the hydromorphology of Diggle Brook are anticipated following completion of the works.
River Tame	High	No change	Neutral	Assuming surface water drainage to the new outfall on OW 14 is sufficiently attenuated impacts to hydromorphology during operation are considered negligible.
Huddersfield Narrow Canal	High	No change	Neutral	Assuming the new surface water drainage to the Huddersfield Narrow Canal is sufficiently attenuated impacts to hydromorphology during operation are considered negligible.
Unnamed watercourse near Standedge Tunnel	Low	Minor adverse	Slight	The watercourse will be restored following completion of the works however some minor localised change to hydromorphology is expected to occur.

Water receptor	Receptor importance	Magnitude of impact	Significance of effect	Comments
OW 7	Low	No change	Neutral	No impacts to the hydromorphology of OW 7 are anticipated following completion of the works.
OW 13	Low	No change	Neutral	No impacts to the hydromorphology of OW 13 are anticipated following completion of the works.
OW 14	Low	No change	Neutral	Assuming surface water drainage to the new outfall is sufficiently attenuated impacts to hydromorphology during operation are considered negligible.

5.5 Mitigation Measures

5.5.1 The following mitigation measures are recommended to reduce potential impacts of the Order Scheme on surface water quality and hydromorphology.

5.5.2 During construction best practice environmental management measures should be implemented on site through application of a Code of Construction Practice (CoCP). These measures will be detailed in a Pollution Prevention and Incident Control Plan (PPICP) which will be secured via the Code of Construction Practice Part B and submitted for approval to the relevant local authority.

5.5.3 The changes to surface water drainage associated with the new outfall to OW 14 may contribute to a decline in water quality in the receptor and also the wider catchment if the surface water drainage is not attenuated prior to discharge. Following the surface water management measures set in the PPICP, which outlines key design principles for the foul and surface water drainage works, will mitigate potential risk to water quality.

5.5.4 The design process should seek to minimise in-channel works where practicable. Any in-channel works which cannot be eliminated will require the following mitigation measures:

- Use appropriate isolation techniques such as dams/over-pumping to create dry working areas e.g. during works on the unnamed watercourse near Standedge Tunnel.
- Installation of silt curtains to minimize the propagation of fine sediment pollution in watercourses e.g. during works on the Huddersfield Narrow Canal at Standedge Tunnel.
- Continuous water quality monitoring should be undertaken prior to, during and following in-channel works to identify and assess magnitude of potential pollution events downstream of works and whether additional mitigation is required.
- Use of appropriate pollution control measures to ensure contaminants from construction activities do not enter the watercourse e.g. silt fences.
- Prepare site-specific responses for potential pollution incidents (e.g. spillages) or extreme weather events (e.g. storms) which may cause an increase in sediment runoff.

5.5.5 No specific mitigation measures are required during operation in terms of water quality for surface water receptors, but following the surface water management measures set in the PPICP, which outlines key design principles for the foul and surface water drainage works, will mitigate potential risk to water quality.

5.6 Residual Effects (Overall)

Construction

5.6.1 Taking into consideration the potential impacts to water quality/hydromorphology resulting from construction identified in sections 5 and the proposed mitigation detailed in section 5.5 an assessment for residual effects resulting from the construction phase of the Order Scheme is presented in Table 5-5.

Table 5-5 Potential significance of effects during construction – overall

Water receptor	Significance of effect	Significance of effect driven by
Diggle Brook	Slight	Water quality and hydromorphology
River Tame	Slight	
Huddersfield Narrow Canal	Slight	
Unnamed watercourse near Standedge Tunnel	Slight	
OW 7	Slight	

Water receptor	Significance of effect	Significance of effect driven by
OW 13	Slight	
OW 14	Slight	

Operation

5.6.2 Taking into consideration the potential impacts to water quality/hydromorphology during operation identified in sections 5 and the proposed mitigation detailed in section 5.5 an assessment for residual impacts resulting from the operation of the Order Scheme are presented in Table 5-6.

Table 5-6 Potential significance of effects during operation – overall

Water receptor	Significance of effect	Significance of effect driven by
Diggle Brook	Neutral	N/A – effects associated with operation are considered to be neutral for all surface water receptors.
River Tame	Neutral	
Huddersfield Narrow Canal	Neutral	
Unnamed watercourse near Standedge Tunnel	Neutral	
OW 7	Neutral	
OW 13	Neutral	
OW 14	Neutral	

6. CONCLUSIONS

6.1 Summary

6.1.1 Assuming the mitigation measures detailed in section 5.5 are implemented during the design and construction of the Order Scheme this assessment has concluded that the Order Scheme will result in slight adverse impacts to the River Tame and Huddersfield Narrow Canal and slight/neutral impacts to the unnamed watercourse near Standedge Tunnel and OW 14 and neutral impacts to OW 7 and OW 13. These impacts are associated with the construction phase only and are not deemed to be significant.

6.2 Limitations

6.2.1 At this stage of the assessment the Order Scheme is in the outline design phase. For this reason, this assessment should be revisited once the design freeze has come into effect. Further details required include:

6.2.2 At the time of undertaking this assessment finalised drainage information was not available for all working areas and temporary compounds. This assessment has therefore been undertaken under the assumption that drainage measures will provide, as a minimum, equivalent levels of water attenuation and treatment.

TRANSPORT AND WORKS ACT 1992

Transport and Works (Applications and Objections Procedure) (England and Wales) Rules 2006

THE NETWORK RAIL (STALYBRIDGE TO DIGGLE (SADDLEWORTH) ENHANCEMENTS) ORDER

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VOLUME 3 APPENDIX 13A – AIR QUALITY TECHNICAL APPENDIX

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CONTENTS

1. INTRODUCTION 2
2. RELEVANT LEGISLATION, POLICY AND GUIDANCE 3
2.1 Legislation 3
2.2 Air Quality Legislation 4
2.3 National Policy 8
2.4 Rail Specific Policy 10
2.5 Local Policy 11
2.6 Guidance 16
3. ASSESSMENT METHODOLOGY 17
3.1 Baseline Conditions 17
3.2 Construction Phase 17
3.3 Operational Phase 19
4. APPRAISAL OF IMPACTS AND EFFECTS 21
4.1 Baseline 21
5. IDENTIFICATION OF IMPACTS AND EFFECTS 27
5.1 Construction Phase 27
5.2 Operational Impacts 33
5.3 Cumulative impacts 34
6. MITIGATION AND CONSIDERATION OF CONTROL MEASURES 35
6.1 Construction Dust 35
6.2 Construction traffic 38
6.3 Operation 38
7. SUMMARY 39

1. INTRODUCTION

1.1.1 An air quality appraisal has been undertaken for the proposed Stalybridge to Diggle (Saddleworth) Enhancements Order ('the Order Scheme') as part of the Transpennine Route Upgrade (TRU) between Stalybridge and the western portal of Standedge Tunnel in Diggle.

1.1.2 The TRU programme involves a variety of works including the electrification of the railway (installation of overhead line equipment (OLE) and associated infrastructure), removal, remodelling, and replacement of bridges and structures to accommodate OLE, track and signalling upgrades, and structural strengthening works. Refer to Volume 1, Chapter 1, Table 1-1 of this Report [**NR14**] for a summary of works included in the Order Scheme.

1.1.3 This report presents the appraisal of the potential construction and operational air quality effects associated with the Order Scheme. The Order Scheme passes through the local authority areas of Tameside Metropolitan Borough Council (TMBC) and Oldham Metropolitan Borough Council (OMBC). TMBC and OMBC are included within the Greater Manchester Combined Authority (GMCA).

1.1.4 The construction period for the Order Scheme is estimated at approximately 5 years, from mid-2027– 2032. During construction, dust and particulate matter may be generated by dust-raising activities. In addition, there may be changes in emissions from traffic due to the addition of construction traffic using local roads. The key air pollutants that are addressed in this assessment are nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} and $PM_{2.5}$), as these pollutants are the most likely to be present at concentrations close to air quality criteria in the UK. During operation, there will be a reduction in locomotive emissions as a result of electrification of passenger services replacing the diesel engines.

1.1.5 This report includes a review of existing air quality conditions, describes the methodology used to appraise the impact of the Order Scheme on air quality during its construction and operation, presents commentary on identified potential effects, makes recommendations for mitigation and draws conclusions regarding the likely significance of residual impacts.

2. RELEVANT LEGISLATION, POLICY AND GUIDANCE

2.1 Legislation

Air Pollutants

Nitrogen Dioxide

2.1.1 Nitrogen dioxide is generally produced by the oxidation of nitric oxide (NO) in ambient air (i.e. it is not formed directly and as such is known as a secondary pollutant). NO and NO2 are collectively termed oxides of nitrogen (NOx). Approximately 30 percent of UK NOx emissions are from road transport[1], with a further 20% of contributions coming from other transport. Rail contributed to only 3% of the total UK NOx transport emissions in 20222. The majority of NOx emitted from vehicles is in the form of NO, which oxidises rapidly in the presence of ozone (O3) to form NO2. In high concentrations NO2 can affect the respiratory system, whereas NO does not have any observable effect on human health at the range of concentrations found in ambient air.

