OLD OAK COMMON RAILWAY SYSTEMS PROJECT

GRIP 4 Construction Methodology Report

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Old Oak Common Railway Systems Project

Construction Methodology Report

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LIST OF ACRONYMS

AiP	Approval in Principle
ALB	All Line Block
ARS	Automatic Route Setting
ATF	Auto Transformer Feeder
ATP	Automatic Train Protection
AWS	Automatic Warning System
BBVS	Balfour Beaty VINCI SYSTRA
BIM	Building Information Modelling
CPPP	Confirmed Period Possession Plan
CRE	Contractors Responsible Engineer
CR-T	Contract Requirements - Technical
CSM	Common Safety Method
DMRB	Design Manual for Roads and Bridges
DNO	Distribution Network Operator
EAS	Engineering Access Statement
EDH	Explosive Depth Hardening
E&P	Electrification and Power
ECR	Electrical Control Room
EIS	Entry into Service
ELR	Engineering Line Reference
EMU	Electric Multiple Unit
ESA	Environment and Social Appraisal
ESMP	Environment and Social Management Plan
ETCS	European Train Control System
FSP	Functional Supply Point

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GRIP	Governance for Railway Investment Projects
GSM-R	Global System for Mobile telecommunications – Rail
GWML	Great Western Main Line
GWR	Great Western Railway
HEx	Heathrow Express
HS2	High Speed 2
IECC	Integrated Electronic Control Centre
LCV	Line Clear Verification
LDC	Local Distribution Centre
LOC	Location Cases/Cabinets
LOD	Limit of Deviation
LoR	Line of Route
LWR	Long Welded Rail
MEPH	Mechanical, Electrical, Plumbing and Heating
MLN	Paddington to Penzance via Bath
NBS	Non-Booked Service
NLL	North London Line
NR	Network Rail
NRDD	Network Rail Design Delivery
OHLE	Overhead Line Equipment
OOC	Old Oak Common
OOCPA	Old Oak Common and Paddington Approaches
OOCRS	Old Oak Common Rail Systems
P2R	Paddington 2 Reading
PSP	Principal Supply Point
QA	Quality Assurance
RAID	Risks, Assumptions, Issues and Dependencies
RATS	Rationalised Auto-Transformer System

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REB	Relocatable Equipment Building
RRAP	Road Rail Access Point
RRV	Road Rail Vehicle
S&T	Signalling and Telecommunications
SCADA	Supervisory Control and Data Acquisition
SDSC	Station Design Services Contract
SMT	System Management Team
SPT	Signal Post Telephone
TOC	Train Operating Company
TPCMS	Traction Power Central Management System
TPR	Technical Planning Rules
TPWS	Train Protection and Warning System
TTC	Twin Track Cantilever
TVSC	Thames Valley Signalling Centre
UTX	Under Track Crossing
WCIP	Western Capacity Improvements Project
WLL	West London Line
WON	Weekly Operating Notice

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1 Executive Summary

1.1.1.1 The railway systems work required to facilitate the introduction of the largest new Railway Station in the UK for over one-hundred years at Old Oak Common is extensive. It will stretch over a range of approximately 2.5km along a busy railway corridor stretching from East to West along the Great Western Main Line.

1.1.1.2 The works will introduce over three thousand new assets to the railway system the delivery of which will require extensive integration with HS2, NR, Train Operators and Local Authorities.

1.1.1.3 This report has been developed in parallel with the GRIP 4 design works associated with the Old Oak Common Railway Systems and with the support of Babcock our Early Contractor Involvement (ECI) supplier. Consideration for the construction staging has been given by all design disciplines to ensure the phasing proposed, is viable at this stage of design.

1.1.1.4 While this report and the evidence provided demonstrates that the delivery of the Old Oak Common Railway Systems construction is achievable in the given timescales and within the site constraints; additional integration will be required to ensure it interfaces with the emerging methodology of the station construction works and other developments in the OOCPA area.

1.1.1.5 Extensive planning has been undertaken to develop a viable Box Plan and Possession strategy for the works, ensuring that the works, as designed, can be delivered in the anticipated timeframe and within the constraints identified within this report.

1.1.1.6 Opportunities for potential enhancements to the delivery strategy have been identified. Further consideration should be given to these opportunities to provide flexibility within the given programme.

1.1.1.7 The interface with the Station and Bridge development projects is critical to the success of the project and as such extensive integration will be required by the teams delivering the projects.

1.1.1.8 The report identifies the criticality of the delivery of materials by rail – consideration will need to be given to the availability of the rail plant at the various delivery stages.

1.1.1.9 Several assumptions have been made about the availability of access points to the South of the Great Western Main Lines. The delivery of this project to the presented time frames is predicated on the access to the South being available.

1.1.1.10 At the time of writing programme integration with BBVS is ongoing, this will carry on into the next design stage. Workshops have been set up to facilitate this and it is envisioned that a master programme of works will be created to de-risk sequencing.

1.1.1.11 A proposed unmitigated programme is presented in this report which looks to work around the key interfacing constraints by extending the construction over a longer period than that originally devised.

1.2 Recommendations

1.2.1.1 To ensure the effective delivery of the railway systems works to support the implementation of the Old Oak Common Great Western Main Line station it is recommended that:

- An agreement is to be reached for the provision of access through both the Hitachi North Pole Depot and Jewson's Yard, located at Acton, to validate the assumptions made in this report regarding access from the South of the GWML. This is particularly critical to deliver Stage 13B onwards.

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- Integration with the station and bridges delivery is required to ensure alignment of programmes and the delivery of both projects in the given timeframes. At the time of writing integration has not been completed and is subject to ongoing discussions.
- The ETCS delivery programme and methodology is to be fully integrated into this construction methodology at the next delivery stage.
- Detailed staging of cable route works, cable diversion to maintain the railway operation during construction.
- A Signal Sighting exercise should be considered for every delivery stage where there is a clear impact to the operational railway.
- Ensure signalling design work is instigated a minimum of two-years out from the anticipated delivery date to allow time for design and sign-off.
- A GSM-R impact assessment should be considered taking into account construction staging – ensuring availability of GSM-R operation throughout.
- A staged commissioning of SCADA system to be agreed with SMT for integration into Railcom SCADA system at Didcot ECR, considering the planned migration to TPCMS.
- IDCs shall be carried out for each of the delivery stages to ensure the required Engineering Assurance rigour is applied to all works installed in isolation of the full scheme proposal.
- A detailed costing exercise will need to be carried out against the delivery proposals identified within this report to ensure funding can be made available at each of the delivery stages.
- Consideration for more materials to be delivered by road should be made. This is likely to bring cost benefits, transport of some materials may prove to be expensive.
- A detailed Design Programme to be developed to support each delivery stage, noting lead times for delivery and approvals of all aspects of design.
- Suppliers of long-lead items should be consulted at the earliest stage of development to protect the delivery programme.
- Agreements on batching of concrete to be reached with HS2 to limit the amount of material being transported by Road.
- A Local Traffic Management Plan should be produced for the railway systems project. It should be integrated into the HS2 Route-Wide Traffic Management Plan to ensure vehicle movements are within the agreed limits.

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2 Introduction

2.1 Project Background

2.1.1.1 Arcadis have been commissioned by Network Rail to complete GRIP Stage 4 design of the railway systems associated with the introduction of a new Great Western Main Line (GWML) Station at Old Oak Common. This station will have eight island platforms connected by an elevated central concourse. There will be footbridges at the East and West areas of the platforms. When constructed it will serve as an interchange hub between High Speed 2 (HS2) services in an adjacent sub-surface station, Crossrail and GWML services. The existing four track railway will be reconfigured to an eight-track system. For services departing from Paddington Station, it will be the first mainline station destination for trains heading West.

2.1.1.2 The Arcadis railway systems remit interfaces significantly with existing works commissioned at the Old Oak Common site; including the station design being carried out by HS2 Ltd, and the decommissioning of the existing Heathrow Express (HEx) depot.

2.2 Project Scope

2.2.1.1 The overall OOC Station development is split into two main elements:

- Development of the HS2 station sub-surface “box” and station; the main concourse and shared accommodation facilities; the Civils / Mechanical, Electrical, Plumbing and Heating (MEPH) elements of the GWML station, including two reconstructed under-bridges and undertrack crossings (UTXs). These elements are being developed and designed by HS2 Ltd and their Station Design Services Contract (SDSC) supplier.
- The GWML OOC Railway Systems being developed and designed for Network Rail by Arcadis.

2.2.1.2 The objective of the OOC Railway Systems project is to remodel all railway infrastructure within the project area to enable the new OOC station and platforms to be delivered and to function effectively in meeting the required Train Service Specification. The full scope of the Railway Systems Option Selection design can be found in the Option Selection Report (152270-ARC-REP-EMD-000002).

2.2.1.3 The works will be commissioned in stages around the station construction and available railway access. All rail systems are affected in the area including but not limited to Track; Overhead Line Equipment (OHLE); Signalling; Electrification & Plant (E&P); Telecoms; Lineside Civils and Earthworks.

2.2.1.4 The project is currently undertaking GRIP 4 design development following successful Option Selection in GRIP 3. Options presented during GRIP 3 were evaluated against pre-set criteria and a single option was chosen at an Option Selection workshop in July 2019. This option named E1 in GRIP 3 is now being developed to AiP for completion mid-2020 and is now titled GRIP 4 Alignment.

2.2.1.5 The output of GRIP 4 will continue to be integrated with interfacing projects, and design development will continue into GRIP 5 and on into construction.

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3 Constructability Background

3.1 GRIP 3 Summary

3.1.1.1 In the GRIP 3 Constructability Report (152270-ARC-REP-EMD-000003) it was deemed that the constructability differences between option groups A, B, C and E are marginal in the context of the 7-year construction programme. The following common challenges affecting all disciplines were identified at GRIP 3 to be further developed at GRIP 4:

- Provision of a rail head to the North of the Up-relief line
- Area required for off-line construction
- Old Oak Common Lane construction compound and access points
- Train and key plant requirements, and removing materials from site
- Railway services diversion strategy

3.1.1.2 In order to tackle the common challenges listed above; the GRIP 3 report highlighted the following next steps:

- Development of the current phasing strategy.
- Consideration of the constructability challenges throughout the GRIP 4 design period, adding value to the design decisions made, as well as creating ongoing detailed dialogue with HS2 and their stations Contractor.
- The GRIP 4 design will be developed in the federated 3D BIM model, which will provide opportunities for presenting the construction phasing strategy within the model environment, greatly helping identify constraints and opportunities.

3.1.1.3 Section 3.2: Purpose of Report covers the above key areas highlighted at GRIP 3, along with how they are tackled throughout the GRIP 4 submission.

3.2 Purpose of Report

3.2.1.1 The purpose of this report is to demonstrate that the Old Oak Common Railway Systems Design can be constructed within the space, access, time, and safety constraints of the critical railway corridor West of Paddington Station along the Great Western Main Line. On top of this, it will provide evidence on how it can be constructed in conjunction with the Old Oak Common GWML Station development, HS2 Box Station works, as well as other significant interfacing projects. It identifies:

- Constructability issues/risks, opportunities, impacts and mitigation measures
- Traffic management requirements (Rail and Road)
- Typical construction vehicles to be utilised in the delivery
- Feasible construction techniques and equipment
- Interfaces with other projects being delivered in the same area
- Construction Safety
- Proposed Construction Stages

3.2.1.2 In preparation of the report, Arcadis utilised the principles of the construction set out in the Network Rail staging strategy titled HS2 OOC GWML Staging Schematics – V8; which details eighteen construction phases over a period of eleven years. Throughout the GRIP 4 design process Arcadis have continued to build on the original plan and have iterated the process from 18 key stages to 27 stages (key stages + sub-stages); all detailed within this report.

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3.2.1.3 The basis of design for the sequencing comes from the design development that has been undertaken in the discipline areas of Permanent Way (P-Way), Overhead-Line Electrification (OHLE), Signalling, Telecoms, and E&P. While the staging design has been considered for all stages for P-Way and OHLE, the Signalling scheme plans for the final layout are awaiting MSRP approval, which will be forthcoming once other tasks such as signal sighting assessments are complete, once these are signed off the stage scheme plans will follow.

3.2.1.4 This report does not cover the details of the HS2 construction logistics for the Old Oak Common Station contract. The HS2 Construction and Methodology Report (1SN02-WSP-CL-REP-SS07-000001 C03) is used as a baseline to develop and integrate delivery strategy.

3.2.1.5 No assessment of overall or stage delivery costs has been made as part of this report.

3.2.1.6 In order to best represent the staging methodologies, we have developed a number of visual aids, all of which are appended to, or linked to this report; they are as follows:

- Staging Schematics:
- Staging General Arrangement Layouts
- Box Plan of Works planned against possessions
- 4D Synchro Model - Animation of Delivery

3.3 Site Constraints

3.3.1 Limits of Deviation (LODs)

3.3.1.1 The LODs are used to show the limits within which the scheduled works, as listed in Schedule 1 of the Hybrid Bill, may be constructed. These limits show the extent of the proposed works based on the design developed to the stage necessary for the preparation of the Bill. The specified LOD for this scheme are displayed in the Staging Layout, found in Appendix B.

3.3.1.2 The railway systems work fall within the LOD for the site, though permission for isolated/ancillary infrastructure such as Distribution Network Operator (DNO) supplies and the Auto Transformer Feeder Station, as well as development of access points which fall outside the LOD but are sited within the railway boundary are permitted where necessary. The introduction of additional access points and compounds may be subject to additional approvals.

3.3.1.3 The Limits of Land Acquisition and Use, which details land assigned for the HS2 project, can be found at the following address:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509217/Plans_-_Volume_1_Euston_-_Ickenham_and_Langley.pdf

3.3.1.4 Anything outside these limits will require their own consent. It should be noted the limits do not cover the areas proposed and required for satellite car parks which are covered in section 4.3, these car park areas will require their own consents with the landowners.

3.3.2 Working Hours

3.3.2.1 Construction of the Rail Systems works are part of the wider station development at Old Oak Common, though will be delivered under separate contractual arrangements, likely to multiple contracting organisations.

3.3.2.2 Working Hours will subject to Section 61 applications to the relevant Local Authorities in accordance with the Codes of Construction practice in the HS2 Hybrid bill, with the expectation being that there will be variations on how works are packaged and delivered by interfacing Contractors. Core working hours will be from 08:00 to 18:00 on weekdays (excluding Bank Holidays), and from 08:00 to 13:00 on Saturdays, with exceptions to this forming part of the Section 61 applications.

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3.3.2.3 The Rail Systems works will interface significantly with existing rail operations, and as such will include periods when it is not practical to adhere to the core working times, and there will be significant periods of possession work taking place during antisocial hours.

3.3.2.4 Access to the operational railway is controlled and requires significant pre-planning, allowing the Contractor(s) to book possessions and blockades far in advance of when works will be carried out. This allows for consultation with any necessary stakeholders including Local Authorities and affected residents to minimise disruption as far as is practicable. Due to the scale of the wider projects there will be requirement to consider the cumulative effects of works occurring simultaneously. This will require prior review before undertaking of works and identification of whether a Section 61 or Statement of Intent for works is required.

3.3.2.5 The design intent throughout this GRIP 4 period has been to design with construction in mind, and to maximise opportunities for daytime working in secured sites which operate separately from the live railway. These periods will generally be able to be undertaken within the core daytime working hours.

3.3.2.6 Between key stages of off-line construction and during certain commissioning/ decommissioning periods, there will be periods of extended track possession working, which will require work outside of the core hours. Effort will be made by the Contractors to mitigate the impacts of these on residents, other affected members of the public, and stakeholder groups. Activities outside core working hours, that could give rise to disturbance, should be kept to a reasonably practicable minimum.

3.3.3 Public, Businesses and Community Relations

3.3.3.1 The approach to community relations for the combined works at Old Oak Common will be detailed in a community engagement framework by the appointed Contractors. An integrated approach to this will need to be taken, given the variety of work packages, and site working arrangements across the site.

3.3.3.2 Consistency in approach to community relations between the rail systems works, and surface / sub-surface stations will be important in its effective management. Section 5.1 of the Code of Construction Practice provides the framework for this with everything being centralized through HS2.

3.3.3.3 Residents and businesses in the vicinity of the rail boundary will generally be familiar with living and working near a busy and complex rail corridor, but the extent and duration of work planned in the delivery of the rail systems upgrades and wider station construction will be significantly more impactful than the usual maintenance and renewal activities. Traffic management and the volume of construction vehicles will negatively affect the local area for the duration of the construction period, though the degree of this can be managed to mitigate the impact as far as is practical.

3.3.3.4 With the level of disruption to the local area inevitably being high, a significant level of engagement with local stakeholders and stakeholder representatives will be necessary. Advance notice of specific details of work stages will need to include information on the nature of works, exact locations of areas affected, and durations, including working hours. A community helpline facility to manage enquiries, complaints, and feedback is recommended.

3.3.3.5 Network Rail and the selected Contractors for the railway systems construction are recommended to explore opportunities for proactive community relationships, including for example, initiatives involving education and employment opportunities for local people. The scale and duration of the works are such that education, training and employment opportunities for a wide range of age groups, professions and trades will be significant. A workforce drawn from the local community will help embed support for the works amongst community groups. HS2 information paper G4: Approach to Training and Employment provides extensive information on this topic. Bridges

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Scrubs Lane Overbridge (2m 54c)

3.3.3.6 The Overbridge at Scrubs Lane is a Network Rail owned structure which carries the A219 over the railway. The steel girder bridge is a single span over the full rail corridor at the Eastern limits of the site, and there are no intermediate supports within the railway. Mass fill brick abutments at either end constrain the site at the North Pole and Old Oak Common Cross Rail depots, with the Grand Union Canal sited adjacent to the Northern site boundary.

3.3.3.7 Whilst the bridge is not supported within the rail corridor, OHLE registration arms are fixed to the structure, and deep steelwork members constrain headroom affecting any changes to the track alignment and the OHLE alignment, both in terms of vertical and horizontal alignment. The GRIP 4 design has been completed taking these constraints into account, though consideration will still need to be given in the construction phase given limitations on temporary works, and headroom restrictions for large items of plant.

3.3.3.8 No works are proposed to be undertaken to the structure itself as part of the rail systems works, though restrictions to access for inspection and maintenance should be minimised during the construction phase.

3.3.3.9 No impact is foreseen to highway movements on Scrubs Lane, though the 18t highway weight limit may be a consideration for materials and plant movements to and from the site.

Mitre Railway Overbridge (2m 55c)

3.3.3.10 Mitre Bridge carries the two-track West London Line over the Great Western Main Line in a single span and is situated adjacent to Scrubs Lane Overbridge at the Eastern limits of the site. The steel girder structure is supported on abutments at either side of the rail corridor in a similar manner to Scrubs Lane.

3.3.3.11 As with Scrubs Lane Overbridge, no physical works are proposed for the bridge, but the structure remains a significant design constraint which has affected both the horizontal and vertical design of the track and OHLE. These constraints will follow through to the construction phase, with limited headroom a consideration for plant and lifting operations.

3.3.3.12 No impact is foreseen to rail operations on the West London Line.

Old Oak Common Lane Underbridges & Central Line Bridge (3m42c)

3.3.3.13 To the West of the site, the Old Oak Common Lane Underbridges carry the GWML and Wycombe Single Line over Old Oak Common Lane, and in close proximity is the Central Line bridge which carries the GWML over the Central line.

3.3.3.14 Due to the widening of the railway corridor at this location, both bridges over Old Oak Common Lane are to be replaced by wider structures, as is the bridge over the Central Line. Old Oak Common Lane will become a main highway route to the new station and will be subject to lowering and widening to cater for the increased traffic and bus movements.

3.3.3.15 The works to these bridges and the associated highways works to Old Oak Common Lane are to be delivered under the Stations Package, so do not form part of the Railway Systems scope.

3.3.3.16 Additionally, in this area, a major new service crossing point is proposed under the full rail corridor. Details of this interfacing project are included in 3.5 Interfacing Projects.

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North London Line Railway Overbridge (3m 56c)

3.3.3.17 To the far Western end of the site, the North London Line Railway overbridge carries the NLL over the GWML. The GWML track in this location is subject to slews as the new alignments diverge into the OOC site.

3.3.3.18 The bridge is supported by piers in the 6fts between the Reliefs and Mains which have constrained the alignment design at GRIP4 to save replacing the structure. The proposed track alignment does however require a shortening/reconstruction of the wingwall retaining structure to the London end of the Northern abutment.

3.3.3.19 The bridge also acts as vertical constraint to the movement of plant and materials from Acton Yard to the site

3.3.4 Rail Operations

Great Western Main Line

3.3.4.1 The biggest single constraint to the construction of the rail systems works is the operation of the GWML. Line speeds and service frequency are high into the terminus at London Paddington, and the construction of the proposed rail systems modifications require prolonged phasing to allow rail operations to continue with as limited disruption as practical during the construction period.

3.3.4.2 The phasing approach outlined in this document demonstrates how the proposed railway configuration through Old Oak Common can be delivered whilst keeping the mainline operations at their required frequency.

3.3.4.3 Maximising off-line construction is a core tenet of the construction methodology proposed at GRIP 4, though considerable use of Easter and Christmas blockades and further disruptive possessions are necessary for key commissioning stages of both temporary and permanent design configurations.

Old Oak Common Crossrail Depot

3.3.4.4 Old Oak Common Crossrail train maintenance depot is located to the North of the site, facing East, and with its reception lines running adjacent to the GWML from Mitre & Scrubs LNE bridges, throughout the Eastern site extents to Kensal Green. The Old Oak Common flyover (Engine and Carriage bridge) provides access to the depot from the Down Main line.

3.3.4.5 Western facing connections into the depot reception lines currently existing from the relief lines of the GWML, and Western connection functionality is retained in the GWML GRIP 4 track design.

3.3.4.6 The depot will be operational throughout the construction phases of the railway systems project, and planning access to the railway which least impacts the depot operations has been an important part of the construction planning at this GRIP 4 phase and will continue to need detailed planning in subsequent project phases. The Crossrail depot serves the Crossrail (TfL) fleet, which will operate principally on the Relief Lines once passenger operation commences.

Hitachi / North Pole Depot

3.3.4.7 To the South of the site adjacent to the Down Main line, Hitachi's North Pole train maintenance depot runs along the majority of the site boundary. The primary connection to the network faces East connecting via two reception lines from the Down Main and the Engine & Carriage line. A secondary connection to the West London Line acts as an irregular / emergency connection. North Pole services the fleet of IEP trains operating principally on the main lines through the site.

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3.3.4.8 Access to site from the Southern boundary does not exist at present, though is proposed to be arranged through agreement with Hitachi. Available space is extremely limited however, severely restricting compound and lay-down areas.

Adjacent rail operations

3.3.4.9 The North London Line, West London Line, and Central Line all cross under/over the Old Oak Common site at different locations.

3.3.4.10 Structures carrying the West London Line and North London Line over the GWML impose headroom restrictions as commented previously, though there are no specific implications for the either line's general operations.

3.3.4.11 The Central Line crosses under the GWML and will be affected by the replacement of the bridge, with full possession of the Central Line, in the area of works, being necessary during the key stages of the bridge installation and commissioning.

3.4 Stakeholders

3.4.1.1 The proposed rail systems works at Old Oak Common are significant and highly impactful on all those that use, access, and live or work near the site.

3.4.1.2 The works form part of the wider Old Oak Common HS2 station development, and as such stakeholder management between the Network Rail On-Network Works, and the wider HS2 station construction is and must continue to be integrated and developed in tandem.

3.4.1.3 The following lists the primary stakeholders affected by and/or impacting upon the proposed works. It is not an exhaustive list.

- High Speed 2 (HS2) – Ultimate Client
- WSP – Designer: HS2 & GWML Station Designer for HS2/BBVS
- Balfour Beatty Vinci Systra (BBVS) – Contractor: HS2 & GWML Station Contractor
- Network Rail – Infrastructure Manager for affected rail network (Arcadis' Client)
- Paddington to Reading (P2R) – Programme team within Capital Delivery Western and Wales, managing the HS2 On-Network Works and multiple interfacing projects
- Old Oak and Park Royal Development Corporation – Development Corporation within which the Old Oak Common site sits
- Transport for London (TfL) – Operator of Crossrail services on the network, and the Crossrail maintenance depot to the North of site. Also operator of services running on the West London Line, North London Line, and Central Line which cross over/under the OOC site
- Great Western Railway (GWR) – Primary train operator for passenger services on the GWML
- Hitachi – Depot Operator for North Pole, maintaining the GWR fleet
- Local Highway Authority
- Local Councils

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3.5 Interfacing Projects

3.5.1 Introduction

3.5.1.1 To successfully deliver the Old Oak Common Railway Systems works it is essential that a detailed understanding of all other projects being implemented along the Paddington to Reading railway corridor and in the vicinity of the proposed works. At the time of writing some of the key interfacing projects programme remain uncertain and subject to change. Ongoing interfacing is therefore key to create an integrated programme.

3.5.1.2 Below are details of the key interfacing projects for the construction of the works – additional details can be found in the respective discipline sections where the interface directly impacts the methodology proposed for adoption.

3.5.2 Old Oak Common Great Western Main Line Station, Old Oak Common Lane and Central Line Under bridges and HS2 Box Station

- Current Design Stage: GRIP 4/5
- To be implemented/completed between 2020 to 2031

3.5.2.1 The High Speed 2 (HS2) Old Oak Common Station is the London interchange station of the UK's second high-speed railway. The development forms part of Phase 1 of the HS2 delivery from London to the West Midlands.

3.5.2.2 The works will comprise the construction of a new eight platform station to serve Crossrail (Elizabeth Line) and the Great Western Main Line and a new sub-surface box station to serve the HS2 line. Coupled with this there will be a new interchange and retail area constructed between the stations.