Particulate Matter

2.1.2 Particulate matter in vehicle exhaust gases consists of carbon nuclei onto which a wide range of compounds are absorbed. These particles have an effective aerodynamic diameter of less than 10 micrometres (µm). Particles in this size range are referred to as PM10. Diesel engines produce the majority of particulate emissions from the vehicle fleet. Approximately 16 percent of PM10 emissions in the UK are derived from road transport[3], with rail contributing to only 2% of the total UK transport emissions in 2022[2]. Particulate matter appears to be associated with a range of symptoms of ill health including effects on the respiratory and cardiovascular systems, on asthma and on mortality. Exposure to a finer fraction of particles (PM2.5, which typically make up around two thirds of PM10 emissions and

[1] National Atmospheric Emissions Inventory (NAEI) 'About Nitrogen Oxides' Available at: https://naei.energysecurity.gov.uk/air-pollutants/nitrogen-oxides

[2] Department for Transport (2023) Energy and environment data tables. Table ENV0301 (pollutant, emissions and noise). https://www.gov.uk/government/statistical-data-sets/energy-and-environment-data-tables-env#pollutants-emissions-and-noise-env03

[3] NAEI 'About PM10 (Particulate Matter < 10µm)' Available at: https://naei.energysecurity.gov.uk/air-pollutants/PM10

concentrations) give a stronger association with the observed ill health effects[4].

Dust

2.1.3 Dust is defined within the Institute of Air Quality Management (IAQM)'s "Guidance on the assessment of dust from demolition and construction" (IAQM Construction Dust Guidance)[5] as solid particles that are suspended in air or that have settled out onto a surface after having been suspended in air. It includes particles that give rise to soiling (deposited dust) and to human health and ecological effects.

2.1.4 The IAQM Construction Dust Guidance states that there is evidence that, without effective mitigation, major construction sites can lead to an increase in annual mean PM10 concentrations and the number of exceedances of the short term 24-hour objective for PM10. In addition, construction activities have the potential to cause higher than normal levels of dust deposition in the surrounding area. Dust emissions from a construction site may be mechanically generated due to land preparation (e.g. demolition, land clearing and earth moving) or released from site plant and from the movement of road vehicles on temporary roads, open ground and haul routes.

2.2 Air Quality Legislation

UK Legislation

2.2.1 Air quality legislation that applies in England includes the following:

- The EU (Withdrawal Agreement) Act 2020 which implements statutory air quality limit values;
- Regulations implementing national air quality objectives: Air Quality (England) Regulations 2000 (SI 2000 No. 928) and Air Quality (England) (Amendment) Regulations 2002 (SI 2002 No. 3043)[6] [7]; and

[4] Committee on the Medical Effects of Air Pollutants (COMEAP) (2010). The Mortality Effects of Long-Term Exposure to Particulate Air Pollution in the United Kingdom. [pdf] Didcot: Health Protection Agency. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/304641/COMEAP_mortality_effects_of_long_term_exposure.pdf

[5] Institute of Air Quality Management (IAQM) (2024). Guidance on the assessment of dust from demolition and construction. https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf

[6] The Air Quality (England) Regulations 2000. Available at: http://www.legislation.gov.uk/uksi/2000/928/contents/made

[7] The Air Quality (England) (Amendment) Regulations 2002. Available at: http://www.legislation.gov.uk/uksi/2002/3043/contents/made

- The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023 No. 96)[8].

European Union (EU) Limit Values

2.2.2 The EU (Withdrawal Agreement) Act 2020 implements the air quality limit values that are included in the EU Directive on ambient air quality and cleaner air for Europe (2008/50/EC) and were previously included in air quality regulations[9] (Statutory Instrument (SI) 2010 No. 1001) and as amended (SI 2016 No. 1184). The relevant limit values in the context of this assessment for the protection of human health for NO_2 and fine particulate matter are presented in Table 1-1.

2.2.3 The UK Government's air quality plan for nitrogen dioxide in the UK10 sets out how local authorities should contribute to the achievement of air quality criteria through targeted feasibility studies[11], including clean air zones (CAZ) where appropriate.

National Air Quality Strategy

2.2.4 Air quality objectives were originally included in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland[12], published in 2007. In England this has been replaced by The Air Quality Strategy (AQS): Framework for local authority delivery[13]. This strategy sets out the national air quality objectives and targets for local air pollutants and provides a strategic framework for local authorities and other partners in England.

2.2.5 Air quality objectives were set by expert organisations with regard to scientific and medical evidence on the effects of the particular pollutant on health, and define the level of pollution below which health effects are expected to be minimal or low risk even for the most sensitive members of the population. These criteria establish air pollutant concentrations to be achieved by a specified timescale, which take account of the costs and

[8] Environmental Targets (Fine Particulate Matter) (England) Regulations 2023. Available at https://www.legislation.gov.uk/uksi/2023/96/contents/made

[9] The Air Quality Standards Regulations 2010. Available at http://www.legislation.gov.uk/uksi/2010/1001/contents/made

[10] Defra, UK plan for tackling roadside nitrogen dioxide concentrations, July 2017, Available at: https://uk-air.defra.gov.uk/library/no2ten/index

[11] Uk-air.defra.gov.uk. Supplement to the UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations: Local Authorities Feasibility Studies - Defra, UK. [online] Available at: https://uk-air.defra.gov.uk/library/no2ten/2018-la-tfs-documents

[12] Department for Environment, Food and Rural Affairs (Defra), 2007. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. http://archive.Defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-qualitystrategy-vol1.pdf

[13] DEFRA (2023), The Air Quality Strategy for England: Framework for Local Authority Delivery. Available at: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england

benefits of achieving the standard, either without exception or, for certain short term averaging period standards, with a permitted number of exceedances.

2.2.6 It should be noted that the UK AQS objectives only apply in locations likely to have 'relevant exposure' i.e. where members of the public are exposed for periods equal to or exceeding the averaging periods set for the standards. For this assessment, locations of relevant exposure include building façades of residential premises, schools, public buildings and medical facilities; places of work (other than certain community facilities) are excluded.

2.2.7 In 2019, the UK Government published its Clean Air Strategy[14], which set out actions proposed by the Government to improve air quality by reducing pollution from a wide range of sources and including requiring new targets for $PM_{2.5}$. Targets have now been set in legislation[8], as required by the Environment Act 2021[15]. Interim targets have also been introduced in Defra's Environmental Improvement Plan 2023[16] to be achieved by the end of January 2028.

Local Air Quality Management.

2.2.8 Under Part IV of the Environment Act 1995, and as updated by the Environment Act 2021, all local authorities are responsible for Local Air Quality Management (LAQM), the mechanism by which the Government's AQS objectives are to be achieved. As part of this LAQM role, local authorities are required to periodically review air quality in their area and to assess present and likely future air quality against the objectives defined in Regulations. Where a local authority anticipates an objective is expected to be breached within their area, they must designate an Air Quality Management Area (AQMA) and develop an action plan to improve pollution levels and work towards achieving the AQS objectives. Under the current LAQM regime, a local authority is responsible for regular review and assessment of local air quality, reports on which are published following public consultation and review by the Department for Environment, Food and Rural Affairs (Defra).

2.2.9 Statutory responsibility for achieving air quality limit values rests with the Government and local authorities have no responsibility for achieving the

[14] Defra, 2019. Clean Air Strategy 2019. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf.

[15] Environment Act 2021. Available from: www.legislation.gov.uk/ukpga/2021/30/contects/enacted

[16] Defra, 2023. Environmental Improvement Plan 2023. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf

national air quality criteria, although they should contribute to this through local action plans designed to reduce pollution levels in AQMAs, and through the targeted feasibility studies[11], including clean air zones where appropriate, to supplement the government's air quality plan for nitrogen dioxide in the UK[10].

2.2.10 The relevant statutory air quality criteria for the protection of human health are outlined in Table 1-1.

Table 1-1 – Statutory Air Quality Criteria

Pollutant	Objective
NO_2	Hourly mean concentration should not exceed 200 µg/m^3 more than 18 times a year. Annual mean concentration should not exceed 40 µg/m^3.
PM_{10}	24-hour mean concentration should not exceed 50 µg/m^3 more than 35 times a year. Annual mean concentration should not exceed 40 µg/m^3.
$PM_{2.5}$	UK (Except Scotland) annual mean concentration should not exceed 20 µg/m^3 by 2020. Annual mean concentration target across England should not exceed 10 µg/m^3 by 2040, with an interim target of 12 µg/m^3 by January 2028. Population exposure reduction target (England): reduction of at least 35% compared to a base year of 2018, with an interim target to reduce by 22% by the end of January 2028.

Dust

2.2.11 There are no national standards or guidelines for dust deposition currently set in the UK, nor by any international organisations. This is due mainly to the difficulty that any standard set would need to relate to dust being a perceptual problem rather than being specifically related to health effects. Typically, there is a 'likelihood of complaint' in residential areas when measured dust levels (as measured using a passive deposit gauge) are

200 mg/m^2/day or greater. This threshold is recommended as a level for action by IAQM[17].