3.5.2.3 To facilitate the railway systems required for the station operations, bridge enhancements/extensions are required over Old Oak Common Lane and over the Central Line Railway.

3.5.2.4 The integration of the railway systems and the aforementioned developments are critical from not only a design perspective, but from a construction methodology perspective.

3.5.2.5 Works have been commissioned to deliver, in Network Rail terminology GRIP 4/5 – 8. The delivery of the Station and Bridge packages has been awarded to Balfour Beaty, Vinci & Systra (BBVS) with WSP as designer.

3.5.2.6 The phasing of the station and bridges work is critical to the railway systems delivery. Ongoing integration is essential to ensure the success of the projects.

3.5.2.7 A critical aspect of the interface with the bridges works is the consideration of designing the bridges for construction traffic and the timings for availability of the bridges for access to the Wycombe Triangle Compound area are to be considered in detail as the projects evolve.

3.5.3 Old Oak Common (OOC) Depot Decommissioning Project

- Current Design Stage: GRIP 5 - 8
- Completed between 2019 –2021

3.5.3.1 The existing GWR and HEx depots on the OOC site are being decommissioned to make way for the HS2 and OOC GWML Station. This is managed by a separate project team but falls under the same programme of works within Network Rail.

3.5.3.2 Work consists of Track and OHLE modifications / recoveries, cable route modifications, cable diversions, UTX alteration, Signalling changes, operational changes, boundary modifications and operational changes.

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3.5.3.3 The timeline of the project should not interface with the construction stages of the railway systems project. There will be an interface with the design process as part of the GRIP 4 deliverables.

3.5.3.4 The interface will be managed by regular discussion between Arcadis and the depot decommissioning project with the sharing of designs to enable relevant information to be shared between parties.

3.5.3.5 Other interfaces with the scheme include any changes made to the ground conditions, boundaries installed during the project, and the space constraints these may place on rolling stock/permeant way alignments. The area covered by the project is highlighted below in green in Figure 1.

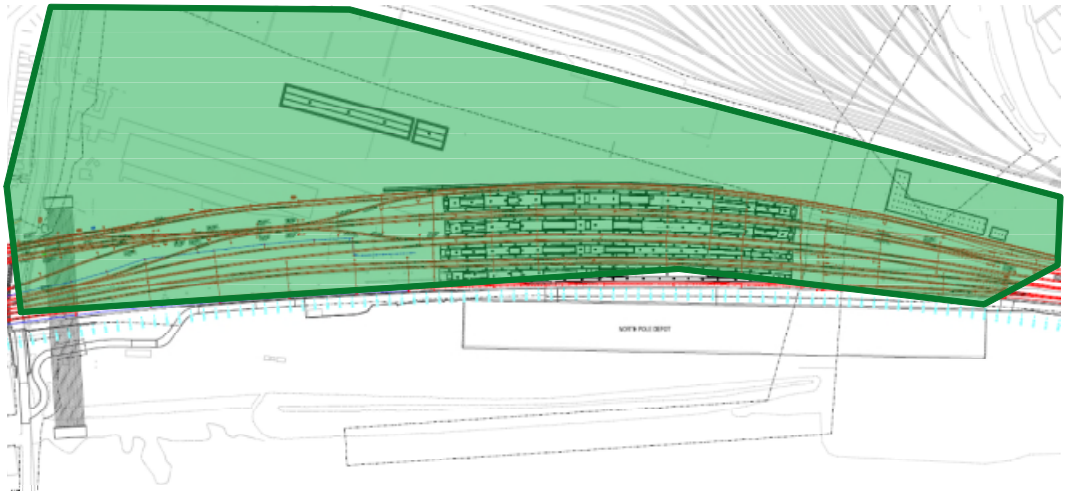


Figure 1: Depot Decommissioning overlay on the proposed railway systems track layout

3.5.4 Old Oak Common - Essential Works Project

- Construction and commissioned June 2020.
- Decommissioned and transferred to HS2 of substations in Depot area in September 2020.

3.5.4.1 The existing E&P and S&T modification will be covered by a separate project (essential works project). This consists of recovery of Feeder Station 2, installation of new DNO, new cable routes, modification of supply to points heating including UTX, and a new substation at Admiral Mews to power 6.6kV ring main.

3.5.4.2 An understanding of the impact of the project upon the railway systems works is vital for the delivery of a well-coordinated design at GRIP 3/4. The OOCRS project will be installing infrastructure which will be fed by the existing power supplies. Modifications to the infrastructure will need to be incorporated into the OOCRS works.

3.5.4.3 The interface will be managed by Arcadis E&P discipline and communicated with the wider team at weekly integration meetings. The systems architecture schematic will be regularly updated to reflect change.

3.5.4.4 Due to the project commissioning in June 2020, there will be no direct construction interface, but the positioning/access of the recovered/installed elements will require review to ensure that the staging strategy developed by Arcadis is still valid and if required is updated to take into account any changes.

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3.5.5 On Network Works

3.5.5.1 There are multiple Projects on the Great Western Main Line, that will interface with the delivery of the Old Oak Common Railway Systems project, nominally described as:

- OOCPA - Paddington (0MP) to 3¾ MP;
- Works include - Snagging and close out works ongoing.
- West Inner - 3¾ MP to Airport Junction (12MP); to Maidenhead (25MP)
- Works include - Snagging and close out works ongoing
- GWRM - Maidenhead (25MP) to Reading (36MP) and beyond.
- Works include - Snagging and close out works ongoing. Minor.

3.5.5.2 These have discrete or geographic project elements to deliver the overall Crossrail programme, alongside some “Line of Route” (LoR) type projects and are in final completion and hand-back stages.

3.5.5.3 There will still be some remedial works in these areas after the closure of Crossrail programme, which may need interfacing with. Specifically, recovery of Feeder Station 1, drainage in OOCPA area, renewal and realignment of Carriage Line 1 (deferred), through alignment designs to East and West.

3.5.5.4 The interface will be managed through regular meeting with the Network Rail (NR) project team, who will inform of any developments on the discrete sites. The main interface stemming from the Crossrail (Elizabeth Line) project is the changes to the drainage system in the OOCPA. This will interface physically with the GRIP 4 design of track drainage. There will be a review of the agreed outfalls and the limitations changes may place of the project.

3.5.5.5 . All available “As-built” data will need to be shared to ensure full and proper integration is achieved.

3.5.6 West (Inner) Signalling – Introduction of European Train Control System (ETCS)

- Staged commissioning in 2020 and 2022.

3.5.6.1 The introduction of the Crossrail Class 345 EMU fleet, which will not be BR(W) ATP fitted. ETCS is being introduced in stages between Paddington and Reading. The timescale of this remains unclear. Ongoing Interfacing with West (Inner) Signalling is required. The current project instruction is to assume conventional Signalling.

3.5.6.2 The current package of design and delivery is for the introduction of conventional Signalling systems, updates to the delivery programme of ETCS will need to be managed and construction methodologies and delivery programmes updated to suit.

3.5.7 Line of Route Telecoms Cable Upgrades

3.5.7.1 The upgrades to the cabling within the OOC area will directly interface with the railway systems delivery. The interface will be managed through design by ensuring access to facilitate the ongoing renewal of cable routes, fibre optic backbone, GSM-R, & SPTs, etc.

3.5.7.2 There is a construction interface with the construction staging requires the relocation of cables, or replacement to support new assets. This may be integrated with the cable upgrades to ensure cost optimisation across projects. Any work to ensure rework is limited will be controlled by NR whom after receiving designs will be in a position to identify areas of overlap.

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3.5.8 West (Inner) Electrification Modification OHLE

3.5.8.1 This work involves the modification of OHLE, (including elements of “Campaign Change plus” and “tangential wiring”), TTC construction and transfers, removal of existing OHLE head spans. This is required in order that legacy OHLE in the West Inner area (1½ MP to 12MP) can perform to levels provided by new electrification introduced by the wider Greater Western Electrification programme.

3.5.8.2 The interface is shared between Arcadis and the NR project team being responsible for the review of Arcadis OHLE deliverables to ensure the design aligns with the West Inner Electrification Modification project. Arcadis has developed design which integrate information provided by NR at regular integration meetings.

3.5.9 Fast and Safer Isolations project

- Ongoing

3.5.9.1 The project covers the rationalisation, introduction and motorisation of OHLE switching between Paddington and Maidenhead.

3.5.9.2 Arcadis are delivering a Form A to provide power to the motorised switches. The development of this has also served as the interface control, with the E&P CRE regularly communicating with NR counterparts in the development of the deliverable. In turn the rest of the project team has been informed by sharing any developments within the Isolations project with the wider team.

3.5.10 Track Renewals, both Plain Line and S&C, and ongoing infrastructure Maintenance

- Acton Main Line Plain Line Autumn 2023
- Acton East Junction Renewal Xmas 2024
- Other implementation dates to be confirmed

3.5.10.1 The route has an ongoing work bank of renewal, and maintenance intervention sites, including the S&C around Paddington and the Western Capacity Improvements Project [WCIP]

3.5.10.2 Network Rail development of the Thames Valley section of the GWML for future capacity growth is currently being developed. – Scope growing and full spectrum of works to be confirmed, but it is essential that the two projects interface and are aware of delivery timeframes and expectations. Currently Acton Main Line and Acton East Junction works are planned.

3.5.11 Paddington Approaches / Intervention 1

- GRIP 3
- Implementation date to be confirmed

3.5.11.1 Project to introduce a new crossover in Paddington throat to allow parallel moves from high numbered platforms to the mainlines. This project is being developed and introduced concurrently with the Old Oak Common Station and Systems Development works.

3.5.12 Axle Counters project

- Ongoing
- Trains run on new infrastructure 2021

3.5.12.1 Replacement of Track Circuits with Axle counters in the Paddington to Reading area – new REBs, cable routes, scheme plans, train detections, existing power supply, and IECC data changes.

3.5.12.2 System is being installed with sufficient capacity to accommodate OOC GWML Station. A review of the design as soon as it becomes available is required to ensure that there is

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sufficient capacity in the system. Records and or an Integrated design process are required for the Signalling design to be integrated from both a design and construction perspective.

3.5.13 Advanced Distance Protection (ADP) to RATS (Rationalised Auto-Transformer System)

- Trains run on new infrastructure 2024

3.5.13.1 This RATS scheme requires the status of the lineside motorised switches to be provided to the RATS master controller units so that the automation can take these into account and respond accordingly. Modifications to distribution protection systems.

3.5.13.2 SCADA Form A by Arcadis took into account the requirements and applied the MOS network architecture enabling connectivity to RATS master units at Kensal Green and Maidenhead ATFS.

3.5.14 Western Rail Link to Heathrow (WRLTH) – New connection to Heathrow from the West.

- Deferred – Date of implementation to be confirmed.

3.5.14.1 This scheme will deliver a proposed new direct rail link from the West to Heathrow and aims to improve journeys to Britain's busiest airport and help increase economic productivity in the Thames Valley area.

3.5.14.2 It should be noted integration is not possible at the time of writing due to uncertainty of WRLTH programme.

3.5.14.3 Network Rail is leading integration of this package of works. Currently the available proposed dates have been used to deconflict to a suitable level with the available information. The main ongoing interface involves separation of final commissioning of the WRLTH and OOC Christmas commissioning dates.

3.5.15 Early Works Package A -South Rail Systems Alliance

- To be aligned with railway Systems construction

3.5.15.1 Scope is to prepare the site to enable works on bridges, railway systems and the station to be undertaken. This will include:

- Cable diversions around Central line and Old Oak Common Lane Underbridges
- ATF modification to permit station and bridges construction
- Removal/modification of Headspan switching structures at Old Oak Common Lane
- Relocation of SN164, SN151 and installation of SN151 BR
- Relocation of LOC suites
- Ground lowering and extension of Eastern UTX

3.6 Assumptions

3.6.1.1 A full list of assumptions can be found in Appendix E – Constructability RAID Register. In order to set the scene of this report, key assumptions have been listed below:

- The HS2 Construction and Methodology Report (1SN02-WSP-CL-REP-SS07-000001 C03) forms the basis of the Rail Systems assumptions for the OOCRS construction and logistics plans.
- The Network Rail high-level staging strategy schematics (HS2 OOC GWML Staging Schematics – V6 (Option 2C)) forms the basis of the construction sequences further explored within this report.

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- Unless the works are being carried out during a possession, no work can be undertaken outside of the defined HS2 working hours: "Core working hours will be from 08:00 to 18:00 on weekdays (excluding bank holidays) and from 08:00 to 13:00 on Saturdays".
- The bridge contractor shall provide a cleared site at a nominal 500mm below proposed rail level. The formation shall be prepared to an agreed specification (TBC). The boundary extents of this nominal clear are displayed in Appendix B – Staging Layouts, Stage 2A. Through the station area the station contractor would provide a prepared formation level through all tracks 8 through to 1.
- At each stage of construction for the underbridges the contractor shall provide a prepared formation to a distance of 30m from the East abutment of the OOC Lane underbridge and the West abutment of the CL Underbridge. The contractor shall provide a prepared formation for the full distance between the two under bridges.
- The track/rail systems contractor shall carry out all necessary grading activities for drainage crossfall & etc prior to track installation.
- The track/rail systems contractor shall be responsible for all formation grading activities from a line 30m to the West of the abutment of the CL Underbridge.
- Access to the South of the site will be obtained.

3.7 Undertakings and Assurances

3.7.1.1 As part of ongoing discussions with NR regarding our compliance with the Undertaking and Assurances (U&A) for the Old Oak Common Railway Systems works, it was agreed that some undertakings related to public engagement during construction stage, which are relevant for GRIP stage 5 & 6, should be stated in the constructability report. This is to ensure that the obligations and requirements of these undertakings on the prospective Contractor are captured, communicated appropriately, and are not lost.

3.7.1.2 The affected undertakings can be found in the following document: 152270-ARC-REG-EEN-000003- ONW - Old Oak Common - GWML Station Rail Systems - U&A Register

3.7.1.3 Specifically this relates to - Route wide tab Items; 64, 65, 66, 68, 109, 110, 111, 119, 120, 122, 123, 807, 808, 809, 1068, 1931, 1400, 1401, 1413, 1415, 1419, 2049, 2129, 2132, 2133, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2162, 2176, 2775, 2778, 2782, 2785, 2787, 2816, 2817, 9, 54, 56, 67, 111, 119, 120, 1940, 2130, & 2136.

4 Site Logistics

4.1 Road Rail Access Points (RRAPs)

4.1.1 Existing RRAPs

4.1.2 Acton Yard

4.1.2.1 Acton Yard - Road Rail Access was available until recently via Acton Yard 4m 27.5ch Reception Line 3, shown in Figure 2. It is understood at the time of writing this update to the report, the RRAP has been removed for unknown reasons. It is recommended this RRAP be reinstated to support the Rail Systems delivery. The access will be critical to the delivery of materials and plant to the North of station build on the Relief side.

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Figure 2: Acton Yard RRAP (now removed)

4.1.2.2 The removed RRAP was a 10.8m length semi-permanent Strail type crossing. The RRAP would be sufficient for most short wheelbase RRV's but could be extended with approach to a 16m RRAP to accommodate larger OHLE Road rail vehicles.

4.1.2.3 In order to use this access, there will be the precursor of a Relief line possession including the Poplar lines. The RRAP has the benefit of being located in the yard, offering the opportunity to take an early possession of Reception line 2 and 3 to load machines ready for the shift and prior to the Relief line possession being granted.

4.1.2.4 The route taken by the RRVs will be from Reception 3 to the Up Poplar via Points 8128, 8127A, 8126A and 8126C. The machines will clear 8120/B and then cross over via 8120A/B and 8121A/B to the Up Relief. A further move via 8125 A/B can then be made to access the Down Relief. The route is shown in Figure 3.

4.1.2.5 Although identified as a critical access for the North of the Relief side station build; especially prior to the proposed NW RRAP being constructed, this is determined by possession of the Poplar lines which is restricted to a weekly block from 23:00 Saturday to 09:30 Sunday. In conjunction with a possession of the Reliefs this access could therefore only be used every alternative Saturday to facilitate any plant and/or material deliveries into this area of the site. Possession details are illustrated further in Section 6.2.

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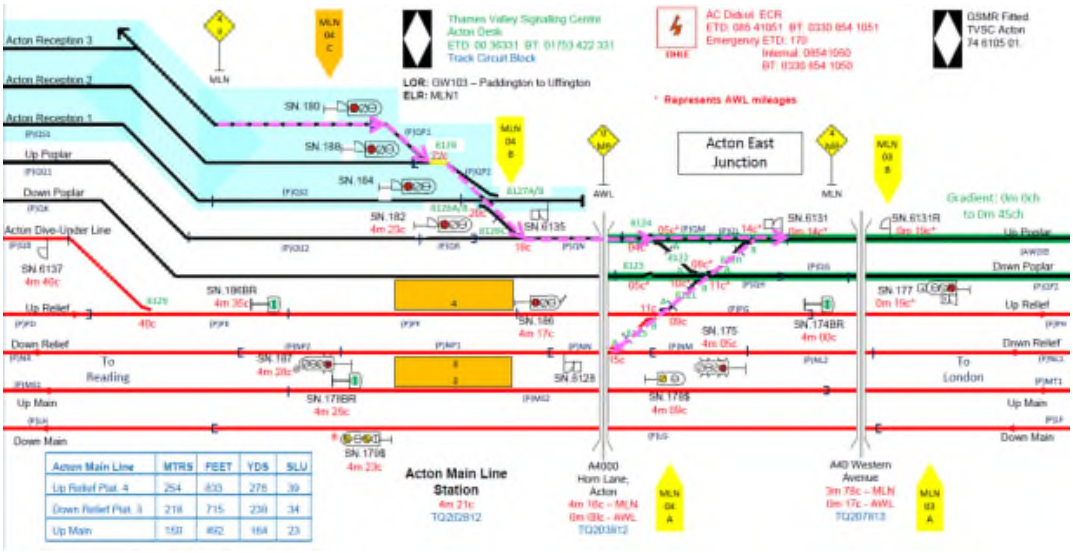


Figure 3: Schematic Acton East RRAP to Relief

4.1.2.6 Arcadis have been informed that the Depot Decomm. team are planning to install a Temporary RRAP at Acton Yard (West End), next to Sand Lane. Figure 4 below details the proposed location and dependent on possession, one possible access route to both the Mains and Reliefs. Alternative routes exist flowing out of the East end of the Acton Yard similar to Figure 3: Schematic Acton East RRAP to Relief.

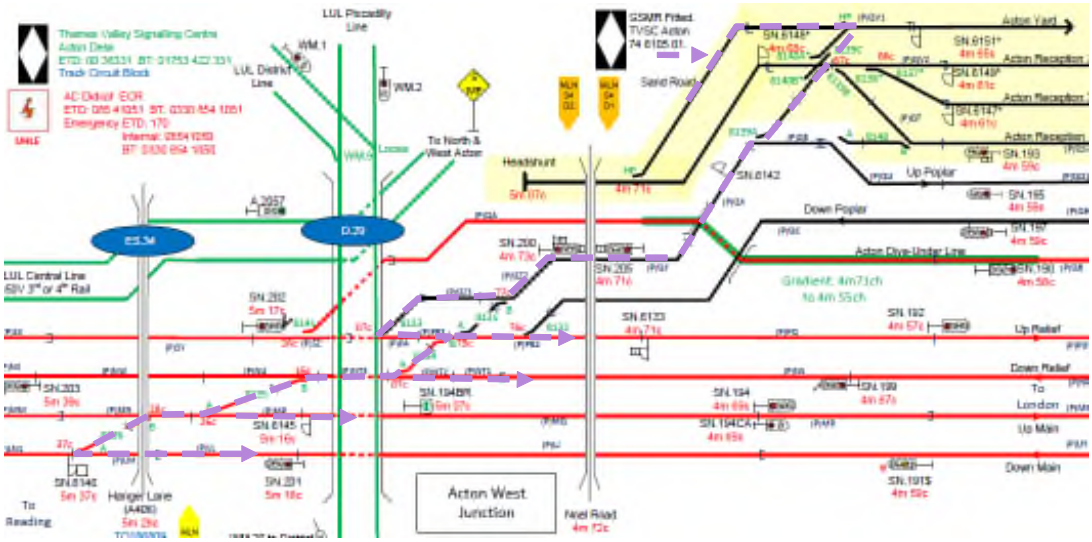


Figure 4: Acton West (Proposed) RRAP to Relief & Mains

4.1.3 North Pole (Barlby Road)

4.1.3.1 North Pole Barlby Road RRAP is located 1m 73.5ch and is situated on North Pole Line B. The existing RRAP is estimated to be a 14.4m Strail crossing with a concrete apron (see Figure 5).

4.1.3.2 The RRAP is located alongside an existing maintenance compound that is accessed via the Hitachi North Pole Depot. The compound is fenced and of a hard standing approximately 1500m^2 in size.

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Figure 5: North Pole Depot RRAP (Barlby Road)

4.1.3.3 In order to utilise this RRAP to gain access to both Up and Down main lines possession protection arrangements should be suitable to allow the use of either 8048A/B or 8063B and 8060 crossovers. The possession limits are discussed in section 6.3.3.

4.1.3.4 The route for access would be from the RRAP located on North Pole Line B via 9001B to the Down Main. Once clearing the points, a move East along the Down Main clear of 8060 would allow a move across 8060 and 8063B crossover to the Up Main. This move is demonstrated in Figure 6.



Figure 6: Move from North Pole RRAP to Up and Down Main

4.1.3.5 Access from the public highway to the compound is off Mitre Way, with the entrance from Scrubs Lane; an A-road public highway with easy access links for large vehicles – see Section 4.2. No alteration works would be required to utilise this entrance. There is also an

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out of use access off Barlby Road, which would enable access without entering Hitachi if NR took over this end of North Pole Depot

4.1.4 Proposed RRAPs

4.1.4.1 The following paragraph details the RRAP proposals only. For highway access to the RRAPs refer to Section 5.3, and for compound proposals refer to Section 4.2.

4.1.4.2 The proposed RRAP's list in this section are subject to agreements and land purchases that have not taken place yet.

North West RRAP (report ref 152270-ARC-REP-ECV-000009)

4.1.4.3 The NW RRAP proposal is a single RRAP situated on the proposed Up-Relief Line, shown in Figure 8, to the North-West of the proposed station. It will allow access onto the Up-Relief Line and Up Relief Loop only, prior to arriving at Platform 7 or 8 at the station. Access to the Down Relief Line will be past the station.

4.1.4.4 The NW RRAP and access track has been designed for use by the RRV shown in Figure 7 (RB25 or equivalent). The proposed compound measures approximately 25m x 60m. The compound is to contain RRAP lighting and have palisade fences installed at operational state. It has space for 8no. parking spaces and a laydown/storage area adjacent to the track of up to 125m^2.

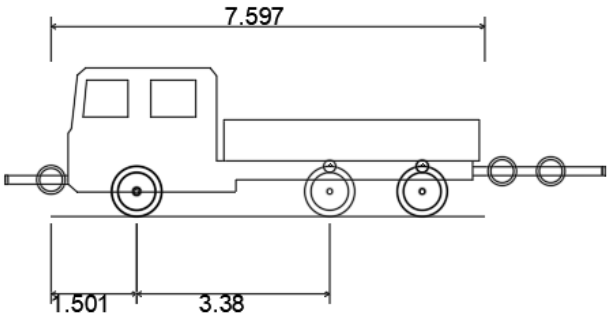


Figure 7: RB25 Road Rail Vehicle assumed for RRAP-NW

4.1.4.5 A double RRAP can be installed if required on both the Up Relief and OOC Turnback Line A. The benefit of this would be allowing access to the Down Relief prior to the station. This currently has not been proposed due to the limited benefits.

4.1.4.6 The proposed NW RRAP has several possible access options which will be commented on, with the latest update at the time of writing provided.

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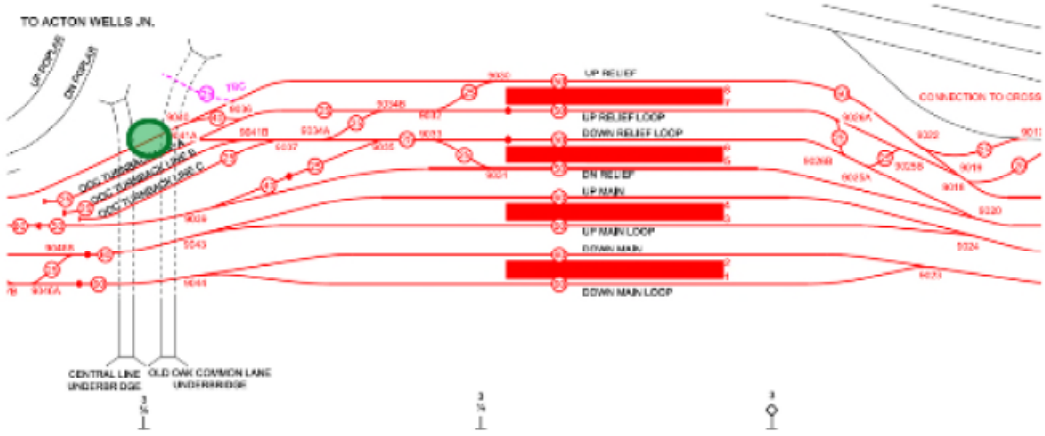


Figure 8: Extract from 152270-25067-P2R-MLN1-DRG-ETR-400001 of NW RRAP location (green)

4.1.4.7 It is assumed, because the OOC Bridge extension does not allow for the Acton Northholt Line, that ANL, shown in Figure 9 & Figure 8, will be disused prior to the NW RRAP being installed. This access has allowed for installation of the proposed Chiltern Line if required (the vehicles will cross over a crossing point on the Chiltern Line to reach the RRAP).

4.1.4.8 We have been informed the Station Contractor plans to use a conveyor system which will run up the ANL and along the edge of the Iron Flat site. The conveyor system will impact the access to the RRAP, so it is likely the access can only be readily used once the conveyor system is removed. The exact time when this is planned has not been confirmed formally but is expected to be prior to the installation of the new Up Relief. The conveyor route is show in Figure 9, approximately, in purple.

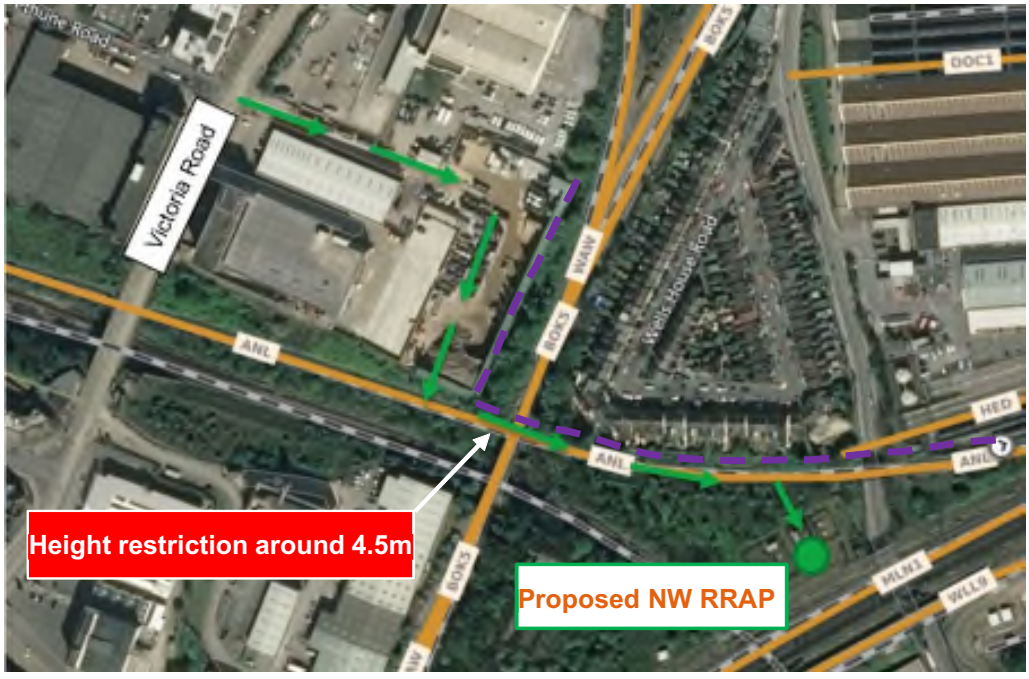


Figure 9: Proposal 1 for access to RRAP (green)

4.1.4.9 Limits of Land Use and Acquisition (referenced in section 3.3.1) notes an area of land that cannot be used identified in Figure 10.

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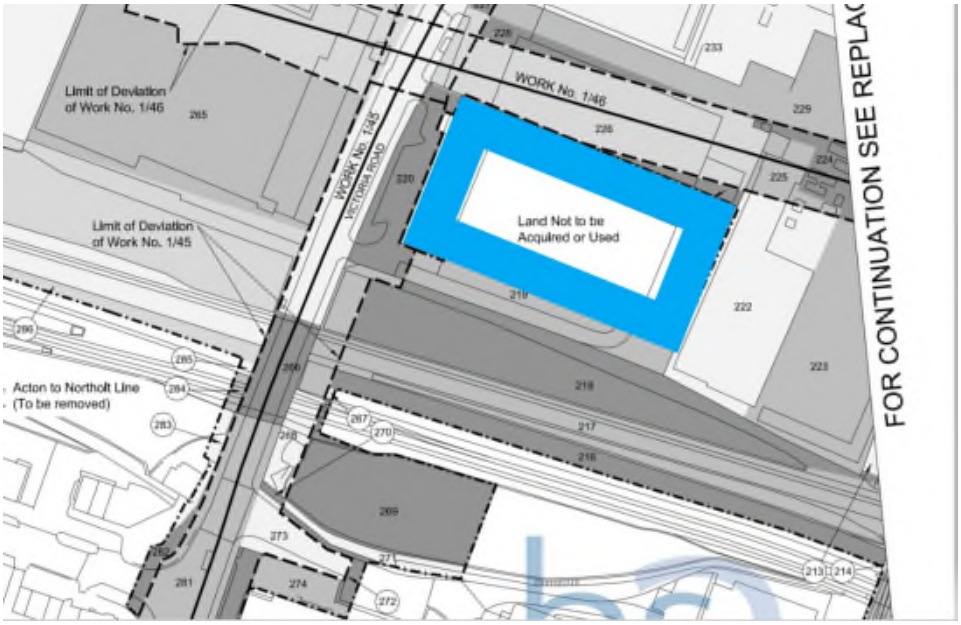


Figure 10: Limits of Land Use Extract – identifying are which is not available to HS2.

4.1.4.10 There are a number of possible access options to the proposed NW RRAP. Two are examined in this report, the remaining options are discussed in a NW RRAP access feasibility study.

4.1.4.11 Access proposal (1), detailed on Figure 9 details a private road being created down to the Acton Northolt track below. Possible compound could be sited here. The access road will require construction of a cutting down to the Wycombe Line. Replacement of the recovered rail track with highway surfacing, to follow the green path shown in Figure 9. Height restrictions will apply for vehicles as they travel under the North London Line; estimated to be 4.5m. This should be sufficient for a Hiab or similar to deliver materials & equipment for installation.

4.1.4.12 When reviewing the access road design from the proposed compound to the disused ANL, there is a level variation of 3.84m, over a horizontal distance of 25.38m. Existing fairly steep average gradients suggest potential proposed access would be on the edge of acceptable for the required minimum road gradients from the Manual for Streets / DMRB.

4.1.4.13 A vertical alignment was produced to give an idea of how far it would be necessary to grade-back in order to construct a road of sensible gradient. A minimum gradient of 7% was assessed. This concluded grading works would have to start within the Iron Flat depot site, requiring more land to create the path due to the regrading on the side. An alternative solution to reduce the land affected would be to construct retaining walls either side of the access road eliminating the regrading land.

4.1.4.14 Access proposal (2), detailed below in Figure 11, examines creating a road off Chase Road.

4.1.4.15 In order to limit the land purchase required for this proposal, the alignment has been set roughly parallel to the toe of the embankment. This has not been developed or investigated to much detail, but due to the anticipated visibility when entering/exiting the site, a widened junction would be needed requiring increased regrading and possible retaining works. The cutting area shown could be replaced with a retaining wall to reduce land take.

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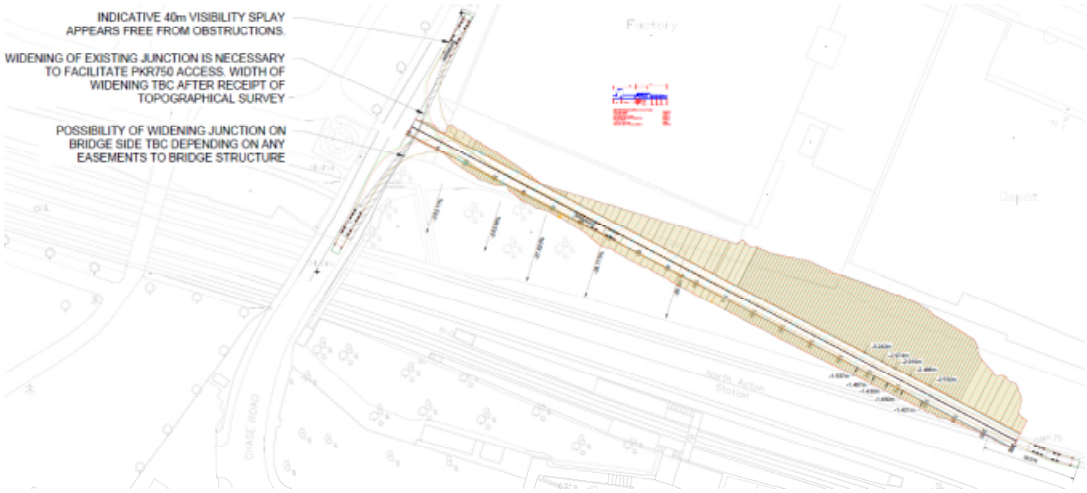


Figure 11: Proposal 2 for access to RRAP from Chase Road

4.1.4.16 It is believed that the land, needed for access of Chase Road, belongs to Network Rail, therefore there would no purchase requirements.

4.1.4.17 If a cutting, for the access route down to the ANL, were to be used, instead of a retaining wall, there would be land purchase requirements from the landowners to the north, as noted in Figure 10. Therefore, retaining walls are likely to be required both sides of the access road, ranging from 1m to 4m high, this could be worsened if an improved junction with the highway are required. The access from Chase Road to the lower disused ANL will be up to 200m and the distance from the proposed RRAP location is estimated as 600m. Additionally safety measures, like Armco Barrier, will be needed along the lower-level edge to prevent vehicles falling down the slope.

4.1.4.18 The path to the proposed RRAP, whatever access proposal is finally agreed, would be constructed on the disused ANL. It would require removal of existing rail tracks, and replacement with highway surfacing approximately 625mm in thickness - made up of sub-base, binder course and surface course. Exact layer thicknesses can be determined once CBR tests are undertaken at a later design stage. There is possible scope for the carriageway thickness to be relaxed due to the relative low use of the track. It is proposed the area around the RRAP has a concrete surface suitable for higher loads.

4.1.4.19 Dependent on the access agreed, the access could take up to three months to construct, including any URX construction required, based on a team of six working with dumpers, excavators, and compactors. The approach to constructing the access would be to work from the entrance towards to RRAP location. All plant and material can be delivered from the access off the public road.

4.1.4.20 A local welfare compound will be needed, local arrangement with adjacent landowners should be possible given the size and duration of the compound. It is not considered problematic on review of the local industrial area available.

4.1.4.21 The NW RRAP location is detailed below in Figure 12. The RRAP can be constructed as soon as the track is installed and could be installed in a couple of shifts.

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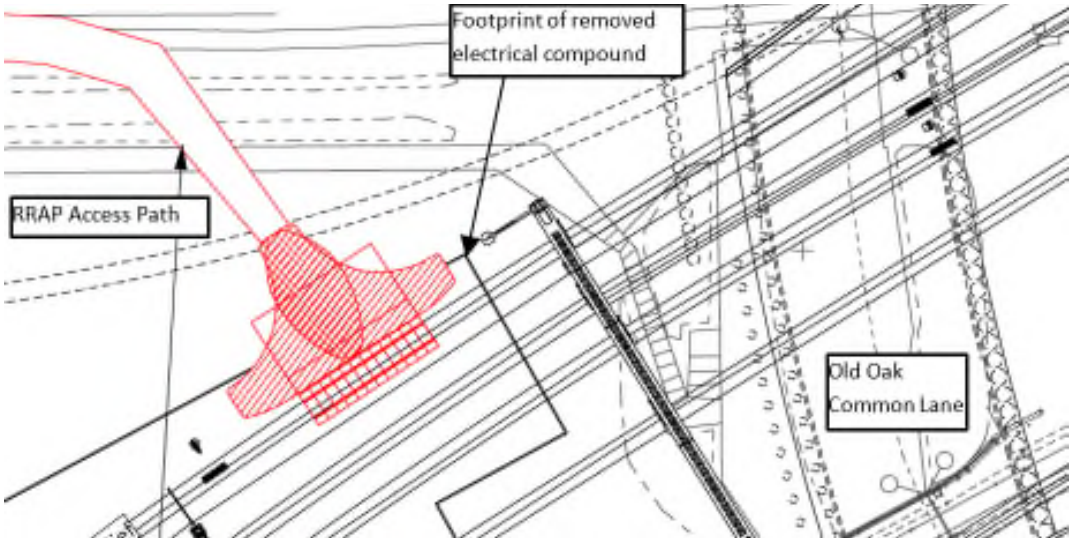


Figure 12: NW RRAP Location on Up Relief

North East RRAP (report ref 152270-ARC-REP-ECV-000006)

4.1.4.22 A new North East RRAP is proposed to be installed as part of OOC RS project and will allow access to the railway whilst OOC is functioning as a terminus for trains from the West. It will allow access onto the Up-Relief Line only (see Figure 13).

4.1.4.23 A new compound will be established for the RRAP access. The proposed compound measures approximately 2325m2 (this includes the area proposed for the ATS and the PSP). This allows sufficient space for NR requirements and the layout can be configured as required.

4.1.4.24 The area in the East corner of this compound will be fenced off for the PSP and space for transformer. This area will be a concrete slab with ducting allowed to pass through. A GSMR mast is located to the East of the compound, outside of the fenced area. Access to this is through the fence on the Northern boundary, which leads onto a walkway adjacent to HS2's backline rail. Due to the current level difference between the NE RRAP and the Urban Realm road (currently under design by WSP), a ramp has been designed leading down into the compound to achieve RRV access at track level. Retaining walls are therefore required along the western and northern boundaries, and to support the ramp. The Western boundary retaining wall is part of HS2 Urban Realm works. The ramp will be constructed in Type 1 stone and using a geogrid material in appropriate layers. A 5m flat section at the top of the ramp, East of the entrance gates will be surfaced with Bitumen, prior to a 1 in 40 decent to the compound.

4.1.4.25 The compound has been designed to have lighting, please refer to RRAP Lighting Form A - 152270-ARC-REP-EPT-000010.

4.1.4.26 The track accessed by the RRAP has a line speed of 25mph and is straight with no cant. The rail is proposed to be CEN60 on concrete sleepers. The track gradient is approximately 1 in 540.

4.1.4.27 Vehicle tracking has been designed for an SRS PKR750 or similar. Access off Old Oak Common Lane will take vehicles through the proposed Urban Realm road to the compound. The proposed compound measures approximately 180m x 22m.

4.1.4.28 Due to the staging of construction works in the area the establishment and access to the compound will be subject to restrictions from BBVS during construction. Post tunneling works access availability is likely to improve.

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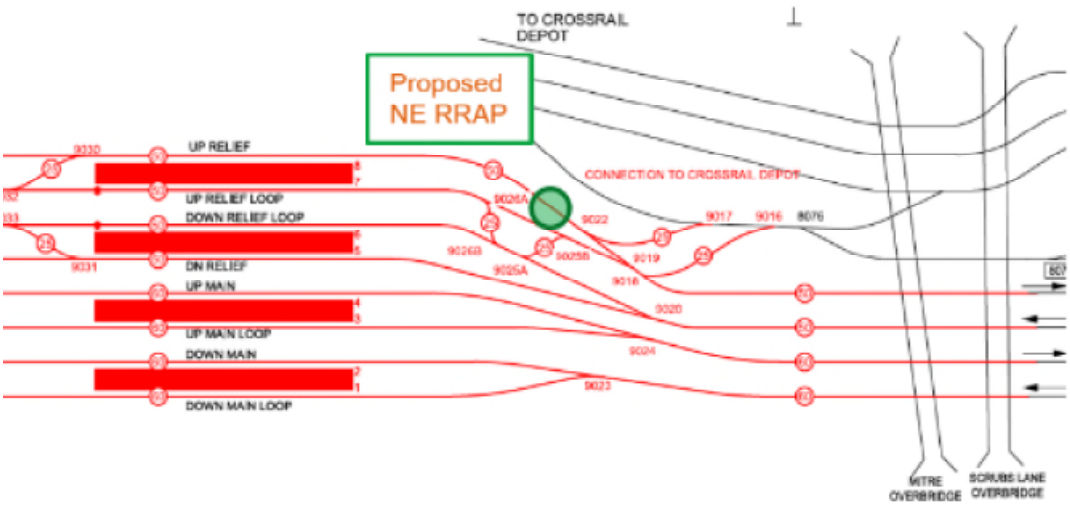


Figure 13: Extract from 152270-25067-P2R-MLN1-DRG-ETR-400001 - Location of NE RRAP (green)

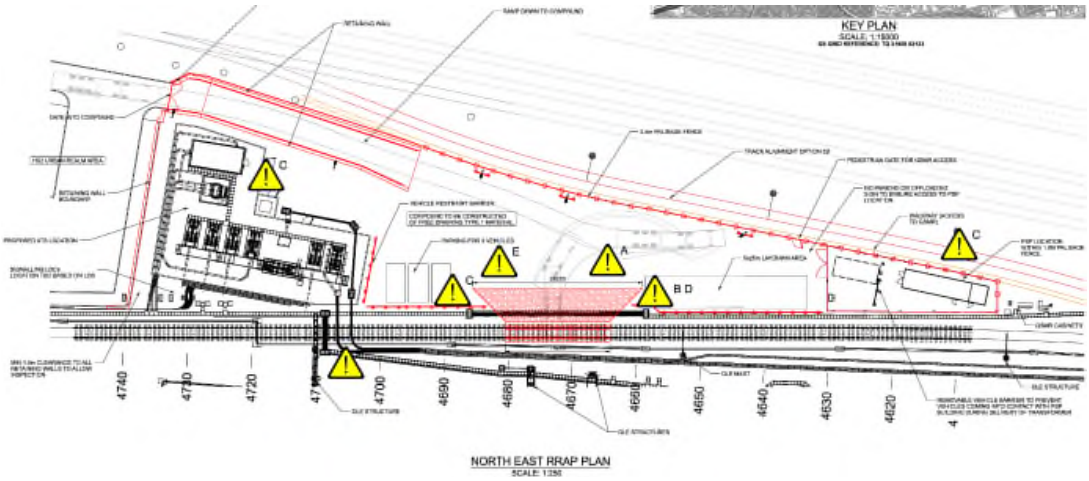


Figure 14: Extract from 152270-25067-P2R-MLN1-DRG-ECV-400022

North Pole Depot South West RRAP (report ref 152270-ARC-REP-ECV-000008)

4.1.4.29 The North Pole Depot SW RRAP is subject to ongoing review and may not be taken forward as a proposal.

4.1.4.30 The proposed SW RRAP has been situated in Hitachi leased land, within the North Pole Depot site (see Figure 15). All existing tracks within the vicinity are being replaced by a new permanent way layout to accommodate the new station.

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Figure 15: Proposed SW RRAP

4.1.4.31 Vehicle tracking has been designed for an SRS PKR750 vehicle or similar.

4.1.4.32 Access from this compound is provided onto the Down Main Loop only (see Figure 16). Access to the Down Main can be provided in the form of consecutive RRAPs, however this track sits on a 25mm cant and a transition so will limit the type of vehicle that can access onto it and has not been proposed.

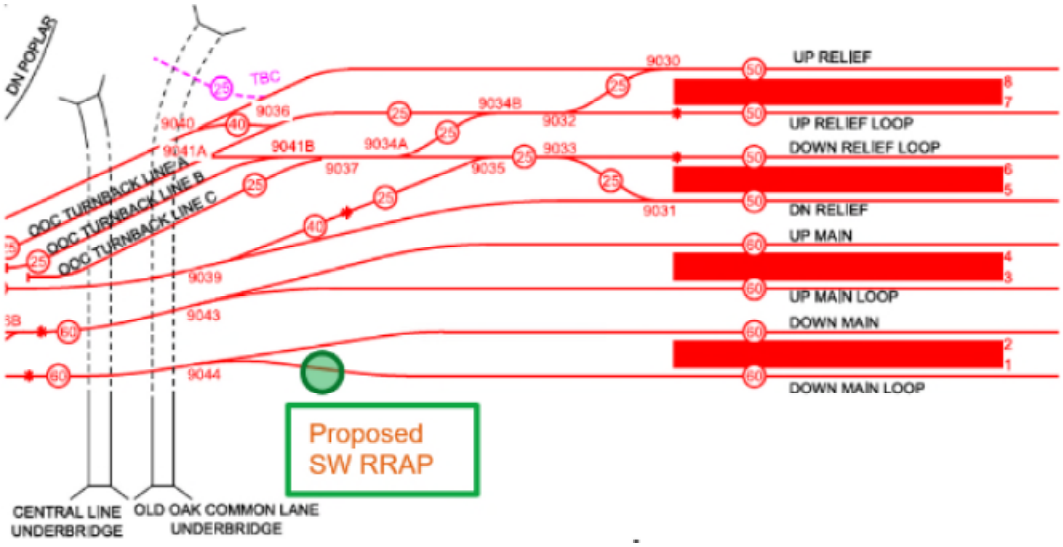


Figure 16: Extract from 152270-25067-P2R-MLN1-DRG-ETR-400001 - Location of SW RRAP (green)

Jewson's Yard Acton South West RRAP Proposal (ref. 152270-ARC-REP-ECV-000027)

4.1.4.33 Jewson's Yard SW RRAP, located off Horn Lane (A4000), in the yard area of a warehouse owned by Jewson, a chain of builder's merchants. This RRAP is an alternative option for the North Pole Depot proposal due to ongoing land agreements negotiations.

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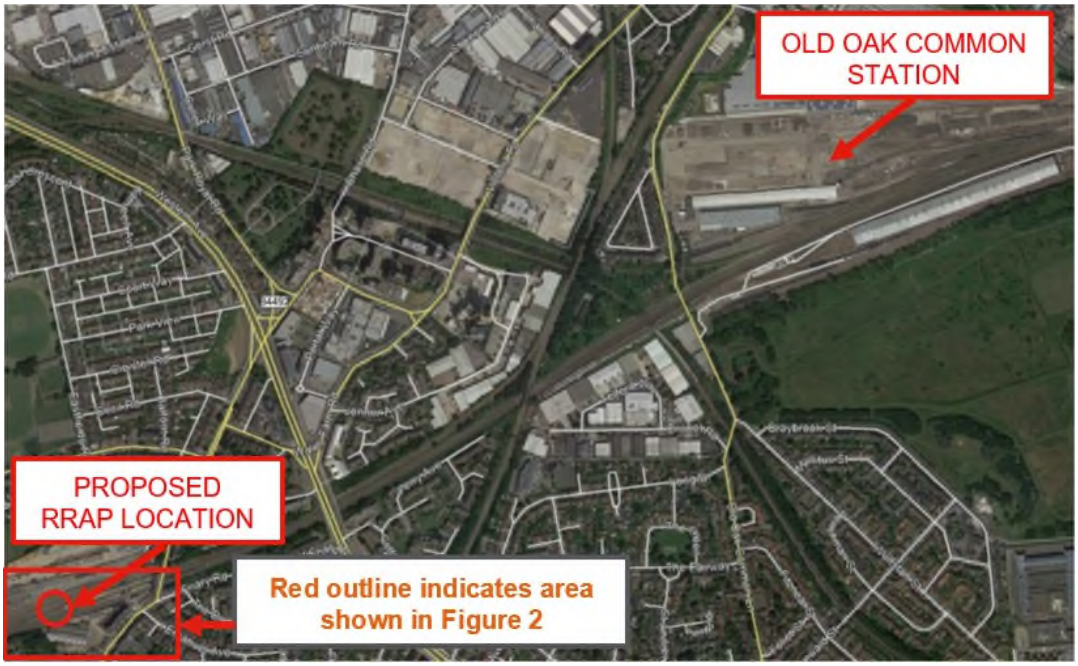


Figure 17: Location of proposed SW RRAP (Jewson Yard Acton) in relation to OOC Station



Figure 18: Location of proposed SW RRAP

4.1.4.34 The SW RRAP will be located within a new compound adjacent to the Jewson warehouse's yard in Acton. The compound and RRAP will be accessed from Horn Lane (A4000). Vehicles accessing the new RRAP from the Horn Lane entrance to Jewson's Yard will be required to travel through the yard and around the back of the main Jewson building to reach the site.

4.1.4.35 The RRAP shall access both the Up Main and Down Main lines. The length of the RRAP in its permanent form shall be 10.8m. During the construction phase, however, the RRAP shall be 16.2m long to allow articulated RRVs, like SRS PKR750 vehicle, to access the track. The existing OLE structures and headspan J/07/01 within the vicinity of the proposed RRAP will need to be moved at least 10m away from the RRAP end. The Western edge of the RRAP is to be exactly 10m from the headspan structure. Based on the available data (NR Route View, OS tiles and RILA), existing troughs adjacent to the track along the Jewson's Yard boundary will need to be moved into a URX under the access to the RRAP.

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4.1.4.36 The existing boundary fence needs to be modified to allow for placing a new concrete approach slab to the RRAP, and Jewson's material storage adjacent to the track will need to be removed to allow access. A sliding security gate has been proposed in front of the RRAP. However, if an access gate can be inserted where shown in Figure 19, a low height Armco barrier can be installed adjacent to the rail. This will help with lifting materials from the compound onto the track during RRV shifts. If not, the fence will need to remain at 1.8m high and removed when required, with a gate across the RRAP.

4.1.4.37 It is suggested that an Armco barrier (or similar) be erected adjacent to Jewson's building to prevent accidental damaged caused by vehicle movement.

4.1.4.38 The compound will be suitable for:

- Room for 8 No. Transit vans,
- Laydown area which is 5m wide by 35m. The laydown area should enable a 30m SG switch to be delivered and then lifted and transported to Track,
- Suitable lighting at a high level, e.g. typical streetlight,
- Should ideally be located adjacent to the RRAP as any distance between this and RRAP would interfere with productivity and have a possible impact upon rostering.

4.1.4.39 The RRAP compound will be a class 3 access pint with security level 2.

4.1.4.40 Possession of Mains will be needed to use the RRAP.

4.1.4.41 No change to track layout proposed.

4.1.4.42 The current design adopts a two-stage approach to the RRAP, the Temporary Stage is for construction and will include a larger storage and laydown area as detailed in Figure 19 . This will maximise the benefit of the access. The Permanent Stage show in Figure 20, shows a reduced compound and adjusted access gate arrangement.