2.3 National Policy

National Planning Policy Framework

2.3.1 The Government's planning guidance of general relevance to air quality is found within the National Planning Policy Framework (NPPF)[18]. It provides guidance for local authorities on incorporating air quality considerations into planning decisions and aims to protect the environment and to promote sustainable growth.

2.3.2 Paragraph 110 states that growth and development should be focused on locations which can be made sustainable, as this can help reduce congestion and emissions, and improve air quality and public health.

2.3.3 Paragraph 199 considers impacts on local air quality:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

Planning Practice Guidance

2.3.4 Planning Practice Guidance (PPG) for air quality[19] is intended to support the NPPF and provide further detail on its policies. Paragraph 005 of this guidance provides information relating to air quality that could be important

[17] IAQM Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites, https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf

[18] Department for Levelling Up, Housing & Communities, National Planning Policy Framework (NPPF), December 2024, minor update in February 2025. Available at https://www.gov.uk/government/publications/national-planning-policy-framework--2

[19] National Planning Portal, available at http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/

to decision makers, and when there are concerns about air quality, the local planning authority may want to know about:

- "the 'baseline' local air quality, including what would happen to air quality in the absence of the development;
- whether the proposed development could significantly change air quality during the construction and operational phases (and the consequences of this for public health and biodiversity); and
- whether occupiers or users of the development could experience poor living conditions or health due to poor air quality."

2.3.5 Paragraph 005 of this guidance also advocates early engagement with the local planning and environmental health departments to establish the scope of any assessment. Guidance is also given on the level of detail required in an air quality assessment, and measures which could be employed to mitigate adverse effects.

2.4 Rail Specific Policy

Department for Transport

2.4.1 The Department for Transport's (DfT) Rail Environment Policy Statement[20] aims to:

> *"achieve a cleaner, greener railway that is fit for the future".*

2.4.2 The policy statement includes the following priorities in relation to air quality:

- set targets for levels of $PM_{2.5}$, PM_{10} and NO_2 for all parts of the network that the public can access in 2022, with the ambition of meeting these targets by the end of 2030.
- the rail industry will be required to produce air quality improvement plans for stations identified as having poor air quality.
- remove all diesel-only trains from the network by 2040
- 100% of Network Rail's cars and vans will be zero emission vehicles by 2027

2.4.3 In addition, the recent Government's Transport Decarbonisation Plan[21] includes as a strategic priority the need to:

- "*accelerate modal shift to public and active transport*"

with a commitment to:

- "*improve rail journey connectivity with walking, cycling and other modes of transport*"

[20] DfT (2021) Rail Environment Policy Statement on Track for a Cleaner, Greener Railway. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1002166/rail-environment-policy-statement.pdf

[21] DfT (2021) Decarbonising Transport. A Better, Greener Britain. Available at: https://www.gov.uk/government/publications/transport-decarbonisation-plan

2.4.4 Furthermore, the Williams-Shapps Plan for Rail[22] also includes a commitment to *"accelerate electrification of the rail network".*

Clean Air Strategy

2.4.5 The Department for Environment, Food and Rural Affairs (Defra)'s Clean Air Strategy[1] has also identified actions to reduce emissions from transport, including to:

"reduce emissions from rail and reduce passenger and worker exposure to air pollution."

Network Rail

2.4.6 Network Rail has set up its own decarbonisation strategy[23], which aims to:

"set science based targets to the most ambitious target of limiting emissions from our own operations to a 1.5°C warming scenario." By limiting emissions within their direct control as well as optimising both its upstream and downstream emissions.

Rail Safety & Standards Board

2.4.7 The Rail Safety & Standards Board (RSSB)'s Air Quality Strategy Framework[24] has a vision to achieve *'A rail network with a positive impact on local air quality'*. The Strategy covers all pollutant emissions resulting from the GB rail industry which have proven to impact human health.

2.5 Local Policy

2.5.1 Both OMBC and TMBC have declared a climate emergency and are committed to taking significant actions to reduce carbon emissions and enhance climate resilience. Following the declaration, a climate change strategy was produced by Tameside to outline the actions needed to reach this target. One of the eight 'Themes for action' within the strategy is 'Transport – carbon busting options for all'. Similarly, one of Oldham's Green New Deal objectives is 'Help deliver the GM2040 Transport Strategy

[22] DfT (2021) Great British Railways: The Williams-Shapps Plan for Rail Available at: www.gov.uk/government/publications/great-british-railways-williams-shapps-plan-for-rail.

[23] Network Rail (2022) Traction Decarbonisation Network Strategy – Executive Summary: https://www.networkrail.co.uk/sustainability/a-low-emission-railway/

[24] GB Rail Industry supported by RSSB (May 2022 update) Air Quality Strategic Framework available at: https://www.rssb.co.uk/sustainability/clean-air/air-quality-strategic-framework

Right Mix target for 50% of all journeys in Greater Manchester to be made by walking, cycling and public transport by 2040".

Tameside Unitary Development Plan

2.5.2 Policy MW14[25] Air Quality stipulates that:

"When developments are proposed which could have a significant impact on local air quality, the Council will consider the extent to which the development may affect the target levels in any Air Quality Management Areas which are declared or the requirements of related action plans, and weigh this against other material considerations before granting planning permission.

When developments are proposed within areas where air quality is likely to exceed the objectives set in the National Air Quality Strategy, the Council will consider the extent to which occupiers could be exposed to health risks from levels of air pollution in excess of national targets, taking into account the effect of action plans introduced to reduce such exceedances, and will weigh this against other material planning considerations before granting planning permission."

Oldham Metropolitan Borough Council Local Development Framework Air Quality and Development Supplementary Planning Document[26]

2.5.3 The SPD supports the implementation of Policy 9 and provides guidance on air quality in planning decisions. Key requirements include:

2.5.4 Air quality assessments (AQAs) are required where a "significant increase in air pollution emissions is expected to or anticipated to arise from the potential development".

2.5.5 The Council "will require air quality assessments to be submitted alongside planning applications …. where a development is likely to result in unacceptable levels of pollutants" and the Council "will require mitigating measures, or secure changes to the proposal that will make it acceptable, before granting planning permission"

2.5.6 Air quality assessments must include:

- "An assessment of the current air pollution levels in the area and predict the changes in pollution that would occur if the development goes ahead

[25] Tameside Metropolitan Borough Council, The Tameside UDP, November 2004, Available at: https://tameside.gov.uk/udp

[26] Oldham MBC adopted this former SPD in 2007. The parent policies cited therein have been superseded, but the council has retained the document for information as it provides useful guidance.

- assessment of air quality impacts during the construction phase
- assessment of any measures proposed to mitigate, compensate or offset air quality impacts."

2.5.7 Developments normally requiring an AQA include those that:

- "will result in increased congestion, a change in either traffic volumes (e.g. 5% AADT or peak) or a change in vehicle speed (±10kph), or both, on a road with greater than 10,000 vehicles per day (vpd)
- include new car parking spaces (>80 spaces)
- lie within an area of poorer air quality such as an AQMA."

2.5.8 Mitigation may include "restrictions on the number of available parking spaces, agreements to restrict delivery vehicles to meet certain specified emissions standards, and design of buildings to reduce energy consumption.

Greater Manchester Places for Everyone Development Plan

2.5.9 Policy JP-S5[27]: Clean Air states that "a comprehensive range of measures will be taken to support improvements in air quality […] including:

1. *Locating and designing development, and focusing on transport investment, so as to reduce reliance on forms of transport that generate air pollution;*
2. *Determining planning applications having regard to the most recent development and planning control guidance published jointly by the Institute of Air Quality Management (IAQM) and Environmental Protection UK (EPUK), and the most recent IAQM Guidance on the Assessment of Dust from Demolition and Construction, or relevant successor guidance, including the requirement for developers to submit construction management plans as appropriate;*
3. *Requiring applications for developments that could have an adverse impact on air quality to submit relevant air pollution data so that adverse impacts on air quality can be fully assessed and development only permitted where they are acceptable and/or suitable mitigation can be provided;*
   […]

[27] Greater Manchester Combined Authority, Places for Everyone Joint Development Plan, March 2024. Available at: Places for Everyone Joint Development Plan Document (greatermanchester-ca.gov.uk)

5. *Significantly expanding the existing commercial network of electric vehicle charging points, both for public and private use, including as part of new developments;*

6. *Implementing the Clean Air Plan and associated measures*; *[…]* ."

2.5.10 These policies are further supported by:

- Greater Manchester's Five Year Environment Plan[28]; Action 11, support the transition to electric mobility, through the electrification of the rail fleet; and
- Greater Manchester's Clean Air Plan[29], an investment led route to reduce pollution without the need for a Clean Air Zone or road user charging.

Oldham Council Joint Core Strategy and Development Management Policies Development Plan Document

2.5.11 Policy 9[30] Local Environment stipulates that the council will protect and improve local environmental quality and amenity by ensuring development:

"ii. does not have an unacceptable impact on the environment or human health caused by air quality, odour, noise, vibration or light pollution […]

v. does not result in unacceptable level of pollutants or exposure of people in the locality or the wider area. Developments identified in the Air Quality Action Plan will require an air quality assessment."

[28] Greater Manchester Five-Year Environment Plan 2025 – 2030 https://www.greatermanchester-ca.gov.uk/media/alnl0fsy/gmca_5-year-plan_final_digital_v3-ua.pdf

[29] Greater Manchester Clean Air Plan: https://cleanairgm.com/clean-air-plan

[32] Department for Environment Food & Rural Affairs, Local Air Quality Management, Technical Guidance (TG22), May 2025. Available at: https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/

Oldham Metropolitan Borough Council Local Development Framework Air Quality and Development Supplementary Planning Document[31]

2.5.12 The SPD supports the implementation of Policy 9 and provides guidance on air quality in planning decisions. Key requirements include:

2.5.13 Air quality assessments (AQAs) are required where a "significant increase in air pollution emissions is expected to or anticipated to arise from the potential development".

2.5.14 The Council "will require air quality assessments to be submitted alongside planning applications …. where a development is likely to result in unacceptable levels of pollutants" and the Council "will require mitigating measures, or secure changes to the proposal that will make it acceptable, before granting planning permission"

2.5.15 Air quality assessments must include:

- "An assessment of the current air pollution levels in the area and predict the changes in pollution that would occur if the development goes ahead
- assessment of air quality impacts during the construction phase
- assessment of any measures proposed to mitigate, compensate or offset air quality impacts."

2.5.16 Developments normally requiring an AQA include those that:

- "will result in increased congestion, a change in either traffic volumes (e.g. 5% AADT or peak) or a change in vehicle speed (±10kph), or both, on a road with greater than 10,000 vehicles per day (vpd)
- include new car parking spaces (>80 spaces)
- lie within an area of poorer air quality such as an AQMA."

2.5.17 Mitigation may include "restrictions on the number of available parking spaces, agreements to restrict delivery vehicles to meet certain specified

[32] Department for Environment Food & Rural Affairs, Local Air Quality Management, Technical Guidance (TG22), May 2025. Available at: https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/

emissions standards, and design of buildings to reduce energy consumption.

2.6 Guidance

LAQM Technical Guidance

2.6.1 Guidance concerning local air quality management and assessment is given in Defra's technical guidance LAQM.TG(22)[32]; the guidance provides relevant methods concerning treatment and interpretation of data for local authorities in relation to the LAQM regime but is frequently applied when undertaking assessments for planning applications.

Development Control

2.6.2 The EPUK/Institute of Air Quality Management (IAQM) 'Land-use Planning and Development Control: Planning for Air Quality' (2017)[33] guidance (IAQM Planning Guidance) sets out to ensure that air quality is adequately considered in land-use planning and development control processes. It comprises an initial screening stage to determine the need for an air quality assessment. If an assessment is required, a number of more stringent criteria are provided to help establish the need for further work, which may be either qualitative or quantitative, simple or detailed. It also provides a framework for describing the magnitude of changes in local air pollutant concentrations at individual receptors and gives advice on how overall significance may be assessed.

Construction Dust

2.6.3 The IAQM Construction Dust Guidance[5] provides a framework for a risk-based approach to the assessment of dust emissions from demolition and construction land development schemes and outlines options for mitigation depending on the level of 'dust risk' identified for a site through the assessment process.

[32] Department for Environment Food & Rural Affairs, Local Air Quality Management, Technical Guidance (TG22), May 2025. Available at: https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/

[33] Institute of Air Quality Management (2017) Land-Use Planning and Development Control: Planning for Air Quality. Available online: http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

3. ASSESSMENT METHODOLOGY

3.1 Baseline Conditions

3.1.1 Information on existing air quality conditions and constraints in proximity to the Order Scheme was obtained from the following sources:

- Greater Manchester Combined Authorities (GMCA) air quality annual status report (ASR) 2023[34];
- Air quality background concentrations and Pollution Climate Mapping (PCM) modelling data from DEFRA's Air Information Resource (UK-AIR)[35]; and,
- Ordnance Survey (OS) mapping (OpenStreetMap), and the Natural England Multi-Agency Geographic Information for the Countryside (MAGIC) website[36] to identify residential properties, designated ecological sites and other sensitive receptors in the vicinity of the Order Scheme.

3.2 Construction Phase

Construction Dust Risk Assessment

3.2.1 The IAQM Construction Dust Guidance[5] provides a framework for a risk-based approach to the assessment of dust emissions from demolition and construction. The assessment of dust emissions during the construction of the Order Scheme is considered in the context of the overall scale and nature of the development under consideration and the potential sensitivity of neighbouring land uses. The quantity and distribution of dust emissions varies according to type, duration and location of activity, weather conditions and the effectiveness of suppression (mitigation) measures. Good practice control measures that are "highly recommended" or "desirable" for dust control for various dust risks categories are recommended.

3.2.2 It is anticipated that any potential air quality impacts associated with the majority of the relevant works elements during construction of the Order Scheme will be highly localised and temporary in nature. Such activities will be undertaken in accordance with well-established and routine mitigation measures to control dust and manage emissions as required by Network Rail's Environment and Social Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix

[34] 2023 Air Quality Annual Status Report (ASR), GMCA, 2024. Available at: https://cleanairgm.com/data-hub/monitoring-reports/

[35] Uk-air.defra.gov.uk. Home - Defra, UK. [online] Available at: https://uk-air.defra.gov.uk/.

[36] Magic.defra.gov.uk. Magic Map Application. [online] Available at: https://magic.defra.gov.uk/MagicMap.aspx

1A of this Report [**NR14**]). Further, more specific details of mitigation measures will be detailed in Part B of the CoCP (to be secured via condition in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**]. Part B of the CoCP shall include requirements for preparation of a Pollution Prevention Incident Control Plan (PPICP) and a Nuisance Management Plan (NMP), both of which will need to be submitted to and approved by the relevant local planning authority. Therefore, the specific appraisal of potential air quality effects of most construction activities will be undertaken prior to construction phase.

3.2.3 The Order Scheme includes construction of a new station at Mossley, located ~400 m north of the existing station which is to be demolished. Construction of a new station is a larger undertaking than many other relevant works included in the Order Scheme, such as OLE upgrades. As such, potential air quality impacts due to construction of the new station have been appraised in accordance with the four-step process described in the IAQM Construction Dust Guidance. These steps are summarised in Annex A of this report.

Construction Vehicle Emissions

3.2.4 The IAQM Planning Guidance[37] advises that an air quality assessment should be undertaken where development causes a change in traffic flows on local roads with relevant receptors of:

- more than 25 Heavy Duty Vehicles (HDV) per day (Annual Average Daily Traffic, AADT) within or adjacent to an AQMA, or by more than 100 HDVs (AADT) elsewhere;
- more than 100 Light Duty vehicles (LDV) (AADT) within or adjacent to an AQMA, or by more than 500 LDVs (AADT) elsewhere.

3.2.5 The information on the number of construction vehicle movements associated with the Order Scheme has been provided in Volume 1, Chapter 10 and Volume 3, Appendix 10A of this Report [**NR14**]. and screened against the above criteria. Where the screening criteria were exceeded, pollutant concentrations have been modelled at representative receptors for scenarios without and with Scheme construction traffic. The modelling results were then considered in the context of IAQM impact descriptors, presented in Table 3-1 below.

[37] Institute of Air Quality Management (2017) Land-Use Planning and Development Control: Planning for Air Quality. Available online: http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

Table 3-1 - Impact descriptors for individual receptors

Long term average Concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL^)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% or more of AQAL	Moderate	Substantial	Substantial	Substantial

^AQAL: this may be an air quality objective, EU limit or target value. In the case of this assessment the AQAL is the annual mean AQS objective for NO_2 and PM_{10}, both of which are 40 µg/m^3, and an interim target of 12 µg/m^3 for $PM_{2.5}$ by 2028. See Table 1-1 above.

3.3 Operational Phase

Building Emissions

3.3.1 The specification of the new Mossley station will be finalised at detailed design stage. In the absence of details on potential buildings emissions sources, a qualitative appraisal of potential building emissions has been undertaken, and outline recommendations for mitigation in design have been proposed in section 6.3 below.

Rail Emissions

3.3.2 The electrification of the railway will facilitate replacement of diesel trains, this will lead to a reduction in NOx and particulate matter (PM) emissions from passenger trains during operation. As this has a beneficial effect, no further assessment of passenger train emissions is required.