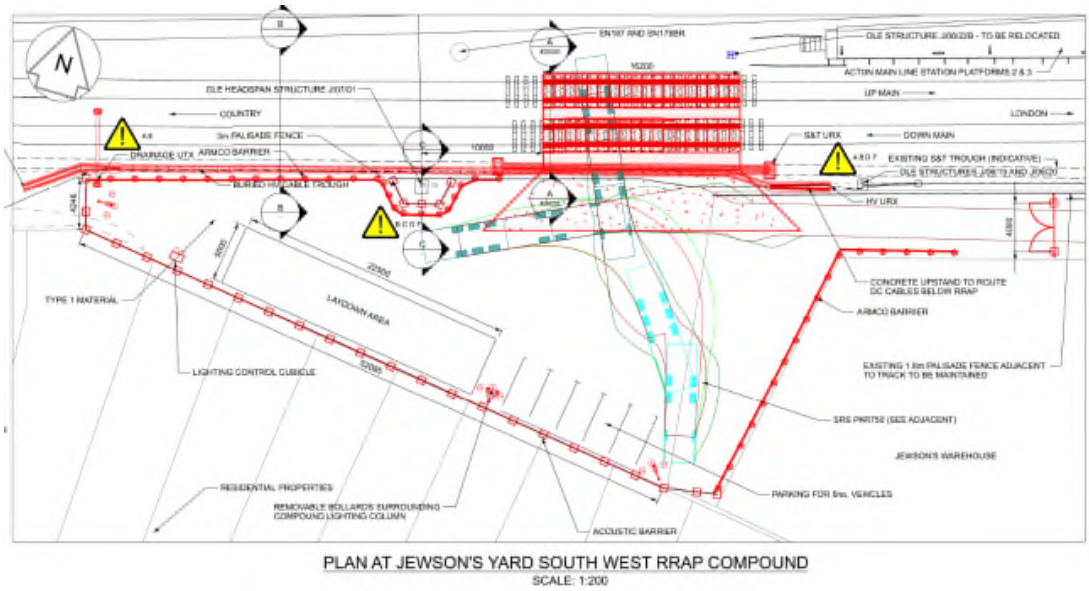


Figure 19: Temporary Stage of Jewson Acton SW RRAP

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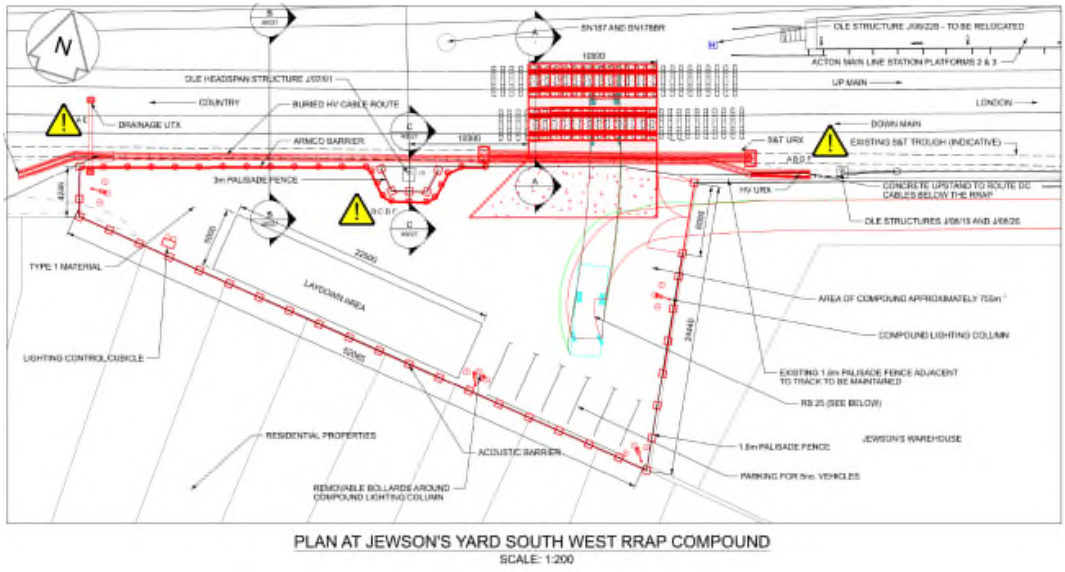


Figure 20: Permanent Stage of Jewson Acton SW RRAP

South East RRAP (North Pole Depot - Barlby Road) ref. 152270-ARC-REP-ECV-000007

4.1.4.43 The South East RRAP will utilise the existing RRAP at Barlby Road, within the North Pole Depot.

4.1.4.44 Proposals put forward in the RRAP report 152270-ARC-REP-ECV-000007 recommend that the RRAP is extended from (estimated) 14.4m to 16.8m, to allow for the SRS PKR750 vehicle. The compound and RRAP is currently lit and fenced off and is assumed to be classified as Access Point Class 3 and Security Level 2.

4.1.4.45 There are restrictions with this RRAP proposal e.g., access will require an appropriate possession of the depot.

4.1.4.46 No changes to the existing track layout are proposed.

4.1.4.47 It is not possible to put a RRAP on the mainline itself, due to clashes with rail apparatus, particularly switches in this location.

4.2 Compounds

4.2.1 Introduction

4.2.1.1 At the time of writing the compound, storage, and laydown areas outlined below are subject to agreement with BBVS and so are subject to change. Further integration work is required. This integration will continue into the next stage of design delivery.

4.2.1.2 There are several potential compounds to be utilised in this project. The location and use of each are determined by the works to be completed in the surrounding areas. In this section the compounds will be outlined, with the location, uses, timing, land use constraints, and access for each discussed. Following the review of each compound, general considerations will be given to compound security, ground works, vehicles considerations, water supply, as well as potential sustainability opportunities.

4.2.2 Compound Option A – East of HS2 Box Station

4.2.2.1 Where: East of the HS2 Box Station as shown in Figure 21 & Figure 22 below.

4.2.2.2 Use: This compound would be utilised to construct the bulk of the rail systems work to the East of Platforms 3-8. The compound will contain welfare facilities and parking areas for

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RRVs, as well as a large material laydown/storage zone. At its peak during construction, Stages 7 through to 9, the compound will serve approx. 40 members of site staff.

4.2.2.3 Works in this area will need to be coordinated with the construction of the hs2 tunnel using a tunnel boring machine. This will be positioned using cranes situated on temporary cranage pads.

4.2.2.4 When: Key compound for RRV parking and material laydown during Stage 7, which will then reduce in size following the P-Way construction in the East.

4.2.2.5 Land purchase/permits: In the permanent case, it is proposed that this site will be provided to Network Rail as a Maintenance Yard, with permanent rail access to the Relief lines.

4.2.2.6 Access: Shuttle buses will take staff from the nearby designated parking zone to Compound A.

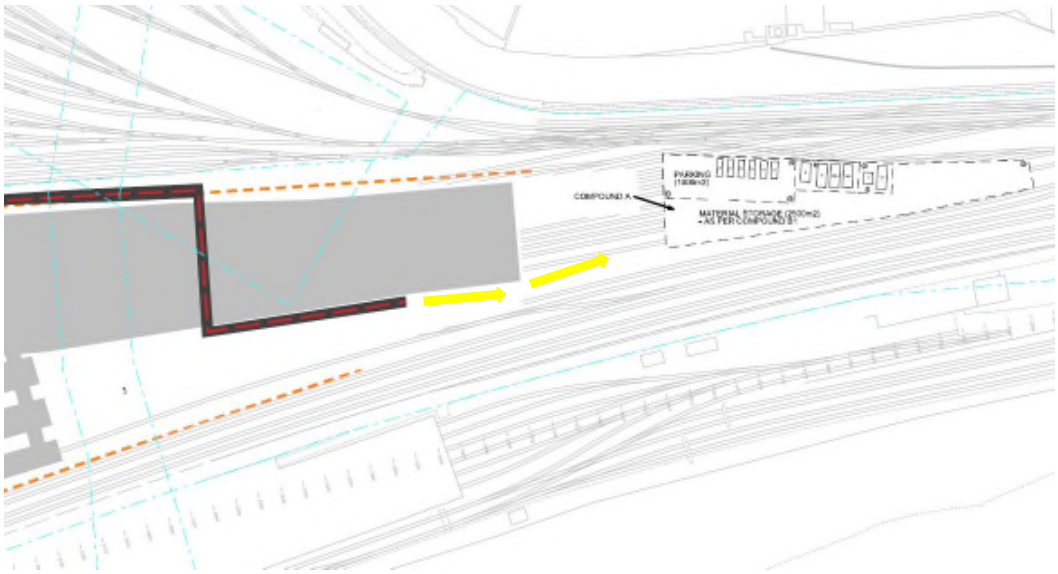


Figure 21: Eastern compound location

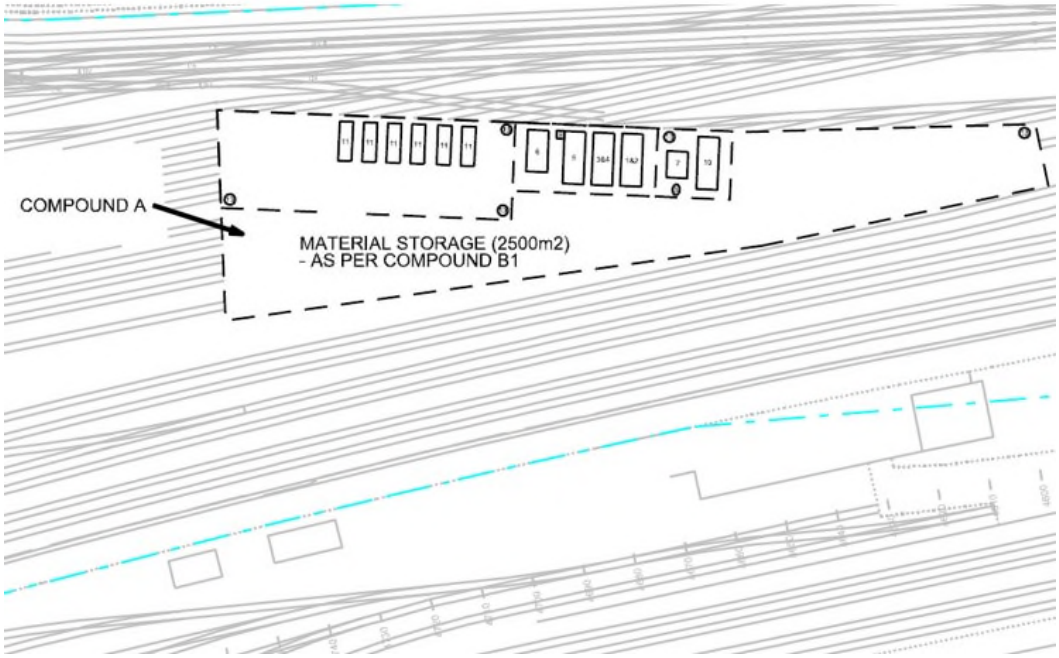


Figure 22: Eastern compound detail

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4.2.3 Compound Option B1 & B2 – Main OOC Worksite

4.2.3.1 Where: West of Platforms 7 & 8 within the Main OOC Worksite as shown in Figure 23 below.

4.2.3.2 Use: Two identified compound locations. One will be utilised for material storage, with the other containing welfare facilities and parking for RRV's; the two compounds are approx. 5700m2 and 2000m^2 respectively. This is currently in discussion with BBVS and integration of logistics compound sizes and locations is ongoing.

4.2.3.3 When: Use throughout all Constructability Stages beyond Stage 5A. As works progress towards the north the compound size would be reduced as the area it occupies becomes operational.

4.2.3.4 Land Purchase/Permits: None – part of Main OOC worksite. Integration and collaboration with WSP will be crucial for efficient use of site space.

4.2.3.5 Access: Shuttle buses will take staff from the nearby designated parking zone to Compound B1 & B2

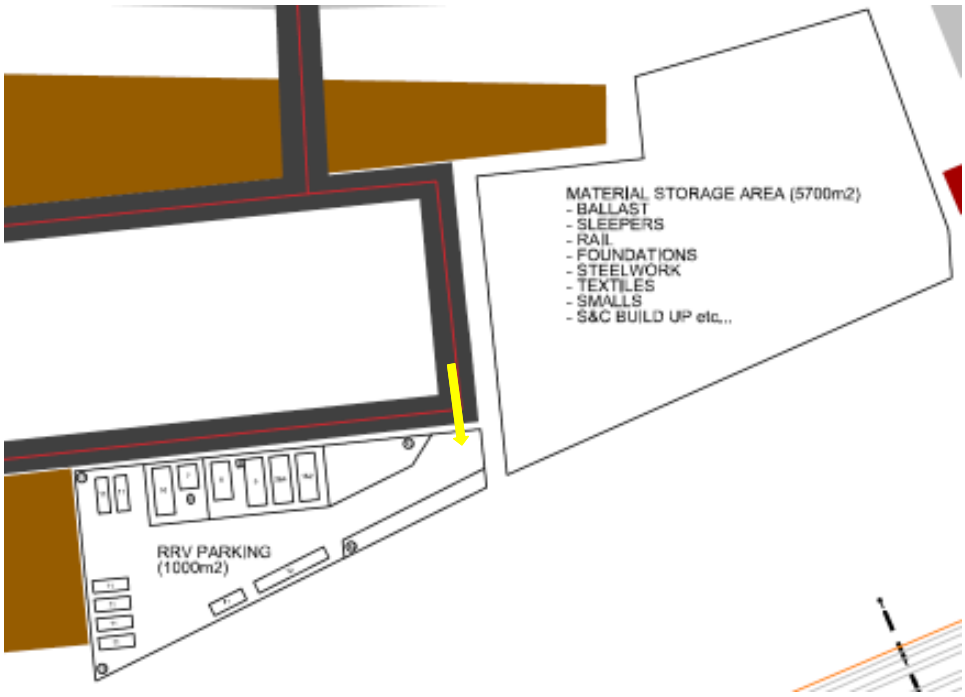


Figure 23: Hypothetical Main OOC worksite compound

4.2.4 Compound Option C – North London Line retaining wall

4.2.4.1 This compound will be used between stages 3 – 6.

4.2.4.2 The location of this temporary compound is within what WSP have called "Site B", shown in Figure 24 below, taken from the WSP Logistics drawings found in the HS2 Construction and Methodology Report (1SN02-WSP-CL-REP-SS07-000001 C03). One key constraint of utilising this compound is managing vehicle movements. During this time period the Station Contractor will be undertaking the reconstruction of Old Oak Common Lane and Central Line bridges. If this compound is to be used, then the interface between the two stakeholder's vehicle movements will be crucial.

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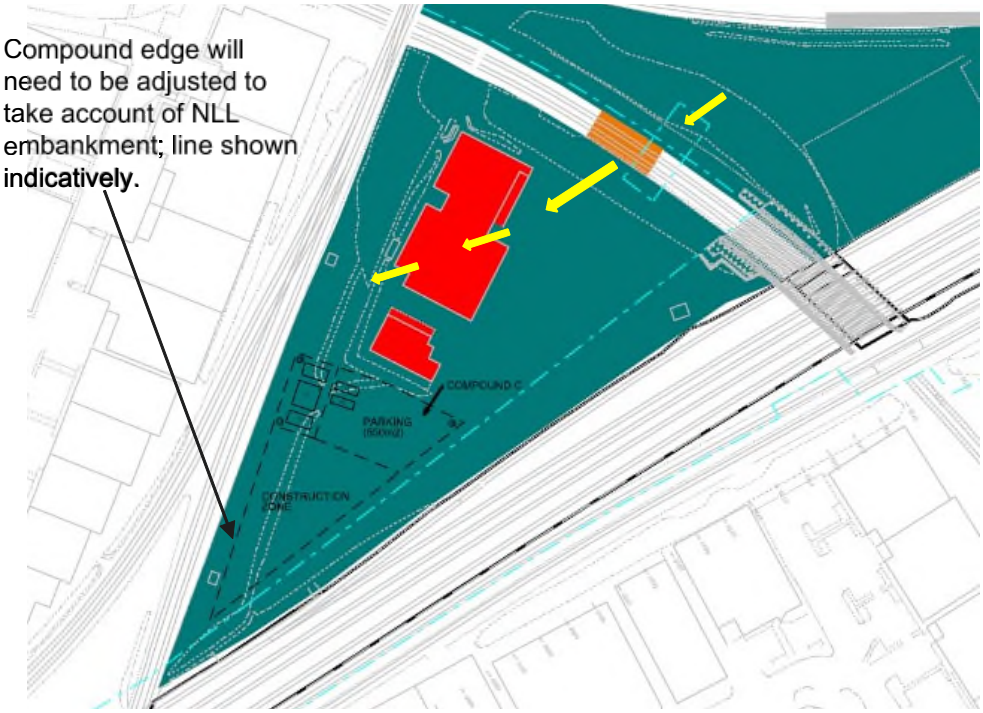


Figure 24: North London Line RW compound

4.2.4.3 Land Purchase/Permits: None

4.2.4.4 Access: Shuttle buses will take staff from the nearby designated parking zone to the Main OOC worksite.

4.2.5 Compound Option D – Acton Yard

4.2.5.1 Where: Acton Yard at 4m 1320yds is highlighted in Figure 25 below. The boundary available for the Rail Systems team has been outlined in Figure 26 below:



Figure 25: Acton Yard location

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Figure 26: Acton Yard detail

4.2.5.2 Use: This compound could be utilised throughout the construction phases, as it provides crucial access to the Relief lines from the West. Acton compound would be particularly useful for the storage and delivery of OHLE Steelwork, signals, signal structures, cable, location cabinets, and if required REB's and PSPs to the main OOC worksite.

4.2.5.3 Land Purchase/Permits: This site may be used in its current configuration to serve the project, but as it is outside of the HS2 Hybrid Bill Statement, development of the site to enhance the existing provision would require its own planning submission, bringing inherent risks and potential programme impacts. The facility at Acton is 3rd party owned/operated by DB Shenker and has restrictions on frequency of use and space available for Network Rail operations. However, Acton Yard was used to serve the construction of Crossrail, so subject to the necessary permissions and consents, it is a feasible option.

4.2.5.4 Access: Access and egress from Horn Lane; road to the right of the compound in Figure 26. There could be potential restrictions on access due to the ownership of the compound. however, it will predominantly be accessed at the beginning and end of shifts and should not cause a significant disruption to the access and egress from site. At one time Crossrail imposed a no right turn policy when leaving on to Horn Lane due to poor visibility over the railway bridge. The access and egress restrictions will be determined through the permits required and discussions with the 3rd party owners. Shuttle buses from the designated parking site will drop off and pick up via the access established.

4.2.6 Compound Option E – Jewson's Yard Acton

4.2.6.1 Where: Jewson's Yard is located opposite Acton Yard, as shown in Figure 27 & Figure 28.



Figure 27: Jewson's yard location

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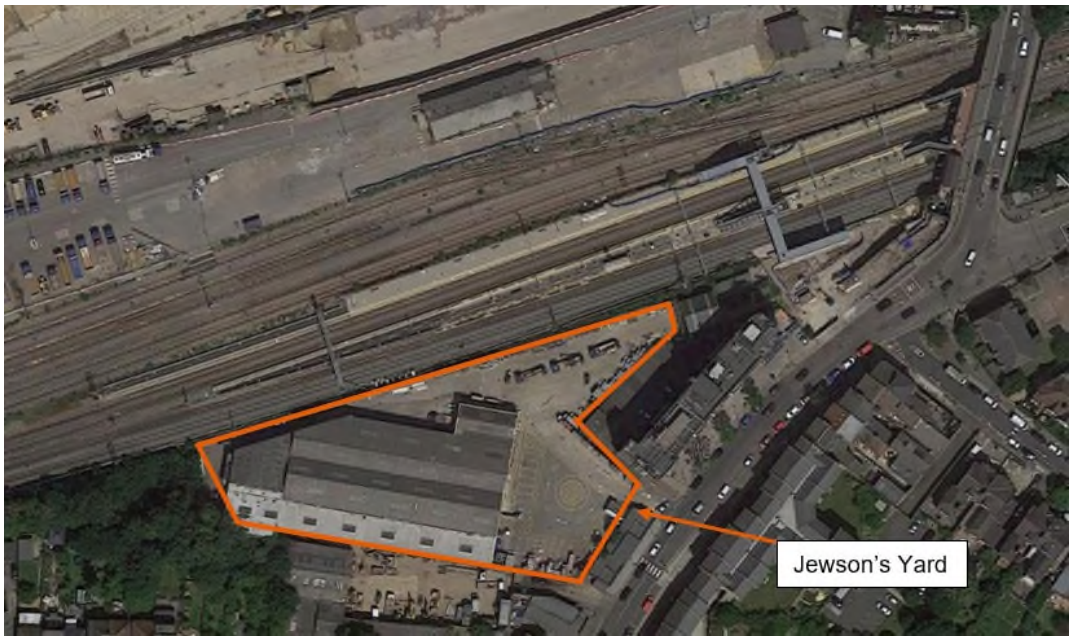


Figure 28: Jewson's yard detail

4.2.6.2 Use and when: This compound could be utilised throughout the constructability phases, as it provides crucial access to the Mains from the West. Jewson's yard is located in a prime position to be used alongside Acton Yard for the storage and delivery of OHLE Steelwork to the main OOC worksite. The existing warehouses would be retained, hosting both Welfare facilities and material storage. The key advantage of Jewson's Yard is that it is the only viable big yard for the manufacture of OHLE indoors. If it cannot be procured, it will be vital to attain a RRAP via the Hitachi North Pole Depot in order to access to the mains.

4.2.6.3 Land Purchase/Permits: Jewson's Yard would require a purchase of the land. There are no envisaged consents needed to use this brown field land for construction activities.

4.2.6.4 Access: Access from Horn Lane. There are likely to be some slight restrictions on access and potential traffic management required for larger vehicles due to the congested road and nearby businesses, such as Co-Op directly opposite.

4.2.7 Compound Option F – North Pole Depot East - Barlby Road Compound

4.2.7.1 Where: The location of Barlby Road is shown in Figure 29 & Figure 30 below:



Figure 29: North Pole Depot East - Barlby road compound location

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Figure 30: North Pole Depot East - Barlby road compound detail

4.2.7.2 Use: Along with the proposed permanent RRAP serving the Mains from the East, it is also proposed that the existing compound near Barlby Road be utilised for the Old Oak Common Rail Systems logistics. This compound could be used for OLE components and steelwork storage, assembly and delivery for the East of station works for both Reliefs and Mains.

4.2.7.3 Land Purchase/Permits: Existing compound. It is understood the access is controlled by Hitachi, so consent may be required.

4.2.7.4 Access: From Barlby Road. There are areas for the shuttle buses to turn and exit out if necessary, however, there is also the potential to create a loop and continue down the access road, which would avoid the need to turn around and exit from the entrance, which would require access via Hitachi North pole Depot.

4.2.8 Compound Option G – North Pole Depot West - Hitachi Compound

4.2.8.1 Use: Due to the size of this site, the use for this area will be welfare facilities for the mains and to South of the main OOC site.

4.2.8.2 Where: Opposite the OOC main site on the mains side, shown in Figure 31.

4.2.8.3 When: This site will be an access for the majority of the works timeline from 2022.

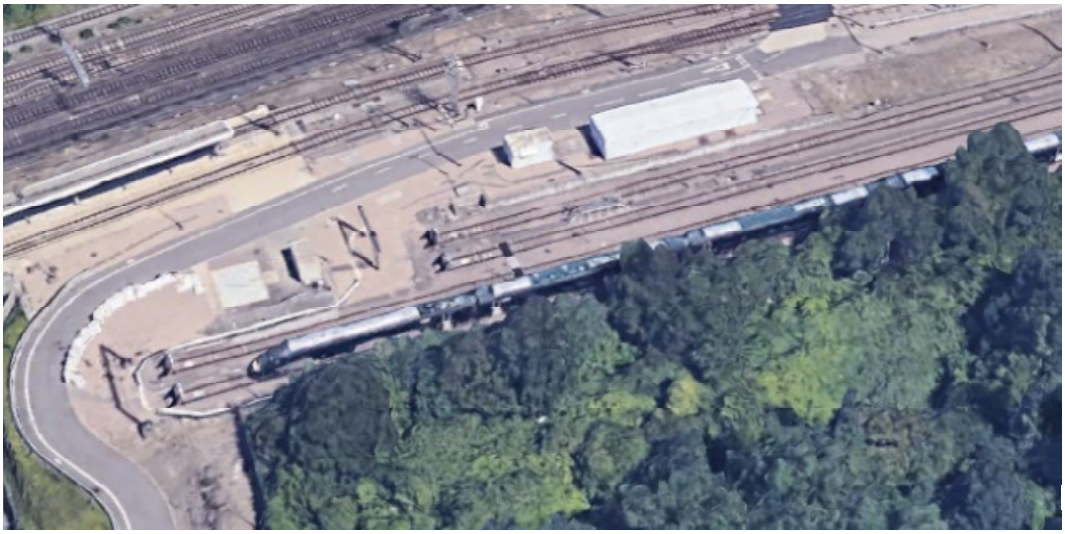


Figure 31: Hitachi compound location

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4.2.8.4 Land purchase/permits: Agreement from Hitachi as the depot owner

4.2.8.5 Access: Two options, from Old Oak Common Lane onto the access road that leads up to and over the tracks and then runs alongside until it reaches Scrubs Lane. Possibility to create a loop from access area to avoid need to turn around and exit via the entrance. Shuttle buses could drop off at entrance to site or follow loop around. Crossing the depot tracks will require a Level Crossing risk assessment to determine if controls are suitable for the number of road traffic. Another option would likely be from the East end of Hitachi depot from Mitre Way through the on-site roads. Access needs to be negotiated with Hitachi.