3.3.3 Diesel freight services currently operate on the TransPennine Route and will continue to do so when the electrification upgrades are operational. With reference to LAQM TG22[32], paragraph 7.21 requires assessment of emissions from moving diesel locomotives where background NO_2 concentrations are above 25 µg/m^3. As described in the baseline data presented in Table 2-1 above, background NO_2 concentrations across the Order Scheme area are below this threshold, and at Mossley station are 10.5 µg/m^3. In addition, freight services would not stop at Mossley, so there would be no impacts due to idling diesel engines at sensitive receptors in this location. Furthermore, there are no proposals for

increased use of freight trains, nor the use of sidings for diesel locomotives in operation of the Order Scheme. Therefore, appraisal of emissions from diesel freight has been scoped out of further assessment.

Road traffic emissions

3.3.4 Volume 1, Chapter 10 of this Report [**NR14**] confirms that the operation of the Order Scheme will not result in any additional vehicle trips, reassignment of traffic onto other roads, highway re-alignment of more than 5 m, or the creation of new road junctions. As such, appraisal of operational phase traffic emissions has been scoped out of further assessment.

3.3.5 The need for an assessment of operational impacts associated with the new Mossley Station has been determined based on the screening criteria given in the IAQM Planning Guidance[33]. The IAQM Planning Guidance screening criteria indicate an air quality assessment is required if the development comprises:

- 10 or more residential units or a site area of more than 0.5 ha; or
- More than 1,000 m^2 of floor space for all other uses or a site area greater than 1 ha;

and either:

- More than 10 parking spaces; or
- A centralised energy facility or other centralised combustion process.

3.3.6 Under the current proposals, there will be an increase of 30 parking spaces at Mossley Station. However, given that the total floor space of the new station building is 107m^2 and there will be no centralised energy facility, the screening criteria are not met.

3.3.7 Furthermore, the 30 additional parking spaces equate to 150 two-way trips per day. This is below the screening criteria outlined in paragraph 3.2.4 above.

3.3.8 Thus, a quantitative air quality assessment for the impact of the operation of the new station on local air quality is not required, and the impact can be considered insignificant.

4. APPRAISAL OF IMPACTS AND EFFECTS

4.1 Baseline

Local Air Quality Management

4.1.1 The Order Scheme does not lie within any AQMAs. The nearest AQMA to the Order Scheme is the Tameside AQMA, located at a distance of approximately 360m west of the Order Scheme boundary. Two major approach roads (A106 and A635), which may carry construction or operational traffic for the Order Scheme, do extend into the Tameside AQMA.

4.1.2 Air quality monitoring is undertaken by national and local authorities and is a key component of local air quality management. Measurements of pollutant concentrations include those made by analytical instruments that measure continuously, and passive sampling devices such as diffusion tubes which give longer period average results, typically monthly, to calculate an annual mean concentration.

Continuous Monitoring Data

4.1.3 The nearest continuous monitoring site is located 3.6 km west of the Order Scheme and is not considered to be representative of the study area.

Passive Monitoring Data

4.1.4 Both TMBC and OMBC undertake passive monitoring of NO_2. There are 17 diffusion tube sites located within a 2 km study area around the Order Scheme boundary, as shown in Volume 2, Figure 13.1.1 of this Report [**NR14**]. All recorded annual mean NO_2 concentrations within the study area were below the AQS objective of 40µg/m^3 between 2019 and 2023[38] except at TA42 in 2019 where measured concentrations were marginally above AQS objective as shown in Table 4-1 below. The closest diffusion tube to the Order Scheme is a roadside site (OLHSNO), approximately 40m to the

[38] Pollutant concentrations measured in 2020 (and to a lesser extent, 2021) may not be representative of real-world conditions due to the effects of national lockdowns in response to the COVID-19 pandemic reducing traffic flows.

northeast on Oldham Road (A670), which had an annual mean NO_2 concentration of 25.4 µg/m^3 in 2023.

Table 4-1 Diffusion tube results[39]

Site ID	Site type	X	Y	2019	2020	2021	2022	2023
OLCVNO	Roadside	399533	404454	19.1	14.5	15.3	15.4	15.8
OLHSNO	Roadside	399589	405511	30.0	22.8	25.2	25.8	25.4
TA25NO	Roadside	396950	402329	28.6	21.9	19.8	21.1	20.7
TA27NO	Roadside	396177	398218	28.7	20.7	22.5	22.1	21.0
TA31NO	Suburban	396899	402449	27.2	15.9	16.1	16.7	15.9
TA32NO	Suburban	396982	402437	25.1	18.5	20.1	19.9	19.6
TA33NO	Roadside	397011	402591	24.2	18.2	19.2	19.9	18.8
TA34NO	Roadside	397060	402581	23.0	18.7	17.9	19.5	19.5
TA35NO	Roadside	397080	402540	36.9	27.7	29.1	30.4	31.3
TA36NO	Suburban	397060	402387	22.0	16.1	17.0	16.5	15.9
TA37NO	Roadside	396728	402073	31.7	26.6	27.7	28.1	26.8
TA42NO	Urban Background	394494	399010	30.1	21.3	24.5	23.5	23.0
TA43NO	Roadside	394204	398933	**40.3**	31.2	33.2	35.3	33.0
TA59NO	Roadside	395652	399140	19.8	15.0	15.9	15.1	14.1
TA60NO	Roadside	395747	399112	27.8	20.2	21.5	20.2	19.3
TA61NO	Roadside	395682	399171	24.0	18.2	20.3	19.0	18.4
TA62NO	Roadside	395589	399227	23.0	17.1	17.2	18.4	17.7
TA64NO	Kerbside	395787	398769	*-	*-	37.4	36.7	36.7

*Data unavailable

Mapped Background Data

4.1.5 Estimates of current and future year background pollutant concentrations in the UK are available on the Defra UK-AIR website[35]. The background estimates, which are a combination of measured and modelled data, are available for each one-kilometre grid square throughout the UK based for a reference year of 2021 and future year estimates up to 2030. These background estimates include contributions from all source sectors, e.g. road transport, industry and domestic and commercial heating systems.

4.1.6 Estimated annual mean background concentrations for 2025 for the one-kilometre grid squares that cover the Order Scheme are presented in Table

[39]Data for 2019 – 2023 are taken from GMCA 2023 Annual Status Report Available at: https://cleanairgm.com/monitoring-reports/

4-2 for the pollutants NO_2, PM_{10} and $PM_{2.5}$. The mapped concentrations of these pollutants indicate that background concentrations in the vicinity of the Order Scheme are expected to be well below[40] relevant AQS objectives.

Table 4-2 – DEFRA Background Concentrations in 2025 and 2029 (µg/m^3)

Grid Square		2025			2029		
X	Y	NO_2	PM_{10}	$PM_{2.5}$	NO_2	PM_{10}	$PM_{2.5}$
397500	400500	10.1	10.7	6.6	8.6	10.4	6.3
397500	401500	10.3	10.8	6.7	8.8	10.5	6.5
397500	402500	10.5	11.0	6.8	8.9	10.8	6.6
397500	403500	9.7	11.2	6.7	8.3	10.9	6.5
397500	404500	9.2	10.7	6.5	7.9	10.5	6.3
398500	403500	9.0	10.5	6.4	7.7	10.2	6.2
398500	404500	9.5	10.5	6.5	8.1	10.3	6.3
399500	404500	10.1	11.7	7.7	8.8	11.5	7.5
399500	405500	9.1	10.3	6.4	7.8	10.1	6.2
399500	406500	8.9	10.2	6.3	7.6	9.9	6.1
400500	406500	7.7	9.8	6.1	6.7	9.5	5.9
400500	407500	8.8	10.7	7.0	7.7	10.4	6.8
400500	408500	7.8	9.7	6.1	6.7	9.5	5.9
401500	408500	7.3	9.5	5.9	6.4	9.2	5.7
396500	398500	13.2	12.3	7.7	11.4	12.0	7.5
396500	399500	11.5	11.4	7.1	10.0	11.1	6.9
397500	399500	10.4	11.1	6.9	8.9	10.8	6.6

[40] Well below, i.e. <75% of the AQS objective. Defined in Footnote 6 to Table 6.3 of IAQM / EPUK Land Use Planning Guidance[33]

Compliance Limit Values

4.1.7 Defra's PCM model[41] is used to demonstrate compliance with air quality limit values and provides projected roadside concentrations of pollutants, for the years 2019 – 2030 inclusive, based on a 2018 reference year.

4.1.8 There are 29 links within 1 km of the Order Scheme. None of them have a projected roadside NO_2 concentration over 40µg/m^3 in 2025 or later.

Receptors

4.1.9 Transport and construction emissions have the potential to affect both human health and sensitive ecological receptors.

4.1.10 The Order Scheme is located between the towns of Stalybridge in the south and Standedge to the north, with high sensitivity human health receptors within 250 metres of the Order Scheme boundary predominantly located in the following areas, from east to west:

- Stalybridge;
- Mossley;
- Micklehurst;
- Grasscroft;
- Uppermill; and,
- Diggle.

4.1.11 The only habitat[42] identified within 250m of the Order Scheme designated for biological features, is the Huddersfield Narrow Canal SSSI, shown on Figure 13.1.1 in Volume 2 of this Report [**NR14**].

[41] Air modelling for Defra - DEFRA UK Air - GOV.UK

[42] Ladcastle and Den Quarries SSSI, located west of Uppermill, is designated for its geological features and therefore is not a sensitive air quality receptor.

5. IDENTIFICATION OF IMPACTS AND EFFECTS

5.1 Construction Phase

Construction Vehicle Emissions

5.1.1 Construction traffic data is provided in Volume 3, Appendix 10B [**NR14**]. The construction traffic route network is illustrated in Annex B of this report. The annual average daily traffic (AADT) two-way flows and fleet composition data were provided for a worst case construction year of 2029 comprising baseline traffic flows, then the additional construction traffic flows in two consecutive phases, enabling works and core construction. These scenarios are respectively identified as:

- Construction base year 2029 without the Order Scheme;
- Construction year 2029 with Enabling Works traffic; and
- Construction year 2029 with Core Construction traffic.

5.1.2 The data for enabling works and core construction scenarios are presented in Table 5-1. These volumes of additional traffic have been compared with IAQM screening criteria (paragraph 3.2.4). Construction generated traffic flows exceed the IAQM screening criteria on two links within the identified construction route network, indicated by **bold** text in Table 5-1.

- Link 1, 70 Wakefield Road, located within the Tameside AQMA.
- Link 12, Oldham Road, not located within an AQMA.

5.1.3 A quantitative assessment has therefore been carried out to examine the impact from construction traffic emissions at receptors near the following affected links: Link 1, Wakefield Road; and Link 12, Oldham Road.

Table 5-1 - Two-way trips Generated by Construction of the Order Scheme

Link	Description	Enabling Works		Core Construction	
		LDV Trips	HDV Trips	LDV Trips	HDV Trips
1	Wakefield Road*	**183**	**96**	**353**	**98**
1.1	Printworks Road	30	9	46	8
2	Wakefield Road	183	78	353	82
2.1	Spring Bank Lane	0	0	0	0
3	A65	199	72	381	81
3.1	Egmont St	68	9	134	8
3.2	Cheshire St	68	9	134	8
4	Manchester Road	224	60	435	62
4.1	Stamford Road	15	0	32	4

Link	Description	Enabling Works		Core Construction	
		LDV Trips	HDV Trips	LDV Trips	HDV Trips
5	Manchester Road	184	39	354	43
6	Manchester Road	183	35	353	38
6.1	Mill Lane	0	0	0	0
7	Manchester Road	183	35	353	38
7.1	Heron Lane	3	2	10	2
8	Well Hole Road	183	35	353	38
9	Church Road/ Armit Road	13	2	37	4
9.1	High Grove Lane	0	0	0	0
10	Oaklands Road	183	33	353	34
11	Shaw Hall Bank Road	13	0	39	1
12	Oldham Road	186	31	**721**	32
13	A670 (Between Greenfield and Uppermill)	183	13	353	14
14	Huddersfield Road	183	13	353	14
14.1	Dobcross New Road	0	0	0	0
14.2	Ward Lane	0	0	0	0
15	Huddersfield Road	194	19	372	21
15.1	Sam Road	194	19	372	21
15.2	Station Road	0	0	353	98

*link located in an AQMA, as such, AQMA screening criteria are applied.

5.1.4 An assessment was undertaken using National Highways' Design Manual for Roads and Bridges (DMRB)[43] spreadsheet tool[44] to understand the contribution of the additional construction vehicle movements on affected roads on local pollutant concentrations.

5.1.5 Residential receptors representing 'worst-case exposure' on both of the affected road links were selected:

- The Coach House, Wharmton Tower, on Oldham Road, located 5.8 m from the road; and
- Wakefield Road, located 1.4 m from the road.

[43] National Highways, DMRB LA105 Air Quality (June 2024), available at: https://www.standardsforhighways.co.uk/tses/attachments/af7f4cda-08f7-4f16-a89f-e30da703f3f4?inline=true

[44] National Highways, DMRB Air Quality Spreadsheet Version Draft DMRB V9_EFTV13.0

5.1.6 In addition, concentrations were also estimated at the TA68NO monitoring location on Stamford Street, situated within the Tameside AQMA.

5.1.7 Receptor locations are illustrated in Figure 13.2.1 in Volume 2 of this Report [**NR14**]. Air quality baseline data (Table 5-2) show the existing background pollutant concentrations for NO_2 and PM_{10} at these locations are well below their respective AQS criteria.

5.1.8 As shown in Tables 5-2 to 5-5 below, the increase in concentration of NO_2 and PM_{10} due to construction traffic in either enabling works or core construction phases is less than 2% of the relevant AQS criteria (Table 1-1 above). The total concentrations remain below 75% of the relevant AQS criteria. With reference to impact descriptors in IAQM Planning Guidance[33] the impact of emissions from construction traffic is classed as negligible and not significant.

5.1.9 Furthermore, the low concentration results for PM_{10} indicate that $PM_{2.5}$ concentrations would not be at risk of exceeding legislated targets. With reference to LAQM TG(22)[32] (paragraphs 7.188 – 7.124), $PM_{2.5}$ concentrations can be derived from PM_{10} data by applying a national factor[45]. The latest year for which a national factor is available is 2024. Subtracting the factor of 6.0 from the highest estimated PM_{10} concentration of 13.4 µg/m^3 derives an estimated $PM_{2.5}$ concentration of 7.4 µg/m^3, which is below the annual mean target value of 10 µg/m^3.

5.1.10 The results of the assessment have shown that the additional traffic generated by construction of the Order Scheme, in a worst case construction year, would not be expected to result in an adverse impact at

[45] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/estimating-pm2-5-from-pm10-measurements/

nearby sensitive receptors. Furthermore, construction traffic emissions will be temporary for the duration of construction only.

Table 5-2 Estimated NO_2 Results – Enabling Works Scenario 2029 (µg/m^3)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	8.4	8.4	0.1	0.2%	Negligible
Residential on Wakefield Road	8.1	8.2	0.1	0.4%	Negligible
TA64 NO, Wakefield Road	11.2	11.8	0.6	1.5%	Negligible

Table 5-3 Estimated PM_{10} Results – Enabling Works Scenario 2029 (µg/m^3)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	10.5	10.6	0.1	0.2%	Negligible
Residential on Wakefield Road	10.7	10.8	0.1	0.3%	Negligible
TA64 NO, Wakefield Road	13.2	13.4	0.2	0.5%	Negligible

Table 5-4 Modelled NO_2 Results – Core Works Scenario 2029 (µg/m^3)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	8.4	8.4	0.1	0.2%	Negligible
Residential on Wakefield Road	8.1	8.2	0.1	0.4%	Negligible
TA64 NO, Wakefield Road	11.5	11.8	0.3	0.6%	Negligible

Table 5-5 Modelled PM_{10} Results – Core Works Scenario 2029 (µg/m^3)

Receptor	Do Minimum Concentration	Do Something Concentration	Change	Change as % of AQAL	Significance
Residential on Oldham Road	10.5	10.5	<0.1	0.1%	Negligible
Residential on Wakefield Road	10.7	10.8	<0.1	0.1%	Negligible
TA64 NO, Wakefield Road	13.2	13.4	0.2	0.4%	Negligible

Construction Dust

5.1.11 In accordance with IAQM Construction Dust Guidance, an initial screening assessment was carried out using Ordnance Survey OpenStreetMap base mapping and DEFRA's website "Magic"[46] to determine the location and number of sensitive receptors within relevant distances of the construction of the proposed new Mossley Station.

5.1.12 The screening assessment identified that there were human receptors within 250 m of the Order Scheme boundary. No ecological receptors were identified within 50 m of the Order Scheme site boundary or within 50 m of the routes likely to be used by construction vehicles up to 250 m from the site access / egress. As such, construction dust impacts on ecological receptors were screened out.

5.1.13 A qualitative dust assessment has been conducted to determine the risk of dust soiling and impacts on human health of the construction activities associated with construction of the new Mossley Station. The proposed station boundary and 250 m buffer representing the construction dust study area are presented in Figure 13.3.1 Volume 2 of this Report [**NR14**].

5.1.14 Table 5-6 presents the assigned dust emission magnitude for each construction activity and the justification in accordance with IAQM guidance.

[46] Magic.defra.gov.uk. Magic Map Application. [online] Available at: https://magic.defra.gov.uk/home.htm

Table 5-6 Dust Emission Magnitude

Activity	Dust Emissions Magnitude	Justification
Earthworks	Small	Area of earthworks is estimated to be less than 18,000m^2
Construction	Large	Area of construction is estimated to be between 12,000m^3 to 75,000m^3 Potential dust construction material – e.g. concrete Potential onsite concrete batching
Trackout	Medium	Number of outward construction vehicles movements: 20-50 HDV Unpaved road length is estimated to be less than 50m Surface material has low potential for dust release

5.1.15 There are more than ten but fewer than 100 residential receptors within 20 m of the proposed Station boundary and within 20 m of the external trackout[47] route, extending 250m from the site access. Therefore, the surrounding area has been defined as 'high' sensitivity to dust soiling. As background annual mean PM_{10} concentrations are below 24µg/m^3 in the area (see section 4.1) the sensitivity of the surrounding area to human health impacts is 'low'.