4.2.9 Compound Option H – Flat Iron Site

4.2.9.1 Use: The sites are situated away from the main body of works so could be used for equipment and material storage and for storage of Road Rail Vehicles.

4.2.9.2 Where: North of the Wycombe line and west and east of the Acton Wells Junction to Old Kew Junction (BOK5) line. Accessed from Victoria Road and Midland Terrace

4.2.9.3 Land purchase/permits: Sites available under Limits of Land Use and Acquisition. HS2 has acquired the land and agreement would be required to use.

4.2.9.4 Access: Access could be made onto the site via the Wycombe line to the south of the sites. This would require a road rail access point with a graded lead in to be installed. This could then be used to access the Wycombe triangle area or to track into the station throat area. Alternatively, the RRV's could track down the BOK5 line and turn onto the AWL connection leading to the Friars Junction area in Acton Cutting.

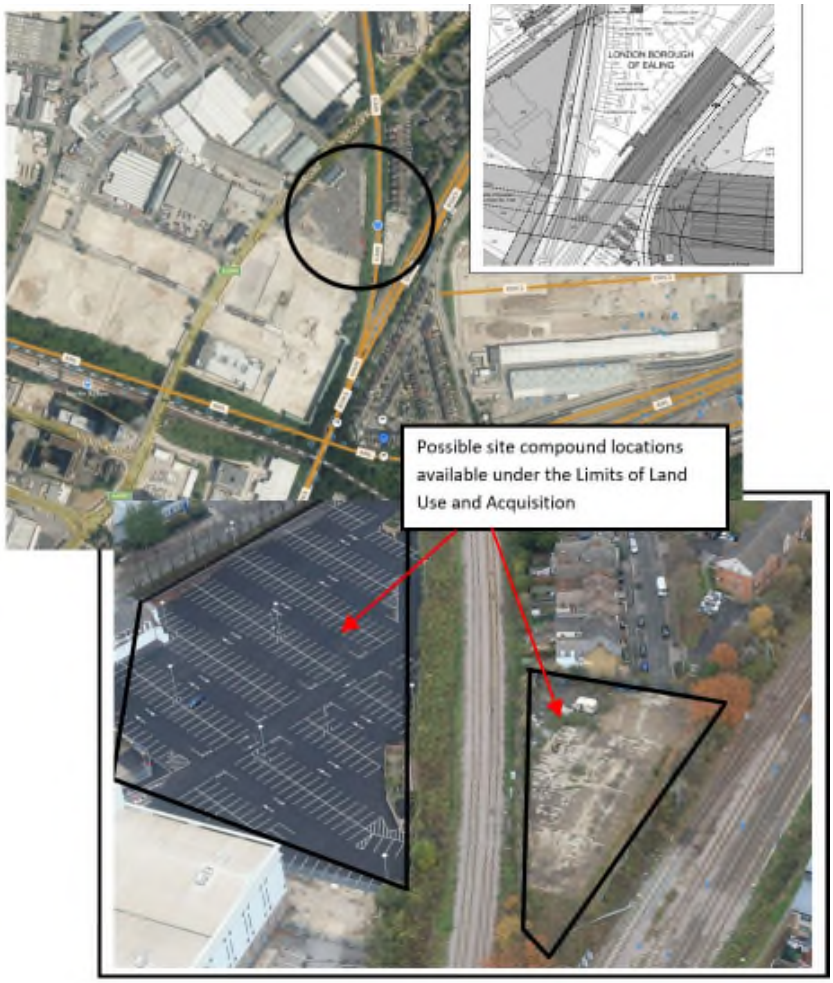


Figure 32: Flat Iron Compound Location

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4.2.10 Security

4.2.10.1 Due to the urban and densely populated area for the works, it is recommended that the compound sites have 24hr security. During the day this will consist of access security supervising reception sign in and sign out area, as well as CCTV cameras around site. During the night, it is suggested that security guards' staff the CCTV screens and patrol site. It is suggested that the security fencing be double skinned or anti-climb, approx. 2-2.5m in height. These options should be assessed and taken into account depending on the items stored and risk level. Other considerations are for high value items to be delivered just prior to the works commencing, reducing the time that can attract theft or vandalism on site.

4.2.11 Ground Works

4.2.11.1 Some site investigation will be required to assess the geotechnical properties of the site to ensure it can withstand the weights of the plant equipment, office blocks, vehicles, welfare facilities and material storage.

4.2.11.2 Foundations / ground works for the fencing options, CCTV installations and any additional powering opportunities, such as installation of a solar bank, will also need to be considered. Further ground works will need to be explored for the welfare facilities and potential use of effluent / septic tanks for the sewerage requirements.

4.2.12 Vehicle Considerations

4.2.12.1 Each of the compounds is likely to have plant equipment and vehicles requiring access throughout the duration of the project, such as excavators, trucks, cars, cranes, minibuses and RRVs. Additionally, bunded fuel storage areas will be required. Therefore, each should have a designated area for these vehicles to complete their deliveries or be stored on site if required.

4.2.13 Water supply

4.2.13.1 Clean and potable water supplies will be required to all compounds. This would preferably be achieved through temporary connections from the mains water supply. Therefore, an investigation will have to be completed to assess the water supply options in the area and extent of works to achieve a plumbed in water supply onsite. If that is not an option, other avenues such as chemical toilets and bottled water supplies will need to be investigated.

4.2.13.2 Foul and drainage connections will be considered for the main compounds, and if practical for the smaller compounds.

4.2.13.3 At the time of writing the exact location of compounds remains unresolved. Further integration is required with the Station Contractor and HS2 to determine compound sites.

4.2.14 Power supply

4.2.14.1 The location of site compounds across the GWML and HS2 station works area are currently being developed. These will be significantly sized compounds that will have designated power supplies to enable operation of lighting, heating, telecoms and power systems. Due the length of project it would not be advisable for the power to be predominantly driven by diesel generators due to the congested nature of the site and the increased vehicle movements that fuel deliveries would drive.

4.2.14.2 For this reason, it is anticipated that a DNO will be sourced for the compound and there would be potential for efficiencies by scale to be realized and supplies shared between projects. At current state nothing to this effect is agreed but it presents an opportunity going forward. Similarly, renewable power generation could be shared across projects to enable some offsetting towards carbon targets.

4.2.14.3 Liaison on this is to carry on as a greater parity between construction schemes is achieved. Final state designs will have diversified supplies for lineside and non lineside assets.

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4.2.15 Sustainability

4.2.15.1 There are a few options to increase the sustainability and environmental credentials of a compound. These include different methods of powering the compound such as on-site generation, reducing the amount of energy that is used on the compound through energy efficient fixtures and fittings, obtaining provisions and materials from sustainable suppliers, setting up recycling systems on site, and instilling a sustainable way of working into the workforce.

4.2.15.2 Once proposed compound locations are confirmed, these will need to be further assessed within the GRIP Stage 5 Environment General Principals Compliance Note (HS2 requirement).

4.2.15.3 Impacts on ecology will need to be assessed for example to undertake vegetation clearance.

Powering options

4.2.15.4 An option for the utilisation of renewable power would be to have a solar panel bank on the site. It is possible to hire a solar powered generator, which, in the case of a power drop, can also be powered by a backup generator.

4.2.15.5 Potential power provision options for the compound include solar and wind generated power and / or a bio diesel or diesel generator.

4.2.15.6 Another power opportunity is to procure a suitable supply from the DNO, which would generally be readily available given the built-up nature of the surrounding areas. The selection of a green tariff would further enhance the environmental credentials of the power provision.

4.2.15.7 A backup diesel generator may be required onsite in case of emergencies, a power outage or power shortage, as the methods mentioned above can, on occasion, be unreliable. However, if used in conjunction with one another they will increase the reliability, and in turn reduce the amount that this generator will be needed. In order to make this completely sustainable and reduce the amount of greenhouse gases produced this could be swapped for the use of a bio-diesel powered generator.

Sustainable suppliers & travel

4.2.15.8 In order to increase the sustainability of the materials and supplies used to construct and service the compounds, it is recommended to investigate sustainable suppliers. It is worth taking into consideration that sustainable sources can be slightly more expensive, however, the benefits gained may well outweigh the costs.

4.2.15.9 It may be possible to use refurbished options rather than brand new items and materials such as office and welfare facility blocks, fencing and CCTV cameras.

4.2.15.10 The compounds can utilise more sustainable soaps, as some soaps are not suitable anymore due to plastic content. In addition to this, there are also options for recycled or bamboo toilet paper.

4.2.15.11 Travel of products and people is a key consideration which should be minimized where possible.

4.2.15.12 The switch can also be made to move to greener suppliers of food and snacks, such as more free range, organic, vegetarian or vegan options and options with less packaging or plastic free packaging. They will be a wide selection of local suppliers able to supply the compounds with a variety of food types, and the support of local businesses will be positive for community engagement.

Workforce Sustainability

4.2.15.13 Workforce engagement in sustainability initiatives is crucial to their success, therefore, in order to increase sustainability on the sites, it is important to encourage sustainable habits and ways of working. For example, it should be encouraged for people to recycle and reduce

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the amount of waste that they are producing. Utilisation of the sustainable food options mentioned in the previous paragraph, providing onsite water fountains and coffee machines for reusable water bottles and coffee cups. Reducing energy demand is a significant part of this as well, therefore, ensuring that lights and pieces of equipment are not left on unnecessarily is vital.

4.2.15.14 As further explored in section below the workforce will need to travel to and from site daily. This will have a sizable impact on the green credentials of the project. For this reason, it is advisable for green initiatives to be incorporated into the project to encourage cleaner travel. This could be in the form or project registration to government initiatives such as cycle to work or for the project to help subside green travel solutions such as public transport and shared transport. However currently this difficult due to coronavirus restrictions. Other ways to ensure carbon neutral travel would be to have comprehensive welfare facilities for staff to shower and dress. A holistic approach could also be embraced by enrollment on fitness challenges e.g., Steps to John O'Groats.

4.3 Labour logistics

4.3.1 Introduction

4.3.1.1 This section outlines the top three potential parking options determined in an investigation for the operatives to utilise and get transport to the Old Oak Common site. In order to establish the potential locations, a radius of 10-15 minutes from the site was determined. Within this radius was Acton, Ealing, Kensal Green, White City, areas of Wembley, Shepard's Bush and areas of Kensington and Hammersmith. Sites such as existing car parks, yards and brownfield sites in these areas were investigated as potential options.

4.3.1.2 The amount of space required was determined by the assumption that the site would need space for parking approximately 60 vehicles. Additionally, the area would need to accommodate the width of a road, toilet block and parking for the shuttle buses. However, please note this does not factor in major blockade work requirements e.g., Xmas. Additional areas will need to be sourced for short durations during major blockade works. Depending on the COVID-19 rules and regulations the need of parking at site will change, so is difficult to predict at this stage.

4.3.1.3 The sites were assessed against the criteria below and pros and cons listed:

A. Number of spaces / space available
B. Distance from site
C. Time from site
D. Railway owned (5) / privately owned (1)
E. Work required to the area
F. Minibus space and access
G. Access and egress
H. Security
I. Has it been used for a similar reason before?

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4.3.2 Option 1 – Gunnersbury Station Car Park



Figure 33: Gunnersbury Station Car Park

4.3.2.1 Distance from Old Oak Common Site: 3.9 – 4.1 miles, 15 - 17 minutes

Pros:

- Existing car park
- Approximately 140 spaces on the top level, further levels available
- Turning and parking area for minibus
- Space for welfare facilities

Cons:

- Just over 15 minutes from the Old Oak Common site
- No charging points

4.3.3 Option 2 – Asda Park Royal Superstore Overflow Car Park & Wasteland



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Figure 34: Asda Overflow Car Park (Red) and Waste Land (Orange)

4.3.3.1 Distance from Old Oak Common Station: 1.6 miles, 7 minutes

Pros:

- Existing car park
- 140+ spaces in this area of the car park – shown in red
- Possible use of waste land to the West of current car park – shown in orange
- Space for welfare facilities
- Turning and parking space for minibus
- Quite close to OOC site
- Pedestrian walkways

Cons:

- Permission required from Asda to use their overflow carpark
- Electric charging points are in a different area

4.3.4 Option 3 – Kensal (Kensington) Gasworks

NR project team believe this may no longer be available due to planned development of the area. The viability of this site is currently being reviewed by Network Rail's property team.



Figure 35: Kensington Gasworks site (red) and NR Cross Rail Offices (Purple)

4.3.4.1 Distance from Old Oak Common Station: 2.5 – 3 miles, 10 – 12 minutes

Pros:

- Fairly close to site
- Space for welfare facilities
- Space for minibus parking and turning
- The NR Cross Rail project office, shown in purple, has a substation on the fence line that could be used for power.
- Also possible car park area shown in purple.
- Good access possible off Ladbroke grove.

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Cons:

- Work is required to make a useable car park
- Use of land currently may impact ability to use

4.3.5 Parking Option Scores

4.3.5.1 The scores for these sites are shown below:

Table 1: Potential parking options scores

Name	A	B	C	D	E	F	G	H	I	Total
Gunnersbury station	5	3	2	5	5	5	4	5	1	35
Asda Overflow	5	4	4	1	5	4	3	4	1	31
Kensal (Kensington) Gasworks	4	4	3	5	3	4	4	3	5	36

A. Number of spaces / space available
B. Number of spaces / space available
C. Distance from site
D. Time from site
E. Railway owned (5) / privately owned (1)

F. Work required to the area
G. Minibus space and access
H. Access and egress
I. Security
J. Has it been used for a similar reason before?

4.3.5.2 Kensal Gasworks, with a potential for a significant number of parking spaces and nearby location to the OOC site, scores best when compared to Asda, and Gunnersbury station. Kensal Green is one of the few nearby brownfield sites and could be developed to suite the project needs.

4.3.5.3 Gunnersbury Station car park is second, predominantly due to it being an existing car park with a significant number of spaces and has the additional qualities that existing car parks have, such as the security already in place. In addition, it is not privately owned, and it will be more likely that permission for use can be obtained. With this said, it is furthest away from the OOC site.

4.3.5.4 The third option is Asda overflow car park in Park Royal, which is also an existing car park, with little work required to make it into a useable area for this purpose, however, it is a privately owned site, and the likelihood of utilisation is reduced.

4.3.6 Shuttle options

4.3.6.1 There are various companies that can offer shuttle buses of different sizes in London. Based on a number of 60 people at the potential parking site there could be several different options and arrangements in order to get them to the required sites.

4.3.6.2 Full-size coaches typically have a capacity of c80 people. This would cover all of those travelling from the parking site; however, for efficient operation it would rely on everyone being there at the same time therefore would and not give much flexibility. Coaches are the largest of the possible vehicles, and this is likely to affect their access to the sites.

4.3.6.3 A more flexible alternative would be to use multiple mini-buses with a 20-person capacity to ferry staff back and forth from site over a wider timeframe, with increased frequencies at peak shift handover times. A mini-bus shuttle would also offer more flexibility in serving

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multiple drop-off/pick-up locations, and avoid all staff needing to access from a single location.

4.3.7 Public Transport and Active Travel

4.3.7.1 Use of public transport and active travel alternatives such as walking, and cycling should be encouraged for all site staff. Whilst there are no underground or overground stations in the immediate vicinity of Old Oak Common, there are multiple options within a 20–30-minute radius for walking, and a 5-minute radius for cycling.

4.3.7.2 The safety of staff is of paramount importance so if public transport is to be encouraged travel routes between bus stop/train station and site are to be made safe to mitigate risk of mugging and/or harassment. This could be done by offering shuttle services for low light hours and in winter.

4.3.7.3 Provision of secure and weatherproof cycle storage on site should be made, and sufficient showering and clothes drying / locker facilities for those walking, running or cycling to site. Incentives could be made to encourage staff to use active travel alternatives to driving, and engagement with the workforce in how the sites can maximise opportunities for such methods will help promote these modes of transport and enhance the overall sustainability credentials of the scheme.

4.3.8 Onsite Office Space

4.3.8.1 Office space is required in either Jewson's Yard Acton, Kensal Green, or Acton Yard to allow for contractors, Clients and Designers onsite. Based on similar projects of this scale the assumption for office space required is approximately 60 On Network Staff at any one time, though these numbers will vary as peaks and troughs in workload occur around key project phases and milestones. There is space for a number of cars, in the region of 20. The site could be modified to increase the car capacity. It is recommended office works use public transport or the Contractor will have to setup a minibus service to ferry people from a larger car park, or series of car pars to the office location. The contractor should engage with Network Rail to make allowance for a sufficient desk allocation for Network Rail staff who will be site based.

4.3.8.2 There are many options for modular office space which can be expanded/contracted with relative ease to suit site workload demands. Given the multi-year duration of the overall programme, office space will need to be high-quality and fit for purpose, providing staff with a working environment which promotes professionalism, cleanliness, safety and security.

4.3.8.3 The location of office setup should consider changing programme requirements over the life of the project and minimise or eradicate the need to relocate offices during the life of the project. The sites and specification should also consider eventual decommissioning at the end of the project and ease of hand back to the site owners.

4.3.8.4 Purchase or hiring of office units are both viable options and will be subject to overall cost and contractor preference. A central hub site-office setup will be supported by smaller office/welfare facilities at Jewson Acton and Acton Yard compounds.

4.3.9 COVID-19 and potential working operations

4.3.9.1 COVID-19 considerations and their impacts on the construction programme and methodology are difficult to model due to the current and constantly changing law and advice to slow and stop the spread of the virus. It is possible an effective vaccine will have been developed at the commencement of the Rail Systems project and COVID-19 will be consigned to history. However, based on some a working assumption, that the pandemic will be on going and similar to the time of writing, the following rules are likely to be adopted.

- Only travel to work if it is not possible to undertake your duties at home.
    - This may reduce the number of people on site which are normally office based, for example, commercial and admin staff, as well as project managers.

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- Minimise staff numbers travelling to work within the same vehicle.
    - This may result in increasing the car parking requirements.
- Buses transporting employees to site will not be able to carry as many people resulting in the need for more bus trips or more buses.
- Site Access Control systems that adhere to social distancing
- Welfare cabins and office space that adhere to social distancing
- Plant and equipment used will need to be cleaned down after each use, so a cleaning plant and equipment area may need to be established.
- Site Access briefings should be held outdoors in the open where possible, observing the 2-metre social distancing rule.
- Respect of a minimum distance of 2m between people at all times. If a minimum 2m distance between staff cannot be achieved full PPE of gloves and facemasks must be worn at all times (It is anticipated that this will have an impact on selected Installation & Testing Activities).
- Hand wash stations will be needed all over site, cleaned and maintained with supplies.
- Toilet facilities will need to be larger and setup for social distancing measures.
- Employees encouraged to bring their own prepared food to site, if possible. Employees can consider whether they wish to bring their own cutlery and plate, mug etc to work.
    - So food storage areas will need to be available, suitable in size and cleaned on a regular basis.
- Work methods will need to be assessed against COVID-19 rules as part of the Health and Safety review process.

5 Materials & Haulage

5.1 Introduction

5.1.1.1 The delivery of materials to the OOC site of work presents several challenges due to the capacity of the road and rail network in a heavily urbanised environment.

5.1.1.2 Supplier selection is a key requirement when considering both manufacture, delivery to site, and storage of materials, plant and equipment. Suppliers will need to source material form their supply chain with some having long lead times or scarce national availability.

5.1.1.3 Not all manufacturers will have the ability to store orders at their premises and this can become a problem when considered alongside material lead times, resulting in a high volume of materials stored on site. In the early construction phases careful consideration shall be given to these factors when establishing the project supply chain and the size of lay-down and on-site materials storage facilities.

5.2 Materials

5.2.1 Handling and Assembly

5.2.1.1 Across the construction programme the material quantities fluctuate depending on the construction stage requirements. The storage of materials during the work also varies depending on the location of the works and applied methodology of working i.e. possession or high street environment.

5.2.1.2 During the program consideration needs to be applied in the detail of where certain materials are stored, with some materials being easily moved by manual or mechanical means.

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Wherever possible materials should be delivered “Just in Time” to reduce site congestion and potential for damage, theft, or vandalism.

5.2.1.3 The storage and assembly of equipment should wherever possible be located within a controlled area rather than trackside or in the construction site. For the purpose of these works this should be either Acton or Jewson yard Acton compounds.

5.2.1.4 Just in time delivery methods should be planned wherever possible throughout the works. These are aided with the proximity of the compounds at Acton and Jewson yard Acton. Space within these compounds will include store and workshop space to accommodate assembly works.

5.2.1.5 By using Acton and Jewson Yards as logistics bases, certain equipment as described below can be pre-assembled prior to being transported to site ready for installation. This would allow for the transport of equipment specific to the stage of delivery, reducing the risk of equipment being damaged or misplaced prior or during construction activities.

5.2.1.6 Where possible, rail materials will not be delivered by road but instead will be delivered by Train. Not all materials can effectively be brought to site by train so these will be delivered by road to the either Acton or Jewson Yard Acton and then transported by RRV to the site of work during possessions.

5.2.1.7 More specifics around these material deliveries are as follows:

OHLE

5.2.1.8 For the Acton Cutting area, the foundation materials and main steelwork will be delivered by road to either Acton or Jewson Yard Acton and then transported by RRV to the site of work. Portal booms will be transported to site in sections, assembled in the 10 foot and craned into position using the SRS Palfinger PR 750 Crane which can be operated between the existing OLE.



Figure 36: SRS Palfinger PR 750 Crane

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5.2.1.9 The steel pile foundations and main steel for the Northern and Southern Station areas would be delivered to site by rail and stored in designated compound areas. The required materials can then be transported by RRV to the site of work during possessions or, in the case of a 'high street environment', are readily available to install as required.

5.2.1.10 All wiring materials would deliver by road and securely stored at a strategic depot. The drums of wire can be loaded onto trailers and transported to site by RRV. Where wire is to be run in the 'high street environment' areas, it would be transported from the secure depot by RRV during possessions and secured in a designated compound area ready for installation during the next day shift.

5.2.1.11 Typically, the registration equipment is assembled offsite by either the supplier or the installation contractor depending on the equipment type used. The registration assemblies would be stored on secured pallets at a strategic depot in advance of the works until delivery for the shift. Once the delivery shift arrives the correct pallet and equipment is picked and dispatched to site by RRV.

Signalling & Telecoms

5.2.1.12 For Signalling and Telecoms equipment location suites and REB are to be fitted out wherever possible off site. This is critical so that equipment can be installed in a clean controlled environment. This reduces the risk of damage from other disciplines or untrained workforce at remote parts of this site, reducing the risk of equipment failure during commissioning.

5.2.1.13 Cables can be delivered in drums to designated compound, ready to be loaded to RRV for installation when required.

5.2.1.14 Additionally, Signalling & Telecoms four-foot equipment and smaller trackside equipment can be grouped for delivery at the depot and secured in crates for just in time delivery.

5.2.1.15 For the delivery of REBs, these will need to be via road due to their physical size and to reduce the number of lifting activities. With road delivery direct to the site the number of lifting operations would be significantly reduced during transfer from road to rail. The method here would be for fitting out of the REB off site, single lift to road haulage followed by another single lift when sited.

5.2.1.16 If delivered by rail the number of times the REB are lifted and handled would significantly increase. In this instance the REB would have to be loaded to road haulage, unloaded at the rail depot (Acton/Jewson), loaded to RRV to site, unloaded and then carried into position. This would significantly increase the chances of damage and potential for future latent failure going undetected.

P-Way & Drainage

5.2.1.17 Small equipment for P-Way such as rail joints, hollow bearer, and smalls would be located away from the site until required, reducing the chance of going missing or being damaged equipment. As with other stages, equipment of this nature would be packed at the manufacturers depots and delivered just in time to site.

5.2.1.18 There will be large quantities of drainage material to be delivered to site, whilst the bulk materials will be delivered by train some material such as catch pits and textiles will be stored at the depots and brough tot site via RRV.

5.2.1.19 Heavy/bulk materials such as ballast, rail and sleepers are to be delivered to site by train. These are either unloaded from the adjacent lines to the construction site or on the rail head directly into the construction site. Full train delivery detail can be found in the trains consist Appendix G and PWay Gantt charts Appendix F

Civils

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5.2.1.20 Large signal structures will be prefabricated off-site and delivered in as few parts as possible on a just in time basis. These would be stored at local depots with as much assembly as possible before being conveyed by RRV to site. In some circumstances with larger kit these would be assembled on site prior to lifting into position.

5.2.1.21 Large quantities of troughing materials and other ancillary civils associated with Power, Telecoms and Signalling will be delivered to the local site depots by road and then conveyed to site by RRV to their final locations.

5.2.1.22 Concrete will be required in large volumes. It is assumed concrete can be sourced from the batching plant on site for the OOC station construction otherwise the volumes required for REB foundations, NLL retaining wall construction and general foundations will need to be imported from local batching plants.

5.2.1.23 Graded fill material will be needed, and it is proposed that large volumes are either delivered to site by train or by road. Material should be stock piled for use as required during the construction programme on a just in time basis.

5.2.2 Quantities

5.2.2.1 Materials delivered by train are scheduled against the delivery programme to prevent holding significant quantities on site at one time. This will allow for a cyclic approach of material being delivered to the site of work and consumed before being replenished.

5.2.2.2 Approximate quantities of total material by train for the construction program are shown in Table 2 below. These volumes are based upon the final layout of the GRIP 4 design and track bed design proposals and will vary depending on final staging requirements and potential temporary configurations. This detail will become available during later stages of the design.

5.2.2.3 Material quantity varies across the programme stages, with material being stored in several laydown areas and site compounds. Some material will also be stored lineside and in wide ways between construction staging. Whilst some material will need to be stored on site for limited periods the overall approach is for just in time delivery, reducing site congestion.