5.1.16 The sensitivity of the surrounding area and potential risk from dust soiling and human impacts, given the dust emissions magnitudes described above, has been assessed in line with IAQM guidance and findings are summarised in Table 5-7. The overall dust risk is considered to be 'high' (the highest dust risk identified across all activities). Appropriate mitigation for high dust risk construction activities is described in section 6.1.

Table 5-7 - Summary of Sensitivity of the Surrounding Area and Expected Dust Risk

[47] Trackout can be defined as the deposition of dust and dirt from a construction site onto a public road network where it may then be re-suspended in the air by vehicles using the road network.

Sensitivity of Surrounding Area		Summary of Dust Risk		
		Earthworks	Construction	Trackout
Dust Soiling	High	Low Risk	High Risk	Medium Risk
Human Health	Low	Negligible	Low Risk	Low Risk
Ecological	N/A	N/A	N/A	N/A

5.2 Operational Impacts

Building emissions

5.2.1 Any impacts on air quality associated with operation of the new Mossley station are expected to be minor in nature. In accordance with requirements included in Network Rail's Minimum Requirements for Projects – Design and Construction (NR/L2/ENV/015, Volume 3, Appendix 1A of this Report [**NR14**]) an environmental performance benchmarking (such as using the independent BREEAM scheme) will be undertaken in order to review the environmental performance of new operational buildings. Opportunities will therefore be taken to embed measures in the design to improve environmental impacts of the new station, including any impacts associated with air quality. It is recommended that the detailed design incorporates embedded mitigation through adoption of low emission heating technologies where feasible.

5.2.2 Specification of low-VOC finishes and furnishings is also recommended.

Rail emissions

5.2.3 The Order Scheme will deliver electrification upgrades to allow operation of electric passenger trains and removal of diesel passenger trains from service. This will bring benefits in terms of reduced rail emissions. Until electrification upgrades have been completed across all route sections, diesel trains will remain in operation. Upon completion and commissioning of electrification works the majority of trains operating on the TransPennine Route will be electrically powered, thus delivering a reduction in the emissions associated with diesel combustion engines. Some particulate emissions will still occur through the abrasive actions of braking. Reduced emissions will benefit sensitive human and ecological receptors near to the

railway corridor, reducing the contribution of rail emissions to ambient pollutant concentrations.

5.2.4 The operation of electric, rather than diesel passenger train stock will generate positive air quality impacts and align with both TMBC and OMBC policies which aim to take significant action to reduce carbon emissions and therefore enhance climate resilience. The Order Scheme will also facilitate the target of increasing the number of journeys in Greater Manchester to public transport.

5.3 Cumulative impacts

Construction traffic emissions

5.3.1 Construction of the Order Scheme will require temporary road closures, bridge closures and other traffic management thus necessitating diversion of existing traffic flows onto alternate routes. There is the potential for cumulative air quality effects at sensitive receptor locations arising from additional road traffic emissions from construction traffic in combination with diverted traffic. However, given that the estimated pollutant concentrations for NO_2 PM_{10} and $PM_{2.5}$ reported in section 5.2 above, would be less than half of the relevant AQS objectives, it is therefore unlikely that any such diversions would risk an exceedance of the AQS objectives. Furthermore, any such cumulative impact would be temporary. Details of bridge closures and associated traffic management will be developed within the Construction Traffic Management Plan (CTMP). The contractor will be required to comply with the requirements of the Construction Traffic Management Plan, to be produced to provide details of traffic management on the nearby public roads, which will be secured via a planning condition in the 'Request for deemed planning permission and statement of proposed conditions' [**NR12**].

Construction dust emissions

5.3.2 The Order Scheme entails multiple elements of construction, preparation and operation of compounds, demolition and other works to be undertaken in close proximity to each other, and thus affecting sensitive receptor locations cumulatively. However, the Contractor will be required to operate in accordance with requirements included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]) which contains appropriate and effective mitigation measures to control construction dust and plant emissions and as such that these sources should not have a significant effect on nearby sensitive receptors either individually or in combination (see section 6 below for details of further mitigation measures).

Permitted Development Rights

5.3.3 There are a range of additional works to be undertaken as part of the wider TRU W2B Project to be undertaken using Permitted Development Rights (PDRs). Construction of these works under PDR will be undertaken concurrently with the relevant works elements of the Order Scheme and therefore may give rise to cumulative effects both during the construction and operational phases of the Order Scheme.

5.3.4 Relevant works being undertaken under PDRs for air quality include (but are not limited to) preparation and operation of compounds, other construction works and activities, including the demolition of the existing Mossley station (refer to Volume 1, Table 1.2 of this Report [**NR14**] for a summary of works to be undertaken using PDR).

5.3.5 The potential effects of construction and operation of the works being undertaken by PDRs, either in isolation or in-combination or cumulatively with other elements of the Order Scheme, will be managed in accordance with the relevant clauses included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]). For air quality, control of emissions to air is addressed in sections 6.3 and 6.7 of those requirements, whereby the contractor shall reduce emissions to air from construction plant and non-road mobile machinery and dust emissions to as low as reasonably practicable.

6. MITIGATION AND CONSIDERATION OF CONTROL MEASURES

6.1 Construction Dust

Best Practicable Means

6.1.1 Construction works associated with the Order Scheme have the potential to generate dust emissions, which will require effective control/minimisation for the duration of the construction project.

6.1.2 Best practice environmental management measures in relation to air quality will be implemented on-site during construction through application of the CoCP, which is split into Part A and Part B.

6.1.3 Part A of the CoCP is provided in document [**NR17**] and sets out the general principles, relevant measures, standards and environmental management requirements to be adhered to during construction.

6.1.4 Part B of the CoCP is applicable to the Order Scheme that require deemed planning permission and will be secured through a planning condition as

described in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**].

6.1.5 The CoCP Part B will be a series of standalone reports and delivery plans (collectively referred to as 'the CoCP Environment Plans'). Of specific relevance to Air Quality is the Nuisance Management Plan (NMP) concerning dust, wheel wash measures, air pollution and temporary lighting. Commencement of construction of the Order Scheme will be linked to the submission and approval by TBMC or OMBC as the relevant local planning authorities of the NMP , as stipulated by a condition included in the 'Request for deemed planning permission and statement of proposed conditions' [**NR11**]. Preliminary works will comply with the environmental controls as set out in the CoCP Part A and covered under paragraph 15.2.18 of that document.

6.1.6 Management and monitoring actions for air quality are to be undertaken following completion of the Order Scheme, as covered by the CoCP.

6.1.7 Selected mitigation measures given in the IAQM Construction Dust Guidance (on which the relevant sections of the CoCP are based) for the relevant risk level of the construction activities associated with the new Mossley station are given below. The following general mitigation measures are specified as highly recommended for high risk construction sites:

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary.
- Display the head or regional office contact information.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.
- Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked.
- Carry out regular site inspections to monitor compliance with the NMP, record inspection results, and make an inspection log available to the local authority when asked.

- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing).
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Avoid bonfires and burning of waste materials.
- As the site is classed a high risk for construction the following mitigation are highly recommended:

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.

6.1.8 Mitigation will include adherence to measures within NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]) for PD elements.

6.2 Construction traffic

6.2.1 Assessment of construction traffic emissions indicates that there will be negligible impact associated with the generated vehicle movements. It is recommended that the Construction Traffic Management Plan seeks to route construction traffic to avoid the Tameside AQMA.

6.3 Operation

6.3.1 Mitigation in operation is inherent in design as the electrification of the railway will reduce emissions from passenger services in comparison to diesel passenger trains and therefore contribute towards improvements to local air quality policy ambitions.

6.3.2 Electrification of the line will not generate any additional operational rail emissions or road vehicle trips.

6.3.3 Any air quality impacts associated with operation of the new Mossley station are expected to be minor. In accordance with requirements included in NR/L2/ENV/015 (Volume 3, Appendix 1A of this Report [**NR14**]) an environmental performance benchmarking (such as using the independent BREEAM scheme) will be undertaken in order to benchmark the environmental performance of new operational buildings. Opportunities will therefore be taken to embed measures in the design to improve the environmental impacts of the new station, including any impacts associated with air quality. It is recommended that the detailed design incorporates embedded mitigation through adoption of low emission heating technologies such as air source heat pumps, where feasible.

7. SUMMARY

7.1.1 The additional construction traffic generated is expected to exceed assessment screening thresholds set by the IAQM, so further assessment has been undertaken. The results of the assessment show that impacts of construction traffic emissions are negligible.

7.1.2 With application of identified mitigation, construction dust impacts associated with the construction of the new Mossley station are not expected to be significant.

7.1.3 Construction dust impacts for areas of permitted development will be effectively controlled through application of NR/L2/ENV/015.

7.1.4 While operational impacts have been screened out as mitigation is embedded in the design, it is noted that the replacement of diesel passenger trains with an electric fleet will contribute positively towards clean air targets and facilitate reductions in greenhouse gases.

ANNEX A – CONSTRUCTION DUST RISK ASSESSMENT METHODOLOGY

The construction dust risk assessment has been carried out with reference to the four-step process described in the IAQM Construction Dust Guidance. These steps are summarised below:

Step 1 – is to screen the requirement for a more detailed assessment.

An assessment will normally be required where there is:

- A human receptor within:
  - 250 m of the boundary of the site; and / or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).
- An ecological receptor within:
  - 50 m of the boundary of the site and / or
  - 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

'Human' receptors include residential dwellings and other premises that may have a particular sensitivity to dust deposition or to the health effects of PM_{10} e.g. vehicle showrooms, museums, long-term car parks, hospitals, schools and residential care homes. 'Ecological' receptors include sites with statutory designations e.g. Ramsar sites, Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Sites of Special Scientific Interest (SSSIs), as well as non-statutory sites such as local wildlife sites and/or locations with very specific ecological sensitivities e.g. horticultural operations.

No further assessment is required if there are no receptors within a certain distance of the works.

- **Step 2** – assess the risk of dust impacts for demolition, earthworks, construction and trackout[48] activities based on two factors:
  - **Step 2a** – The scale and nature of the works, which determines the potential dust emission magnitude as small, medium or large (criteria presented in Table A-1)
  - **Step 2b** – The sensitivity of the area to dust impacts, which is defined as low, medium or high sensitivity (criteria presented in Table A-2 and Table A-3 and sensitivity determined in Table A-4 and A-5, and;

    Step 2c – The two previous factors are combined to determine the risk of dust impacts with no mitigation applied (matrices provided in Table A-6, Table A-7 and A-8

[48] Trackout can be defined as the deposition of dust and dirt from a construction site onto a public road network where it may then be re-suspended in the air by vehicles using the road network.

- **Step 3** – determine the site-specific mitigation for each of the four potential activities in Step 2 based on the risk of dust impacts identified.
- **Step 4** – examine the residual effects and determine whether or not these are significant.

Table A-1 - IAQM determination of dust emission magnitude

Source	Large	Medium	Small
Demolition	Total building volume > 75,000 m^3 Potentially dusty construction material (e.g. concrete) On site crushing and screening Demolition activities > 12 m above ground level	Total building volume 12,000m^3 – 75,000 m^3 Potentially dusty construction material Demolition activities 6-12 m above ground level	Total building volume <12,000 m^3 Construction material with low potential for dust release (e.g. metal cladding or timber) Demolition activities <6 m above ground Demolition during wetter months
Earthworks	Total site area > 110,000 m^2 Potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size) >10 heavy earth moving vehicles active at any one time Formation of bunds >6 m in height	Total site area 18,000 m^2 – 110,000 m^2 Moderately dusty soil type (e.g. silt) 5-10 heavy earth moving vehicles active at any one time Formation of bunds 3 m – 6 m in height	Total site area < 18,000 m^2 Soil type with large grain size (e.g. sand) <5 heavy earth moving vehicles active at any one time Formation of bunds <4 m in height
Construction	Total building volume > 75,000 m^3 On site concrete batching/sandblasting	Total building volume 12,000m^3 – 75,000 m^3 Potentially dusty construction material (e.g. concrete) On site concrete batching	Total building volume <12,000 m^3 Construction material with low potential for dust release (e.g. metal cladding or timber)

Source	Large	Medium	Small
Trackout	>50 HDV trips in any one day Potentially dusty surface material (e.g. high clay content) Unpaved road length >100 m	25-50 HDV trips in any one day Moderately dusty surface material (e.g. high clay content) Unpaved road length 50 m – 100 m	<20 HDV trips in any one day Surface material with low potential for dust release Unpaved road length <50 m

Table A-2 - IAQM sensitivities of people to dust soiling effects

Sensitivity of receptor	Identification factors
High	Users can reasonably expect enjoyment of a high level of amenity; or The appearance, aesthetics or value of their property would be diminished by soiling; and The people or property would be reasonably expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.
Medium	Users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or The appearance, aesthetics or value of their property could be diminished by soiling; or The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Indicative examples include parks and places of work.
Low	The enjoyment of amenity would not reasonably be expected; or Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Indicative examples include playing fields, farmland (unless commercially sensitive horticulture), footpaths, short term car parks and roads.

Table A-3 - IAQM sensitivities of people to human health effects

Sensitivity of receptor	Identification factors
High	Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.
Medium	Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10} as protection is covered by Health and Safety at Work legislation.
Low	Locations where human exposure is transient. Indicative examples include public footpaths, playing fields, parks and shopping streets.

Table A-4 - IAQM sensitivity of the area to dust soiling effects on people and property

Sensitivity of receptor	Number of Receptors	Distance from the source (m)			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A-5 - IAQM sensitivity of the area to human health impacts (for a site with a background concentration of <24 µg/m^3)

Sensitivity of receptor	Number of receptors	Distance from the source (m)				
		<20	<50	<100	<200	<250
High	>100	Medium	Low	Low	Low	Low
	10-100	Low	Low	Low	Low	Low
	1-10	Low	Low	Low	Low	Low
Medium	>1	Low	Low	Low	Low	Low
Low	>1	Low	Low	Low	Low	Low

Table A-6 - IAQM risk of dust impacts – demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Table A-7 - IAQM risk of dust impacts – earthworks and construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A-8 - IAQM risk of dust impacts – trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

ANNEX B – CONSTRUCTION TRAFFIC ROUTE NETWORK

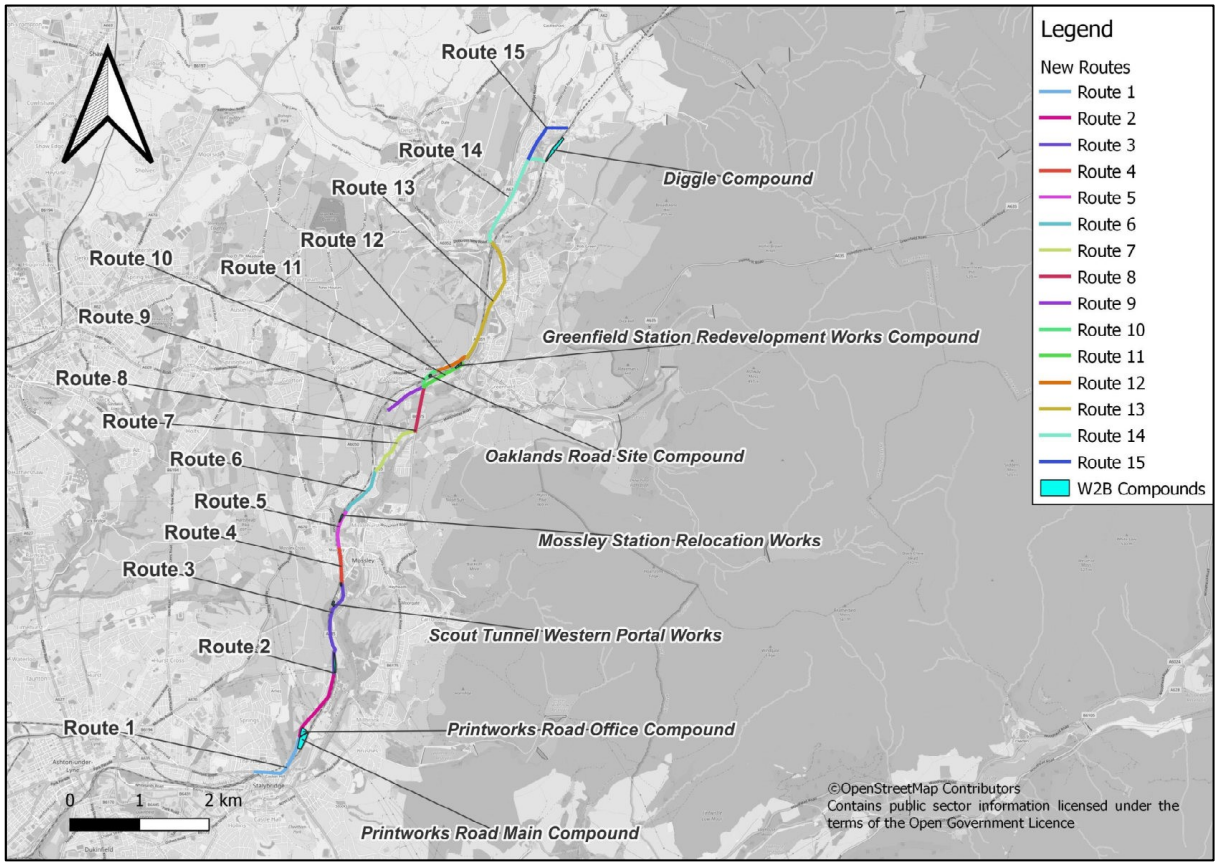

Figure A-1 - Construction Traffic Route Network