5.2.2.4 There is an opportunity for value engineering at a later stage to reduce the depth of fill by incorporating wider use of geocell across the project area. The current proposal uses geocell around S&C units. Further site investigations may also provide evidence of sufficient capacity in the existing formatting for reuse in some areas. Currently the track bed design accounts for renewal across whole site. Please refer to Appendix K and 152270-ARC-REP-EGE-000002_P04 for more details.

Table 2: Material by Rail Approximate Quantities

Discipline	Material	Quantity
Track	Rail	25310.592m
	Ballast	61440 Tonnes
	G44 Sleepers	20760
	S&C Units	35
	Spoil	38400
	Sand	14761 Tonnes
	Granular Material	23824 Tonnes
OHLE	Masts	145

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	Portal Booms	56
	TTC Booms	9
	Piles	154
Civils	Engineering Fill	1250 Tonnes
	Concrete	650m^3 (some of this could be precast)
	Troughing	1700m – C1/1/9 380m – C1/1/29 450m – C1/1/43
Drainage	Spoil	11876 Tonne
	Pea shingle	5938 Tonnes
	Ballast	5938 Tonnes
	Pipes (6m Lengths)	1810 Tonnes
Geosynthetic Materials	Geocell	226 rolls (25m)*
	Geosynthetic separator	603 rolls (25m)*

*1m overlap on each edge of roll assumed.

5.2.3 Lay down areas

5.2.3.1 Whilst most material and equipment are to be delivered within a limited time of installation preventing congestion of the site, it maybe be necessary to deliver S&C panels in advance. In some cases, this is due to manufacture workloads and cost associated with long term storage prior to site delivery.

5.2.3.2 Where S&C units are to be stored on site there must be adequate hard standing of compacted ballast or engineering fill. These areas must be level and of sufficient size to accommodate S&C panels in order to prevent crippling of switch rails and crossing units. It is also critical that the Main Line S&C units are stored with reach of the planned Kirow Crane limits for installation.

5.2.3.3 In some instances, the panels can be stacked but the rail condition must be protected with wood battening. The ordering of stacking panels must be done so to suit the delivery so such that the last item stacked is the first required during construction, thus preventing panels from being trapped in the stacking.

5.2.3.4 Other hard standing areas will be required when storing significant amount of heavy material such as rail, piles or OHLE structures. Storage lay down areas will need to be designed based on ground conditions to guarantee ground bearing support and prevent materials for sinking into the subgrade.

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5.2.4 Long Lead items

5.2.4.1 Long lead items have been considered all items that will take more than 3 months to procure and deliver to site. The following sections detail typical lead times for key materials/equipment identifying which are long-lead items.

S&C Manufacture

5.2.4.2 The manufacture of S&C is a long process of design and manufacturing assurance undertaken by the design and construction organisations. The overall strategic ordering of S&C across the UK is overseen by Network Rail, coordinating the national order book against priority of delivery and installation.

5.2.4.3 The process for manufacture begins when the S&C detail is confirmed, this will usually be at the Pway Form B design status. Consideration is also to be given to interfacing disciplines such as signalling for positions of any insulated block joint requirements or specifics around mounting POE.

5.2.4.4 The process for Form C design for manufacture of layouts is an iterative one. The designs will be shared by the Pway designer with the manufacturer, who in turn will commission designers to produce the detailed 1 in 50 manufacturer drawings. These will then be subject to review, IDR, and sign off by the Design CRE & CEM prior to manufacture.

5.2.4.5 The commencement of manufacture will depend on the manufacturer's workload along with availability of components. Where S&C is not as per standard REPW drawings, the lead time for bespoke components can impact the overall timescale for delivery.

5.2.4.6 The programme for integration of OOC S&C requirements will need to be established early in the delivery phase of the project. The Scheme has 35 units of S&C proposed, which will also require associated plain line paneling. The order of the quantities across the 7-year construction period will need to be carefully integrated alongside the established order book for domestic renewals and other large-scale enhancements projects.

5.2.4.7 Additional to S&C there are other Pway componentry that will require off-site manufacture, such as adjustment switches and any rails below 400m radius that will need pre-curving. These items will require design and sign off by the design CRE and Construction CRE.

5.2.4.8 The time scale for the manufacture of S&C units can vary and can be affected by the following circumstances.

- The availability of the manufacturer resources in coordination with domestic renewal work banks. This could include design resources and assembly staff.
- National availability of materials such as concrete and steel supplies. In recent times there have been know problems with supply of concrete bearers.
- The requirement to import materials form the continent with uncertain trade future in Britain.
- EDH crossings and certain crossing parts can take longer to precure due to the limited amount of suppliers.
- Storage availability at the manufacturer's yards may be problematic due to the workload, therefore earlier delivery to site may be required.
- The delivery method in itself, where modular delivery by tilting trains need to be planned and coordinated on a national level. It is common for the national tilting wagon and Kirow cranes allocation being oversubscribed.
- Delays in the design process preventing confirmation of the Form C detail. This could be the case where interfacing disciplines are behind schedule or need to change detail.

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For OOCRS the coordination with the manufacturers and Network Rail Route Services shall begin as early as possible to secure the programme of required S&C manufacture. This would allow the manufacturers to be assigned confirmed order book priorities and importantly will secure the manufacturing resource to meet the project's staging requirements.

Manufacture lead times would normally be a minimum of 8 months but preferably 12 months' notice to reduce risk. With a programme the size of OOC however, the integration with the national order book should be started as early as possible.

Plain Line Base Plates

5.2.4.9 As part of the OOCRS commissioning strategy and staging, certain NR60 switches will be installed but plain lined until they are brought into use. Plain line base plates for both switch and crossing panels will be required.

5.2.4.10 Whilst these are not bespoke items, they are not commonly manufactured and are unlikely to be stocked items by the manufacturer. It is recommended that when the order for S&C is placed the corresponding Plain line baseplates are ordered at the same time well in advance.

5.2.4.11 There are some baseplates for crossings and switches that are readily available with product approval in place, however some of the S&C for OOC that may need to be plain lined may require bespoke baseplates with a requirement for product approval and acceptance.

5.2.4.12 This extra requirement for product approval for a nonstandard item would add to the lead time. Therefore, as soon as the Form B detail design has been confirmed the process for having these manufactured should begin. This will allow for added time for the product approval process.

OHLE Main Steel

5.2.4.13 Lead times for the supply of main steel is typically less than 12 weeks. However, some of the larger main steel items such as the mono-boom type portals and castellated booms can take longer due to the size of steel.

OHLE Registration Assemblies

5.2.4.14 The UKMS100 basic design range has been proposed for use on the OOCRS project using the Series 1 SIC registration assemblies. These are supplied by Furrer+Frey and currently require a 16-week lead time.

OHLE Switch Assemblies

5.2.4.15 There are two preferred suppliers of the switch assemblies used on the GWML, Morris Line Engineering (MLE) and Dreischer. It is currently proposed that the MLE switch assemblies will be used on the OOCRS project which have a up to a 16-week lead time.

ATS

5.2.4.16 The substation at the Northeast Compound is likely to be a long lead item due to the complexity and probability of procurement from a supplier, ABB, which is in high demand. The build up and setting of the site would also be carried out by ABB so creating an integrated programme is imperative.

REB

5.2.4.17 Manufacturing REB's usually takes in excess of 4 months and up to 6 months depending on the complexity, size, and parts required.

PSP

5.2.4.18 Manufacturing PSP's usually takes in excess of 4 months and up to 6 months depending on the complexity, size, and parts required.

ATP

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5.2.4.19 ATP signalling equipment which may require the production line to be recreated.

ETCS

5.2.4.20 ETCS equipment typically built and tested in Europe. Risk of limited European supply of equipment. BREXIT and other European projects may place the supply of this at risk so should be ordered in advance as far as is possible.

Signalling Structures

5.2.4.21 Dorman Lightweight signal procurement takes a minimum of around 3 months, but for large orders (in excess of 10 signals) can be in excess of 6 months depending on how busy the manufacturing facility is.

Telecoms Transmission

5.2.4.22 Due to technology revolution, Telecoms equipment has short “on the shelf” life and need to be sourced from old stock.

Large Structures/Cantilevers/Gantry

5.2.4.23 Fabrication of gantry depending on working hours can take around 3 months to source, cut, weld, and paint the structure and dropper cages.

5.3 Highway Access Assessment

5.3.1.1 This section of the report identifies the provision of vehicular access to five site compounds identified in Section 4 of this report. It determines routes from the primary highway routes and details any restrictions that may be encountered during the construction of the works.

5.3.1.2 Old Oak Common is situated in a densely populated area to the West of London around three miles from Paddington Station. The main highway access to the area is the A40 which runs from the East-West to the South of the site where Western Avenue becomes the West Way. The A40 is designated as a High Load Route.

5.3.1.3 The proposed construction methodology aims to deliver all bulk materials by rail along with all track, sleepers and track componentry. However, it will be necessary for some large pieces of equipment and Plant to be delivered by road. These include:

- Office and Welfare Cabins
- Principal Supply Points (PSP)
- Relocatable Engineering Buildings (REB),
- Gantry steelwork,
- ATFS Switch equipment
- Mobile Cranes
- Piling Rigs
- Concrete lorries (depending on arrangements with HS2 Construction on batch plant sharing)
- Lorry Mounted cranes (Hiabs)

5.3.1.4 Vehicle restrictions are emerging from the ongoing integration with BBVS and the other projects within the area. The list of access routes is not exhaustive and will require regular review to understand the restrictions due to interfaces as the project moves towards construction. One key restriction will be the limitations of vehicle moves per day. In busy construction periods it is probable that other projects such as the tunnelling works may want to prioritise their activities and sequester large portions of the availability. This will be managed going forward especially for key access routes through old Oak Common Lane and Victoria Road

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5.3.2 Main Old Oak Common Worksite

5.3.2.1 Access from the A40 to the Main Old Oak Common worksite for deliveries is identified in Figure 37. From the A40 the route runs through both residential and commercial areas – consideration will need to be given to the impact of lorry movements to the site for delivery vehicles. There is a bridge to the North end of Victoria road that supports the North London Line – there is a restricted headroom of 4.7m to the bridge soffit. From the South the site can be access via Old Oak Common Lane, however, there is a tighter constraint of 3.8m along this route – coupled with the fact that the route to the South from the A40 is predominantly residential.

5.3.2.2 Consideration will need to be given for the delivery of REBs to site along this route identified in Figure 37 and the use of low-loader transportation should be considered. The REBs detailed at present stand at approximately 2.4m.

5.3.2.3 Consideration should also be given for the delivery of signal gantries. The gantries, as identified in Section 9.4.6 can be delivered in component parts, these should be sized and mounted for transit to ensure they do not exceed the clearance available.



Figure 37: A40 Route to Main OOC Worksite (©Google Maps, 2019)

5.3.3 Acton Yard

5.3.3.1 Access to the Acton Yard compound can be gained from the A40 heading East or West. The only limitation identified is the “Weak Bridge” on Horn Lane – it has an 18tonne Gross Vehicular Weight (GVW) limit applied to it. This would restrict the delivery of concrete lorries (nominally 26 tonnes GVW) from the South and as such, a diversion to the North would be necessary. While this may not have a big impact on the delivery of materials to the Acton Compound, it will need to be considered in terms of traffic management plans and restrictions may apply on the number of movements along a specific route.

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Figure 38:Horn Lane Signed Weight Restriction (©Google Maps, 2019)



Figure 39: Access to Acton Compound from North (©Google Maps, 2019)

5.3.3.2 Acton yard is anticipated to be used as a compound for both the storage of materials and potentially for site offices and welfare facilities. The materials to be stored will include signalling equipment, OLE structures, Trough routes and E&P equipment for installation on the relief lines.

5.3.3.3 As identified above the access to the area is relatively unrestricted other than the weight restriction on the Horn Lane Overbridge, but as with all access to the site, mitigation will be required to ensure traffic movements do not cause unnecessary disruption to the local area.

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5.3.4 Jewson's Yard Acton

5.3.4.1 Access to the Main Lines on this project is problematic. Introducing a compound and mains access on the Jewson site is essential to the delivery of the works through Acton Cutting. Access is needed for OHLE installation, and the compound would be used as an assembly point for the OHLE components.

5.3.4.2 Access to the Jewson yard from the A40 heading South is restricted only by the Horn Lane Railway overbridge. To avoid this, a detour is required, access to Friary Road is only available travelling East to West on the A40, joining Horn Lane at the traffic lights immediately South of the GWML bridge. This route is through a residential 20mph zone – See Figure 40.



Figure 40: Access route to Jewson's Compound (©Google Maps, 2019)

5.3.4.3 An assessment of the routes to site from the A40 indicate that there are unlikely to be any restrictions to the use of this route for delivery of materials for railway systems installations. It should be noted that any vehicles of a GVW in excess of 18tonnes will not be able to deliver materials to site via this route. Note: Typical flatbed lorries delivering steel work are likely to be in excess of this weight.

5.3.4.4 If delivery is to be made from a route leading from the M4, Figure 41 below shows restrictions on viable routes. All roads to the site on this route are wide enough for an articulated truck to access but long items would need to be reviewed. There are no tunnels or over bridges on the route from the M4 via Larch drive to the site. The only bridge is on Gunnersbury Lane by Acton Town Station which is not noted as having a specified weight restriction. It is located on a main through road so normal loads are assumed to be tolerated. A list of roads used on the approach to site and descriptions can be found below:

- Gunnersbury Avenue Busy Main Road
- Gunnersbury Lane Busy Main Road
- Horn Lane W3 Main Through Route
- Uxbridge Road Main Road.
- Steyne Road Main Through Route

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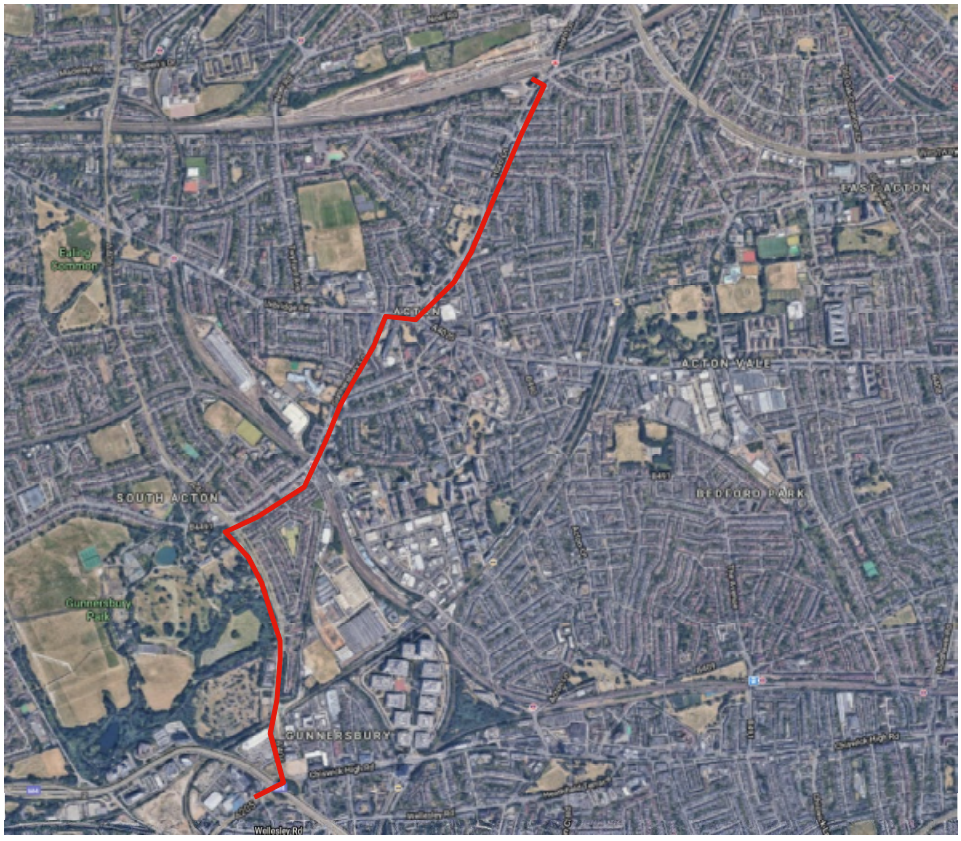


Figure 41 Jewson's RRAP access from M4 (©Google Maps, 2019)

5.3.5 Barlby Road Compound & RRAP

5.3.5.1 The Barlby Road Compound can be access via a number of alternative routes. The preferred access routes are identified in Figure 42. The route from the East along Ladbroke Grove (identified in the Hazard Directory) is to an historic gated access, which while eliminating the need to access via the North Pole Depot access (restricted to 4.25m clearance (assumed) is currently out of use and is directly adjacent to a road crossing that serves a primary school.

5.3.5.2 Should the historic access be required, a detailed plan to mitigate the impact on the residents and school should be agreed with all stakeholders.

5.3.5.3 The alternative access point off Mitre way is restricted in height and requires agreement with Hitachi Rail Europe but would provide adequate access for the typical construction vehicle. It should be noted that the Barlby Road access is currently in use and is being accessed by standard Road Rail Vehicles for typical maintenance tasks.

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Figure 42: Barlby Road Compound (Access Constraints and Routes) (©Google Maps, 2019)

5.3.6 Hitachi compound – South West RRAP

5.3.6.1 The proposed RRAP within the Hitachi North Pole Depot Compound has the potential to be accessed from either the West or the East. The West access is the primary access point off Mitre Road; this access point has a restricted headroom of 4.25m at the point of entry into the depot site, due to the OLE clearances and the Scrubs Lane underpass. Accessing onto Mitre Road from the A219 there is a low clearance bridge with a height restriction of 4.4m. Mitre road can be accessed from either the South or the North. From the South access is from the A40 which is deemed to be unrestricted from both a standard vehicle weight requirements and standard headroom clearances. From the North via Scrubs Lane there is a Weight restriction applied to Scrubs Lane over bridge of 18 tonnes – See Figure 43.

5.3.6.2 Typical requirements for the Hitachi compound access will be for concrete lorries (typically 4m in height and up to 26 tonnes loaded), Hiab Off-loading lorries (3.95m in height & up to 26 tonnes GVW) and works vehicles for staff accessing the area.

5.3.6.3 As identified above, there are several restrictions to accessing the depot site and a variety of access needs. These needs should be carefully set out in a traffic management plan to prevent, not only disruption to the delivery programme, but to local residents and businesses in the area faced with an increase in vehicle movements during the construction of the Railway Systems works. This will also be necessary to minimise the impact on the operations of depot itself and allow Hitachi sufficient time to plan around key periods of high activity around this compound. Regular collaborative communication throughout the delivery programme with Hitachi will be essential for the effective use of this compound.

5.3.6.4 Consideration should be given to the lifting of the height restriction on the Old Oak Common Lane GWML bridge as it will be replaced, and the road lowered as part of the major civils works on the project. This will provide an opportunity for larger vehicles to utilise this route as the programme develops.

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Figure 43: North Pole Depot Access Routes and Restrictions (©Google Maps, 2019)

5.3.6.5 A detailed traffic management plan will need to be developed for the delivery stages of the project. The plan will need to ensure that traffic is managed in line with the Section 14, Traffic Management of the High-Speed Rail (London - West Midlands) - Code of Construction Practice. The aim of the plan is to limit the impact on the residents, businesses, and ensuring the local transport network can continue to function effectively during construction.

5.3.6.6 Careful integration of a traffic management plan will be needed with the HS2 development team. This is to ensure that the combined delivery of the systems and civils projects do not allow an exceedance of the agreed number of traffic movements under the agreements of planning.

5.3.7 North West Road Rail Access Point and HS2 Compound Access

5.3.7.1 An option for a Road Rail Access point and compound off Victoria Road has been presented in this report (see Figure 44). This access point would be utilised for a range of deliveries, specifically those of the ATFS requirements. Access to this point from the main A40 route not impaired by weight or height restrictions.

5.3.7.2 The inclusions of the vehicle movements required to deliver the railway systems project into the HS2 traffic management plan will be necessary to ensure an integrated approach to deliveries is achieved. This will prevent an excess of vehicular traffic using the local road network.

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Figure 44: Victoria Road Site Access Route (©Google Maps, 2019)

5.4 Rail Access Assessment

5.4.1.1 The difficulty and restrictions on road haulage into the OOC site are a key driver in delivery of materials by rail. Rail deliveries will be by train and with smaller quantities also delivered by RRV from Acton Yard, or Jewson – Acton, or other local suitable RRAPs.

5.4.2 Rail Head Operation

5.4.2.1 During the construction of the North of the site and South of the site temporary rail head sidings will be installed to accommodate material delivery by train. Both rail heads being proposed are single line terminal sidings. This is due to the construction site constraints and limited time of use during the overall programme.

5.4.2.2 The duration and purpose of the rail heads can be seen below in Table 3.

*Table 3: Rail Head Proposed Timescales – **Subject to change***

Rail Head	Purpose	Install Date	Recovery Date	Duration
West	Material Delivery and spoil removal for Relief side East of station construction	Jan 2024	Dec 2025	24 months
South	Material Delivery and spoil removal for Mains side complete South of station construction	Jan 2029	Dec 2029	12 months

5.4.2.3 The rail head from the West is proposed to utilise and retain the existing 8110A turnout which previously connected the Up Relief to Reception line 1 during the initial constructability phases; Shown on Stage Scheme Plan for Stage 5A, 20-GW-018 current version 0.4. Refer to Figure 45.

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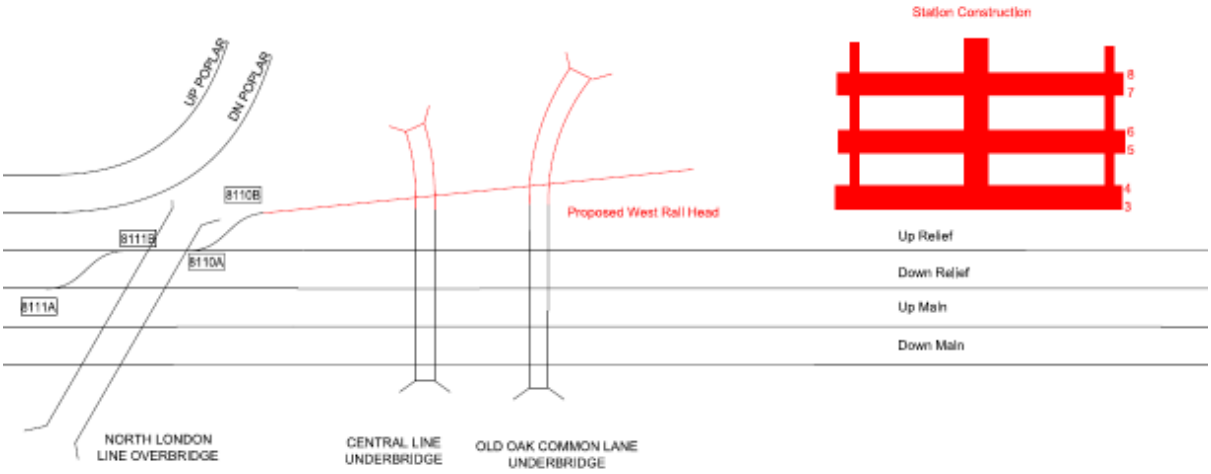


Figure 45: Rail Head to the West

5.4.2.4 The rail head to the South can be seen in Figure 46. The proposal would see the existing Down Main track left in place following the commissioning of the Temporary Down Main alignment, a temporary turnout would then allow for a move in the Down direction into the site, shown on stage scheme plan for Stage 12, 20-GW-026-02/01 currently version 0.3.

5.4.2.5 Both sidings will have delivery made by Possession with trains being worked during the day in line with the project working hours constraint. Both rail heads are proposed to be used under possession only however the western railhead has potential to be utilised with signals. If the western railhead was to be signaled into it would require train paths to be available which are limited outside of possessions. This removes the need for signalling control with exception that the S&C points for entry will remain detected within signalling control system.

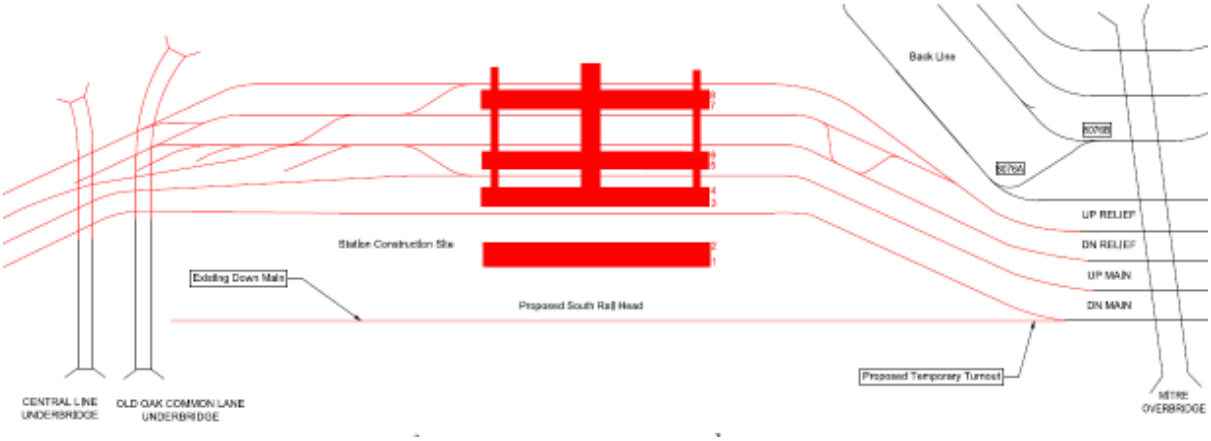


Figure 46: Rail Head to The South

5.4.2.6 Points 8077 may be used to have an eastern railhead which connects to a through route. This would allow for more versatility in where deliveries could be loaded/unloaded.

5.4.2.7 A Rail Head Operational Management Plan has been produced (152270-ARC-REP-EMG-000003 – P01). This document includes analysis of rail freight form and to the LDC including localised moves in the vicinity of the site of work.

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5.4.3 Rail Haulage

5.4.3.1 There is a significant quantity of material across the construction programme delivered by train. The approximate quantity of the materials are included in Section 5.2.2.

5.4.3.2 When it comes to the logistics of delivering these materials the OOC area produces some challenges due to its proximity to the Paddington and terminus of the GWML. This geographical constraint limits the options for train delivery as all haulage will be incoming from the West.

5.4.3.3 For the staging of permanent way works this at times proves problematic, due to the traditional linear process of cycling trains through the worksite. Traditional methods when staging permanent way works is to have trains flow through the worksite, starting with empty wagons for removal of scrap followed by loaded wagons of new componentry. As the empties are filled, they are normally dispatched clearing the site to pull the loaded wagons into position to begin renewal of components.

5.4.3.4 In the case of OOC this is possible but there is limited head room to the East of the site. Therefore, any trains coming from the West and then dispatched during the works to the East either have to be stacked towards Paddington or crossed over and be released by the lines that are not under renewal.

5.4.3.5 This constraint also increases the number of locomotives required for top and tailing trains. Where a site is not at the terminal end of the route there would normally be an exit route opposite to the arrival direction. In the case of OOC this is not the case therefore trains have to in some cases be top and tailed to allow for movements back in the direction of travel. This is also the case when using the terminal rail heads.

5.4.3.6 The use of two locomotives is at times somewhat problematic as this increase not only the number of locomotives required but also the number of drivers required. These extra requirements increase the cost of the delivery by train. To try to avoid this wherever possible trains have been allocated with a single locomotive or staged so that locomotives can be cascaded between consists to reduce the allocation of Locomotives. The use of a separate cascade locomotive can reduce the burden on the engineering haulage but may require possession and worksite limits to be extended to accommodate cascade moves clear of the crictical path activites.

5.4.3.7 There also remains an opportunity during the negotiation of possessions in the construction planning stage to try to secure more time for train moves, allowing for run-around moves and further cascading of locomotives.

5.4.3.8 Locomotive moves are covered in more detail in the Rail Head Operational Report

Local Delivery Centres

5.4.3.9 Due to the site constraints and limitations of road haulage, some material that would normally be delivered by road are to be delivered by train. These materials may need to be loaded at local delivery centres or closer to the manufacturers when confirmed during the construction phase.

5.4.3.10 The local delivery centres for the works have been assumed as Westbury or Hinksey yards. The routes form and to these marshalling yards are detailed in the Rail Head Operational Report (152270-ARC-REP-EMG-000003 – P01). The LDC are usually utilised for forming train consist ready for deployment to engineering sites, they can also be used in some cases for loading of materials however often loading is undertaken at the manufacturer or quarry.

5.4.3.11 Westbury yard is located just South of Westbury train station between 109m 55ch to 110 15ch to the WEY line, so approximately 107 miles from the OOC site. The yard consists of an Up and Downside yard for marshalling engineering trains. Westbury is major marshalling yard and is the local delivery centre for the majority of rail infrastructure works on the Western route.

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Figure 47: Westbury Up and Down Sidings

5.4.3.12 The yard also has capacity to load wagons with associated compound and haul road on the Upside yard. This offers an opportunity for loading of some materials that are not traditionally brought by train to site. With good road access for bringing materials to site this has been identified as an ideal location to load drainage materials.



Figure 48 Westbury Loading Facilities

5.4.3.13 Hincksey is located to the North of Abingdon just outside Oxford, the yard is located between 61m 65ch to 62m 40ch, so approximately 59 miles from the OOC site. Hincksey is slightly smaller than Westbury yard but also has facility for loading materials. The road access at Hincksey is good with direct links to the A34.

5.4.3.14 Hincksey would be the preferred location for loading Drainage and civils materials that would not traditionally come by train.

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Figure 49: Hincksey Yard



Figure 50: Material Loading Hinksey

5.4.3.15 Both Hinksey and Westbury have in the past been used to make up Plain Line and some S&C track panels. Agreements on access are required by the project with the operator. Both yards were used to provide a continuous supply of trains to the TIPOD 1 Bathgate Blockade during CP5. Key to this past use is early engagement with Route Services that manage and operate these facilities.

5.4.3.16 The loading of OHLE equipment to train for transportation to site could be undertaken at Swindon Transfer Sidings. The sidings are located just to the East of Swindon train station between 76m 20ch and 76m 68ch on the MLN1.

5.4.3.17 The sidings in recent times have been developed into the High Output Electrification Depot with the specific purpose of serving the Great Western Electrification Project. Whilst the suggested method of delivery of piles is by flat wagon an opportunity would be to explore the use of purpose-built high output wagons for OHLE foundations and structure delivery.

5.4.3.18 The depot itself has been developed to allow transfer from road haulage to train of OHLE equipment and is along the route for material delivery form Westbury. This makes the location ideal and efficient for OHLE material delivery.

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Figure 51: Swindon Transfer Sidings



Figure 52: High Output Electrification Depot Swindon

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Engineering Wagons

5.4.3.19 The following are Engineering wagons currently proposed for use during the construction programme.

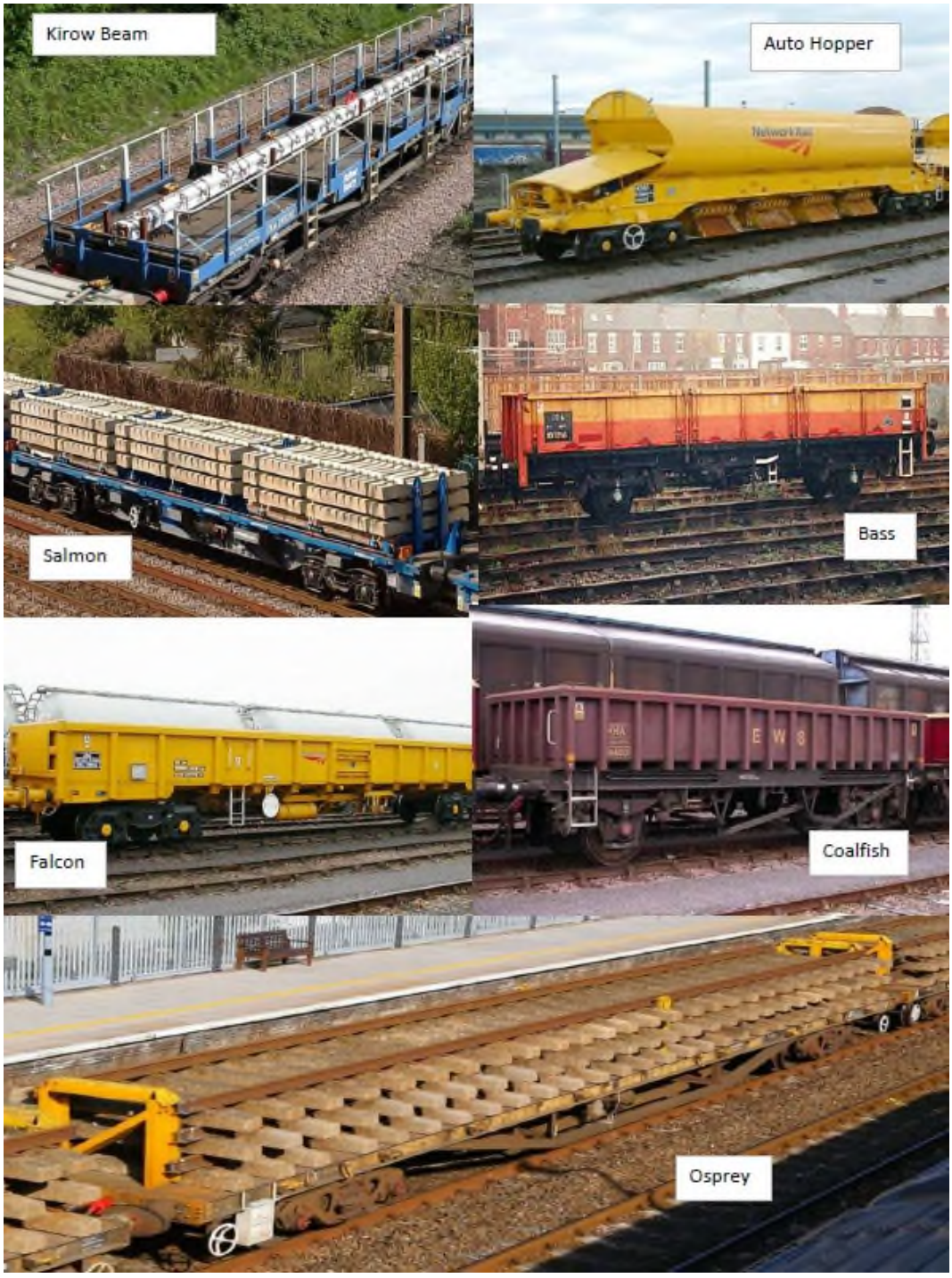


Figure 53: Examples of various engineering wagons

5.4.3.20 Box wagons are proposed for loose engineering materials such as ballast, pea shingle and Type 1. Whilst the train consists have been produced based on Falcons 60T open wagons, the consists in some case could be changed for 30T coalfish open wagons. Additionally, other open wagons are available across the network that could be substituted. Whilst the

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wagon types could be changed, consideration has to be given to the length of the train consist. Where the quantity remains unchanged but smaller 30T wagons are operated for, the increase in train length may be problematic for the space allocated for stacking trains or undertaking run-around moves.

5.4.3.21 Additional types of wagons are also available to substitute for opens, including auto hopper and side tippers. Whilst side tippers are an alternative to larger open box wagons such as Falcons, they will require detailed planning as the material is tipped in bulk adjacent to the track. This method is less controlled and requires space for material or the correct track interval adjacent to a renewal site.

Allocation of Wagons

5.4.3.22 The allocation of engineering wagons is over seen by Network Rail Route Services. The Western Route is allocated a set number of wagons each planning year. This allocation is to be shared out amongst the Routes programme of both domestic renewals and enhancements work.

5.4.3.23 For a project as large as OOC staged across several years, there may be requirement that extra wagons are procured or even borrowed from another Network Rail Route. Early engagement with Route Services could secure the correct number of wagons required from the National Fleet.

5.4.4 Train Consists

5.4.4.1 Train consist have been generated for all Pway stages, OHLE and Civils material delivered by train. The full consist detail for each shift can be found in Appendix G.

Allocation of Wagons

5.4.4.2 The allocation of engineering wagons is over seen by Network Rail Route Services. The Western Route is allocated a set number of wagons per each planning year. This allocation is to be shared out amongst the routes programme of both domestic renewals and enhancements work.

5.4.4.3 For a project as large as OOC staged across several years, there may be requirement that extra wagons are procured or even borrowed from another Network Rail Route.

5.4.4.4 Currently on the Western Route the allocation of wagons is as shown in the table below.

Table 4: Western Route Engineering Wagon Allocation

Name	Type	Western Route Allocation
Falcons	Open box wagon	120
Lobster	Open box wagon	25
Coalfish	Open box wagon	180
Side tippers	Side tipping box	40
Auto hoppers	Auto ballast drop Hopper	45
Osprey	Flat wagon with vertical support	23
Salmon	Flat wagon	22
Bass	Open wagon with drop sides	30

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Analysis of Wagon Requirement

5.4.4.5 The requirement of engineering wagons across the project has been displayed below in Figure 54 against each stage and Figure 55 against each year

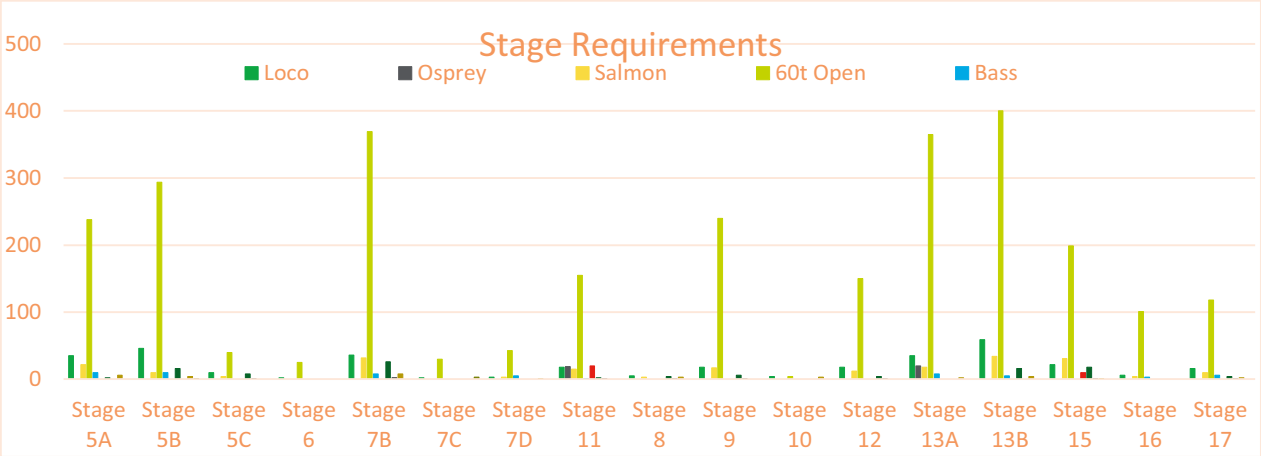


Figure 54: Wagon Requirement by Stage

5.4.4.6 In terms of the largest requirement this comes in the form of open box wagons and is driven by the quantity of ballast coming in and spoil being removed from the site. The peak demand for this is during the heavy Pway stages and is significantly more during the construction stages to the North of the station.

5.4.4.7 The greatest requirement for box wagons at any single time consists of 25 box 60t wagons. The Pway stages to both the North and South takes place over midweek nights with generally 20 box 60t wagons at once. These midweek deliveries would actually be on a cycle one day after the next with at any one time 20 Box wagons in the rail head whilst 20 more are being sent to the LDC for unloading. In this requirement 40 wagons would need to be secured for project use during a typical mid-week delivery stage.

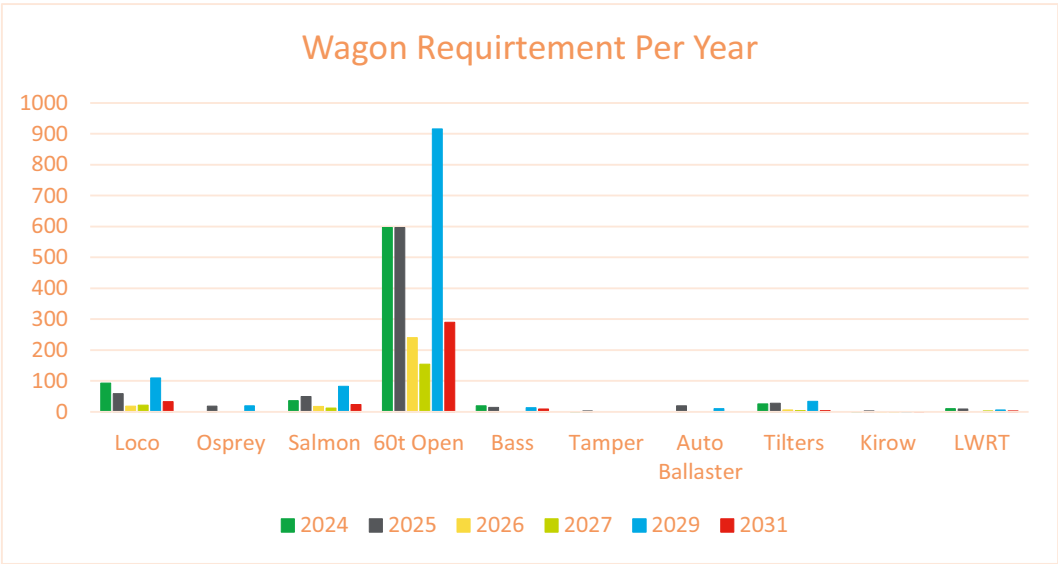


Figure 55: Yearly Wagon Requirements

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5.4.4.8 With the Western Route's allocation of Falcons of 120 available wagons, this would require a 3rd of full route's allocation to midweek delivery during these periods.

5.4.4.9 The peak demand on box wagons over a year is in 2029 which corresponds with the station south build where a large section of the rout is to be removed and replaced. Christmas 2026 which is stage 9 requires at its peak 240 box wagons.

Table 5: Train Allocation Xmas Blockades

Christmas	Peak 60T Box wagons	Stage
2024	25	6
2025	155	11
2026	240	9A & 9B
2027	150	12A & B
2029	151	15

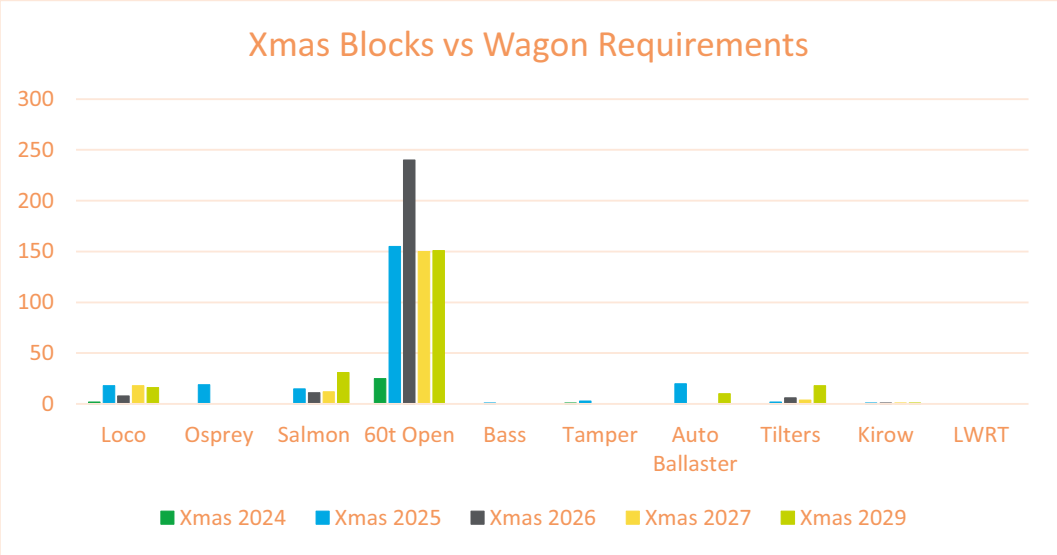


Figure 56: Engineering Wagon Requirement Xmas Blockade

Alternative	Advantage	Disadvantage
Use of smaller 30t wagons	Shared resource load would give total allocation pool of 225 wagons	The use of smaller wagons will increase the consist length and be problematic for run round and storage options. Longer trains could slow production rates and ad longer times for train moves.

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Use of side tippers	Quick unloading method and would add available 60t wagons	The interval to adjacent line or laydown area may result in double handling slowing production rates. Side tippers cannot be loaded with spoil.
Road delivery of Materials to the North and South build sites	Significant reduction in rail requirement with material being delivered prior to possession	The congested site access and road network would be problematic and may impact HS2 station works delivery programme.
Bring Some materials in by RRV prior to the Christmas possession	De-risks blockade removing some train requirement. Allows more time to bring material into the site prior to the work s	Would impact on other deliveries by rail on the lead up to the blockades. This option would also be inefficient.
Station civils team to recover materials	Reduced the requirement for as many wagons which may be more viable from a resource availability perspective	Removing assets via road is likely to not be able to make as efficient as rail removals due to long items needing greater processing prior to transport

Table 6: Alternative to 60t Box wagons

5.4.4.10 To reduce the requirement for 60t box wagons there are various options that could be considered. These all come with various considerations that will need to be confirmed when more detail is available at the detailed design stage. These options and consideration are shown in Table 6.

Securing Train and Plant Requirements

5.4.4.11 Both wagon, plant and strategic plant requirements are planned during the long-term planning stages. Network Rail Route Services are responsible for overseeing the allocation of wagons, plant and some strategic plant.

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5.4.4.12 Usually the high-level requirements of trains will be discussed during the planning discussions when developing the EAS. This will involve interfacing with not just regional but also national allocation of resources. Whilst the fleet allocations are awarded on a route-by-route basis it may be required that resource is secured from other routes.

5.4.4.13 During these planning stages deconfliction of resource requirement will be carried out based on a project-by-project basis and key route specific decisions. It is important to note that OOCRS work is an enhancement project that will require interfacing with a routine domestic renewals programme. This will create competition for resources across the route during the peak construction times with greater focus on Christmas possessions.

5.4.4.14 Interface with the domestic renewals will not only be a problem with regards securing the train and plant, but also for areas to load such as Westbury or Hincksey which are key LDC for domestic schemes.

5.4.4.15 In order to secure the resource, the project needs the resource requirements should be disclosed to the route planning teams as early as possible. In all case train and OTM requirement should be confirmed by T-52.

5.4.5 OTM & Strategic Plant

5.4.5.1 The allocation of OTM and strategic plant such as Kirow across the UK is generally oversubscribed with a limited amount of available resource.

5.4.5.2 For a large-scale project such as OOC it would be likely that the requirement will add to the pressure on already limited availability. For ordering of tampers, it has been experienced previously for these to be ring-fenced and early allocation of strategic plant to also be secured with suppliers well in advance, restricting availability for other projects. For a project of the scale and important of OOC, it is likely than such ring-fencing will be necessary to secure essential plant early.

Tampers

5.4.5.3 The allocation of tampers is managed by Network Rail Route Services and is generally planned alongside strategic plant. It is recommended that booking of tamper's are undertaken at the same time as train resources, with minimum requirement booked by T-52 weeks.

5.4.5.4 Various tampers are available and operated within the Western and Wales fleet. These are made up of Plain Line, multipurpose (compact) and S&C machines with tandem tamping capability.

5.4.5.5 Figure 57: Plasser Theurer 09 3X Continual Tamping Machine is an example of continual tamping Plain line Machine. This machine is ideal for long lengths of plain line volume.

5.4.5.6 Figure 58: Figure Plasser Compact 08-16 4x4 C100-RT is a compact machine which is a plain line and S&C machine. The machine offers limited capability with S&C but is used for simple S&C Turnouts.

5.4.5.7 Figure 59: Matisa B41 Universal Tamping Machine is a universal machine capable of high-volume plain line and S&C tamping. This category of tamping machine can be used with similarly capable machines for tandem tamping Crossovers and more complex S&C layouts.

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Figure 57: Plasser Theurer 09 3X Continual Tamping Machine



Figure 58: Figure Plasser Compact 08-16 4x4 C100-RT



Figure 59: Matisa B41 Universal Tamping Machine

5.4.5.8 The requirement across the OOC construction will vary, for some stages where there are large lengths of plain line track being renewed continuous tamping plain line machines could be utilised. For other stages where S&C is being installed and longer cross overs tandem tamping with S&C capable machine swill need to be used.

5.4.5.9 An example of this is Acton crossovers where 8112A/B and 8113A/B are being installed. These will require tandem tamping of two compatible machines. The commissioning of other crossovers and other larger turnouts will also require fully capable S&C machines.

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5.4.5.10 For tamping of smaller turnouts along with long lengths of plain line, Unimat multipurpose tamping machines with limited S&C capability would be suitable.

5.4.5.11 Additional to the Route fleet, there is also the availability of more mobile beaver tamping machines. The beaver tamper is a tamping machine that is compact and delivered by road. The machine has the capability of its equivalent rail mounted counterparts but is mobile and able to access sites where there is no direct access to the running lines.

5.4.5.12 The use of beaver tampers has been considered for the North of the station build prior to stage 9 when the new lines are connected to the existing network. These machines would be used to bring track that has been installed but not commissioned up to design level. It would then be proposed that prior to final commissioning and following that regular tamping be undertaken.



Figure 60: Road Delivered Beaver Tamper

Kirow Cranes

5.4.5.13 There are three main types of Kirow available in the UK rail industry. Kirow 1200 with a lifting capacity of 125 tonnes, Kirow 810 with a lifting capacity of 100 tonnes and smaller Kirow 250 with lifting capacity 25 to 50 Tonnes.

5.4.5.14 All three Kirow crane types could be used for installation of S&C for OOC. The limitation being the smaller Kirow 250 that would need to undertake lifts in tandem to achieve greater lifting capacity for larger S&C panels. Which type of Kirow Crane to be used will normally be based on availability and the weight of S&C to be lifted. For larger switch panels of SG upwards the 1200 and 810 would be a much more capable machine.

5.4.5.15 The allocation of the Kirow fleet is managed by the fleet owners. To secure the required resource, early conversations with the plant suppliers should be held.



Figure 61: Kirow 1200 lifting S&C Panels

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LWRT

5.4.5.16 The delivery of long welded rail to site is to be undertaken by delivery from either the RDT or LWRT. The RDT can delivery long welded rail strings to site up to 216m long, dropping them in the four foot or to the shoulder of the site.

5.4.5.17 For OOC delivery the rail length requirement will be 108m, this allows for easier handling as rail lengths are positioned into the site extents without rail access.



Figure 62: Rail Delivery Train

McCullough's

5.4.5.18 In combination with 108m length LWR McCullough's TRT (Trac Rail Transposer) Figure 63: McCullough's TRT will be utilised to be able to move LWR into the construction site. As the station North and South build will not be commissioned or connected to the running line it will not be possible to run the LWRT through the site to place rails at their final position. The TRT will be used through the construction phases to deliver LWR.



Figure 63: McCullough's TRT

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5.4.6 Transporting Piles

5.4.6.1 Each individual rack on the salmon wagons is capable of securing 11 pile foundations. Piles will be marked with location numbers and a centre line will be drawn to ensure they are perpendicular with the track. They will then be loaded on low sided wagons in such a way as to suit the pre-planned order of installation and secured in frames. Figure 64 shows the arrangement for securing pile foundations onto the salmon wagon and the storage frames that are used.

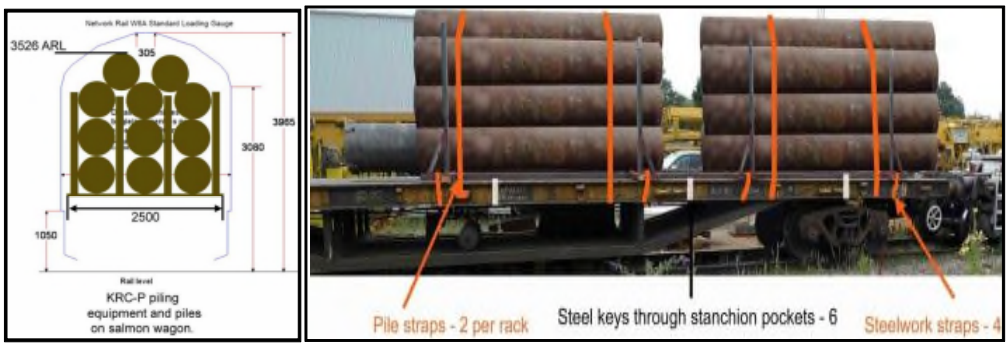


Figure 64: Securing and transportation of pile foundations.

5.4.6.2 To maximise use of possession time it is anticipated that the Electrification Piling Train (EPT) will be the last train to run before the possession is granted, and that when the EPT arrives at the destination signal, the possession will then be taken around it. When the possession is taken around the train it is already in position and ready to start working.

5.4.7 Pile Installation

OHLE Piling Operation using Electrification Piling Train

5.4.7.1 The installation of steel pile foundations can be carried out using the Kirow KRC250UK Electrification Piling Train (EPT) coupled with two salmon wagons at either side.

5.4.7.2 One salmon wagon will be used to transport piling heads, crane attachments and pile foundations. The second salmon wagon will transport two additional piling racks and will be attached to the other side of the EPT. This arrangement allows for a maximum capacity of 33 piles per piling train.



Figure 65: Piling train arrangement

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5.4.7.3 The EPT is equipped with two types of pile driver. A side grip pile driver and a top mounted pile driver (PVE piling attachment) to enable more powerful impacts. The EPT uses a manipulator arm to grasp and rotate pile foundations to the correct position.



Figure 66: EPT in operation

5.4.7.4 OHLE Piling Operation RRV's

5.4.7.5 In some cases it will not be practical or possible to use the EPT for piling. RRV's with piling attachments will be used to supplement the piling requirements. The consist of the RRV will be to have a number of trailers with the piles loaded on dedicated for the shift. The RRV with suitable piling attachments are capable of lift the CHS piles off the trailer and maneuvering to place the pile before driving in a similar fashion to the EPT system. Typically, there are vibration pile attachments as well as impact attachments. There are also pile auguring attachments. The selection of the attachment will be dependent on the ground conditions, noise restrictions, and pile design. An example of this system can be seen in Figure 67.



Figure 67: RRV Piling with arm attachment.

5.4.7.6 Typically, vibration piling methods are the preferred method.

5.4.7.7 Piling Noise Reduction Methods

5.4.7.8 Piling operations that need to take place during possessions and are close to residential areas will need to plan for solutions to minimise noise. The HS2 EMRs are likely to limit times piling can occur and require hammer piling to take place after 0700 or offer re-housing to

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residents. As such the Depot Decommissioning Section 61 has committed them to hammer piling after 0700 requiring disruptive possessions.

5.4.7.9 One solution to suppresses noise is to utilise acoustic noise barriers. While they do not remove the noise completely, they can reduce noise in the region 20 to 30dB. Installing multiple layers will also further create added benefits.

5.4.7.10 Augered piles are considerably less noisy that driving or vibrating. In some circumstances it may be appropriate to change the pile solution to help reduce noise of installation.

5.4.8 Wiring Installation

5.4.8.1 Consideration has been given to the use of the High Output Plant System (HOPS) however, given the site layout and constraints a more conventional method of wiring, predominantly using RRV's, is likely to be used as depicted in Figure 68



Figure 68: RRV wiring with drum carriers and MEWP.

5.4.8.2 It is anticipated that the majority of the proposed wire runs will are likely to be installed within the 'high street' environment and therefore running out of the wires would have to be undertaken using RRV's.

6 Possessions and Isolations

6.1 Possession Planning

6.1.1.1 For the timescale of the majority OOCRS work, the allocation of engineering access via planned possessions must be agreed well in advance. The process for agreeing access to undertake the works will be via the EAS (Engineering Access Statement) and TPR (Timetable Planning Rules).

6.1.1.2 The process for such planning happens in the Long-Term Planning arena. This involves discussion between all parties affected such as the infrastructure owner Network Rail, TOC's and FOC's. The aim of these discussions is to deconflict planned major disruptions, align workplans to aid efficiency in delivery, and plan mitigations to interrupted rail services.

6.1.1.3 The TPR are not concerned with the specific details of possession planning but rather to agree the train paths and network use by operators. The EAS act as the precursor to detailed possession planning.

6.1.1.4 Access to the infrastructure for engineering works will be negotiated and agreed over a predetermined schedule of consultations as set out in the EAS. This will be for the time tabled year of December to December. As an example Figure 69 shows the EAS for the timetable year 2020 - 2021, with dates of version issue.

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TIMETABLE PLANNING RULES ENGINEERING ACCESS STATEMENT 2020-2021
TIMETABLE ISSUE SCHEDULE

Version	Content	Date of Issue
1.0	Complete half year's rules, Preliminary Principal Rules Designation: **Preliminary Proposal for Principal Rules**	Friday 25/10/19
2.0	Complete half year's rules. Final Principal Rules Designation: **Final Proposal for Principal Rules**	Friday 07/02/20
3.0	Complete year's rules. Preliminary Subsidiary Rules Designation: **Final Principal and Preliminary Proposal Subsidiary Rules**	Friday 27/03/20
4.0	Complete year's rules. Final Subsidiary Rules Designation: **Final Principal and Final Proposal for Subsidiary Rules**	Friday 10/07/20

Figure 69: Engineering Access Statement 2020-2021

6.1.1.5 Each version of the rules can be summarised as follows:

- Version 1 issue of draft rule proposals for TOC/FOC responses
- Version 2 issue of the final rules for the first 6 months of the timetable year
- Version 3 Issues of the subsidiary rule changes for TOC/FOC responses
- Version 4 Issue of the final rules for EAS publication

6.1.1.6 The negotiation of the EAS is undertaken between planning stages TT-64 and TT-23 where TT is the beginning of the timetabled year with numerical count down in weeks. At the time of writing the EAS is currently at Version 3.0 for the 2021 (December 2020-December 2021) timetable with Version 4 to be concluded 31/07/2020. Based on TT-64 the EAS for planning year 2022 (December 2021-December 2022) will be first issued in draft in November 2020.

6.1.1.7 With regards to OOCRS possession requirements, early works beginning in the planning year 2021 would have to be negotiated during the period October 2020 -July 2021. Based on this the following regime (Table 7) for agreeing engineering access can be assumed.

Table 7: TPR versions for OOCRS

TT Year (Dec-Dec)	Version 1	Version 2	Version 3	Version 4
2022	Oct 2020	Feb 2021	March 2021	July 2021
2023	Oct 2021	Feb 2022	March 2022	July 2022
2024	Oct 2022	Feb 2023	March 2023	July 2023

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2025	Oct 2023	Feb 2024	March 2024	July 2024
2026	Oct 2024	Feb 2025	March 2025	July 2025
2027	Oct 2025	Feb 2026	March 2026	July 2026

6.1.1.8 Upon issue of the final EAS for each timetable year the detailed planning stages will commence with route-based planning teams. More detail is gathered and further deconfliction of all engineering works will begin until final possession delivery during construction which is then published in the CPPP.

6.1.1.9 For the purpose of producing this early-stage construction methodology the long-term planning stages have not yet begun, therefore proposed access is a mix of information gathered by Network Rail during early consultation, interpretation of previous years engineering access, and the estimated possession lengths requirements.

6.2 Possession Regime

6.2.1 Engineering Access Statement, Section 4

6.2.1.1 The possession regimes under consideration have been determined from the 2021 EAS.

6.2.1.2 Section 4 of the EAS states the standard possession availability, including all NBS and standard routine maintenance opportunity.

6.2.1.3 For the GWML the possession regime works on a two-track regime, alternating between Mains and Reliefs. This regime offers a published time of weekend 0001 Sun to 0900 Sun on either the Mains or Reliefs between Ladbroke Grove and Southall East. This also includes published 0115 Sun to 0500 Sun all lines blocked.

6.2.1.4 The actual access times are reduced by possession arrangements such as placing of protection, issuing worksite authority and taking isolations. The resultant estimated times of actual access duration is shown in Table 8.

Table 8: Section 4 Possessions Times Ladbroke Grove to Southall East

Published Section 4	Published Times	Estimated access duration	Estimated access duration with Isolation
Saturday Night Mains or Relief	0001 Sun – 0900 Sun	7 - 8 hours	6.5 - 7.5 hours
Saturday Night ALB	0115 Sun – 0500 Sun	3 – 4 hours	2 - 2.5 hours
Sunday Night Mains or Relief	2300 Sun – 0500 Mon	4 hours	3 - 3.5 hours
Midweek Nights Mains or Reliefs	0001 Tue-Sat – 0500 Tue-Sat	4 hours	3 - 3.5 hours

6.2.1.5 For the Mains side which would require road rail access at North Pole depot, consideration of the Section 4 details for Paddington to Ladbroke grove must be noted. This would restrict the access time due to the blockage of the North Pole depot entrance.

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Table 9: Section 4 Possessions Paddington to Ladbroke Grove

Published Section 4	Published Times	Estimated access duration	Estimated access duration with Isolation
Saturday Night Mains blocked including North Pole A+B	0115 Sun – 0715 Sun	5 - 5.5 hours	4.5 -5 hours
Saturday Night ALB	0115 Sun – 0445 Sun	3 – 4 hours	2 - 2.5 hours
Sunday Night	Standard possession opportunity not Available		
Midweek Nights Mains			

6.2.1.6 Additional to the GWML there is also the requirement for access to the NLL (BOK5). The standard possession opportunity for this line is 0010 Sun to 0845 Sun Down line, 0020 Sun to 0905 Sun Up line. This equates to All Line Block of 0020 Sun to 0845 Sun. Sunday night possessions on the NLL are 2325 Sun to 0330 Mon Down line, 2350 Sun to 0330 Mon Up Line. No mid-week standard opportunity exists.

Table 10: Section 4 Possessions Acton Wells to Acton South

Published Section 4	Published Times	Estimated access duration	Estimated access duration with Isolation
Saturday Night Down blocked	0010 Sun – 0845 Sun	7.5 - 8 hours	7-8 hours
Saturday Night Up blocked	0020 Sun – 0905 Sun	7.5 - 8 hours	7-8 hours
Saturday Night ALB	0020 Sun – 0845 Sun	7 - 7.5 hours	6.5 – 7 hours
Sunday Night Down blocked	2325 Sun – 0330 Mon	3-3.5 hours	2. 5 - 3 hours
Sunday Night Up Blocked (ALB)	2350 Sun – 0330 Mon	2.5 – 3.5 hours	2 - 2.5 hours
Midweek Nights	No Standard Possession Opportunity		

6.2.1.7 As detailed in 4.1.2.5; a possession of the Poplars from Acton Wells to Acton East is required for plant to gain access from the RRAP within Acton Yard and convey into the Old Oak Common site via the Up Relief. The standard possession opportunity is 23:00 Saturday to 09:30 Sunday with all lines blocked. No Sun/Mon or mid-week standard opportunity exists.

Table 11: Section 4 Possessions Acton Wells to Acton South

Published Section 4	Published Times	Estimated access duration	Estimated access duration with Isolation
Saturday Night ALB	2300 Sat – 0930 Sun	9 - 9.5 hours	8.5 – 9 hours

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Published Section 4	Published Times	Estimated access duration	Estimated access duration with Isolation
Sun / Mon	No Standard Possession Opportunity		
Midweek Nights	No Standard Possession Opportunity		

6.2.1.8 The Section 4 EAS detail that has been included is a guide to the access regime and based on non-booked services. The actual possession details will be included in the published Section 7 as part of the CPP.

6.2.1.9 The standard regime derived from Section 4 of the EAS does not include specific details concerning possession limits and special operating constraints. The Section 7 detail would include limits of the possession and any associated lines, for example details of the Poplar lines being blocked alongside relief line blocks.

6.2.1.10 Another note affecting planning and access integration is that the NLL and GWML are controlled by different Network Rail Routes, and therefore are subject to differing planning teams.

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GW103 PADDINGTON TO UFFINGTON continued...

SECTION		Periods A and B 13.12.2020 to 14.02.2021	Period C 15.02.2021 to 28.03.2021	Period D 29.03.2021 to 15.05.2021	Periods E to G 16.05.2021 to 12.09.2021	Periods H and J 13.09.2021 to 11.12.2021	REMARKS
At Ladbroke Grove (including entrance routes to / from Crossrail and North Pole Depots) 103.2	WEEK END	0115 Sun to 0715 Sun Lines 1 to 3, Down and Up Main Lines, North Pole Lines A+B, E+C Line BLOCKED -or- 0040 Sun to 0740 Sun Lines 4 to 6 and Down and Up Relief Lines BLOCKED -and- 0115 Sun to 0445 Sun All Lines BLOCKED ❶ [All Line Block times will be reduced to finish 0420 Sun until Heathrow Express Depot at Old Oak Common closes]					
	SUN/ MON	STANDARD POSSESSION OPPORTUNITIES NOT AVAILABLE *(Except: when shown in Section 7)*					
	MID WEEK	STANDARD POSSESSION OPPORTUNITIES NOT AVAILABLE *(Except: when shown in Section 5)*					
Ladbroke Grove To Southall East 103.3	WEEK END	0001 Sun to 0800 Sun Down and Up Mains BLOCKED -or- Down and Up Reliefs BLOCKED 2 Track Timetabling in operation ❶ ❷ -and- 0115 Sun to 0500 Sun All BLOCKED [All Line Block times will be reduced to finish 0420 Sun until Heathrow Express Depot at Old Oak Common closes]					
	SUN/ MON	2300 Sun to 0500 Mon Down and Up Mains BLOCKED -or- Down and Up Reliefs BLOCKED 2 Track Timetabling in operation ❶ ❷					Acton West Jcn must always be available to provide a route between Acton Yard and the GWML.
	MID WEEK	0001 Tue-Sat to 0500 Tue-Sat Down and Up Mains BLOCKED -or- Down and Up Reliefs BLOCKED 2 Track Timetabling in operation					Acton West Jcn must always be available to provide a route between Acton Yard and the GWML.

❶ Refer to Section 7 as to which lines are to be blocked each week.
❷ See note in Timetable Construction Notes on Page One for extended 2 Track Timetabling requirements in Periods C and J

Figure 70: Section 4 Standard Possession GW103

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SECTION		Periods A and B 13.12.2020 to 14.02.2021	Period C 15.02.2021 to 28.03.2021	Period D 29.03.2021 to 15.05.2021	Periods E to G 16.05.2021 to 12.09.2021	Periods H and J 13.09.2021 to 11.12.2021	REMARKS
Acton Wells Jn (exclusive) and South Acton Jn 1310.5	WEEK END	0010 Sun to 0845 Sun Down BLOCKED 0020 Sun to 0905 Sun Up BLOCKED	0010 Sun to 0845 Sun Down BLOCKED 0020 Sun to 0905 Sun Up BLOCKED	0010 Sun to 0845 Sun Down BLOCKED 0020 Sun to 0905 Sun Up BLOCKED	0010 Sun to 0845 Sun Down BLOCKED 0020 Sun to 0905 Sun Up BLOCKED	0010 Sun to 0845 Sun Down BLOCKED 0020 Sun to 0905 Sun Up BLOCKED	
	SUN/ MON	2325 Sun to 0330 Mon Down BLOCKED 2350 Sun to 0330 Mon Up BLOCKED	2325 Sun to 0330 Mon Down BLOCKED 2350 Sun to 0330 Mon Up BLOCKED	2325 Sun to 0330 Mon Down BLOCKED 2350 Sun to 0330 Mon Up BLOCKED	2325 Sun to 0330 Mon Down BLOCKED 2350 Sun to 0330 Mon Up BLOCKED	2325 Sun to 0330 Mon Down BLOCKED 2350 Sun to 0330 Mon Up BLOCKED	Not with possessions between Longhedge Jn and Willesden West London Jn - See SO250 and MD165
	MID WEEK	Standard Possession Opportunities not available 0030 T-F to 0510 T-F BLOCKED 7 w.p.a. (see section 5 NLL Cyclic Type 3) ①					

NOTES
Down = Westbound. Up = Eastbound.
① Divert and/or re-time via STP. See Section 5.

Figure 71: Section 4 Standard Possessions Anglia 13

GW130 ACTON WELLS JN TO ACTON EAST

SECTION		Periods A and B 13.12.2020 to 14.02.2021	Period C 15.02.2021 to 28.03.2021	Period D 29.03.2021 to 15.05.2021	Periods E to G 16.05.2021 to 12.09.2021	Periods H and J 13.09.2021 to 11.12.2021	REMARKS
Acton Wells Jn to Acton East 130.1	WEEK END	2300 Sat- 0930 Sun All BLOCKED *(Extended to:* *1900 Sat to 0930 Sun* *when shown in Section 7)*					Blocks of Acton Yard are available. See GW103 for times.
	SUN/ MON	STANDARD POSSESSION OPPORTUNITIES NOT AVAILABLE					
	MID WEEK	STANDARD POSSESSION OPPORTUNITIES NOT AVAILABLE					

Figure 72: Section 4 Standard Possessions GW130

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6.2.2 Engineering Access Statement, Section 5

6.2.2.1 Section 5 of the EAS states the available midweek possession opportunities. GW103 Paddington to Reading is split with mid-week availability alternating between the Reliefs and Mains on a rolling biweekly basis. The mid-weeknight designation of lines in this situation tends to be an opposite of that from the preceding weekend. i.e. a weekend of Relief Line Saturday is followed by mid-week of Mains possessions.

Network Rail
Western Route

Engineering Access Statement 2021
Proposal for Subsidiary Rules Changes
Section 5 - Midweek Night Possession Plan Summary

Version: 3
Date: 27th March 2020
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Line of Route	Locations (Lines - All unless stated)	Week Number (1st Half of Year - Page One of Two)																								
GW103	Paddington to Reading (Lines 1-3, Main Line Side)	37		39		41		43		45		47		49		51		01		03		05		07		09	
GW103	Paddington to Reading (Lines 4-6, Relief Line Side)		38		40		42		44		46		48		50		52		02		04		06		08		10
GW103	Reading West Jcn to Moreton Cutting / Foxhall Jcn (Main Line Side)			39			42	43				47				51				03				07			
GW103	Tilehurst East to Didcot East (Relief Line Side)		38			41				45	46				50				02				06			10
GW103 / GW105 / GW600	Foxhall Jcn to Swindon to Wootton Bassett to Thingley Jn Wootton Bassett to Westerleigh			39						45						51						05				
GW105 GW510 GW523	Wootton Bassett Jcn to North Somerset / Westbury Nth Westbury Up Side				40						46						52						06			
GW105	At Bristol Temple Meads (North Side)			39						45						51						05				
GW105	At Bristol Temple Meads (Middle)		38						44						50						04					10
GW105	At Bristol Temple Meads (South Side)						42						48						02						08		
GW105 GW548	Bristol West to Parson Street Parson Street to Portishead	37												49												09	
GW105	Parson Street to Cogload Jcn	37						43						49						03						09	
GW108	Devon (SLW on One Line for HOTR)																										
GW200	Didcot North to Wolvercot Jn (SimBiDS on One Line Only)						42								50				02						08		
GW310 GW300	Wolvercot Jcn to Wylds Lane Abbotswood to Norton Jcn			39						45						51						05				

Figure 73: EAS Section 5 First Half of 2021

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Network Rail
Western Route

Engineering Access Statement 2021
Proposal for Subsidiary Rules Changes
Section 5 - Midweek Night Possession Plan Summary

Version: 3
Date: 27th March 2020
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Line of Route	Locations (Lines - All unless stated)	Week Number (2nd Half of Year - Page One of Two)																								
GW103	Paddington to Reading (Lines 1-3, Main Line Side)	11		13		15		17		19		21		23		25		27		29		31		33		35	
GW103	Paddington to Reading (Lines 4-6, Relief Line Side)		12		14		16		18		20		22		24		26		28		30		32		34		36
GW103	Reading West Jcn to Moreton Cutting / Foxhall Jcn (Main Line Side)	11				15				19				23				27	28	29		31				35	
GW103	Tilehurst East to Didcot East (Relief Line Side)				14				18				22				26				30				34		
GW103 / GW105 / GW600	Foxhall Jcn to Swindon to Wootton Bassett to Thingley Jn Wootton Bassett to Westerleigh	11						17						23						29						35	
GW105 GW510 GW523	Wootton Bassett Jcn to North Somerset / Westbury Nth Westbury Up Side		12								20				24						30						36
GW105	At Bristol Temple Meads (North Side)	11												23						29						35	
GW105	At Bristol Temple Meads (Middle)																		28						34		
GW105	At Bristol Temple Meads (South Side)				14												26						32				
GW105 GW548	Bristol West to Parson Street Parson Street to Portishead																	27									
GW105	Parson Street to Cogload Jcn									19								27						33			
GW108	Devon (SLW on One Line for HOTR)	11	12	13	14									23	24							31	32	33	34	35	36
GW200	Didcot North to Wolvercot Jn (SimBiDS on One Line Only)				14						20						26						32				
GW310 GW300	Wolvercot Jcn to Wylds Lane Abbotswood to Norton Jcn	11						17						23						29						35	

Figure 74: EAS Section 5 Second Half 2021

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6.2.3 Engineering Access Statement, Section 7

6.2.3.1 Section 7 of the EAS details the planned major disruptions also known as abnormal access opportunity. For the OOC programme of works section 7's is only confirmed up to the first 6 months of 2021. For the purpose of producing a comprehensive strategy for delivery of the works, the Section 7 from 2021 has been used as a template for the overall construction programme.

6.2.3.2 For planning years beyond the current EAS development, nonstandard possession requirements that will become the future Section 7 have been detailed in the Outline Construction Programme and can be seen in the Project Box Plan, in Appendix C

6.3 Possession Limits

6.3.1 Introduction

6.3.1.1 Typically, the possession scenarios for the OOC area will vary depending on the integration of works during the planning phases. This is also dependent on whether it is predominantly Mains or Relief side possession.

6.3.1.2 Generally speaking, the possession limits would typically be between Ladbroke Grove and Acton West. These sometime increase in length to Dolphin Junction and Southall. as a minimum for the OOC site the possession would need to be from Ladbroke grove to Acton West. Where there is No Mains access to the East the possession could be reduced to Kensal Green to Acton West. Detailed possession planning must take into account isolation limits, particularly with regards to the depot's interfaces.

6.3.1.3 The following sections are instances where closer consideration of protection limits apply

6.3.2 Up and Down Poplar

6.3.2.1 In order to access Acton Yard during a Reliefs Line possession, the blocking of the Up and Down Poplar is required. This would normally be from Acton Wells Jn to Acton West.

6.3.2.2 This possession is important to the proposed access and egress from/to Acton Yard, due to the route of machine moves from Acton Reception 3 to the Up Relief, as detailed in section 4.1, Road Rail Access Points.

6.3.2.3 Another consideration to this part of the possession, is the boundary to the protection at Acton wells junction. The protecting signal for the Up Poplar is AW146 at 0m 41ch. This leaves c500m from the toes of 8120B to the protection, limiting the length of useable line for routing equipment to the Relief lines.

6.3.3 Mains Access to North Pole RRAP

6.3.3.1 For potential early works in the construction phase, and also for works to the East extremities of the site, RRV access via North Pole RRAP will require a block to the entrance of North Pole depot. The possession extents would need to include North Pole Line A and B.

6.3.3.2 Empty Coaching Stock movements into and out of North Pole depot are an important feature of the nightly inspection, cleaning and maintenance regime for the GWR fleet, and impose a significant restriction on available track access at this location. Out stabling of rolling stock in Paddington and other locations can help mitigate reduced depot access but must be planned well in advance as part of the possession (and fleet maintenance) planning processes.

6.3.3.3 Use of this RRAP requires the possession limits of the Up and Down main to be far enough East to utilise mains crossovers as detailed in Section 4.1.

6.3.3.4 In order to clear the S&C for RRV moves during a possession, the Down Main protection would need to be beyond 8044Apts and for the Up Main protection from SN72.

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6.3.4 Back Lines and Cross Rail Depot

6.3.4.1 For installation works for the depot connections at 9017pts and 8077pts, there is a requirement for possession of the Back-line washer bypass and Engineering & Carriage Line.

6.3.4.2 The Engineering & Carriage Line would require protection from 9006Apts. the washer Bypass and Back Line would need published protection arrangement from the cross-rail depot.

6.3.4.3 This protection arrangement would be in place alongside the Relief side possessions, blocking entry form the West 8077pts by default.

6.4 Non-Standard Possessions

6.4.1.1 The extent of access required to deliver the Old Oak Common Rail System works exceeds any such access delivered in the recent history of the GWML. For the majority of the proposed construction works, the Section 7 detail does not yet exist, and will require extensive consultation with all affected stakeholders to ensure sufficient access is available to safely and efficiently deliver the proposed infrastructure. Multi-Day All Line Blocks (ALB) are required at critical stages of the OOCRS works.

6.4.1.2 The details of nonstandard possession requirements that will form the future Section 7 of the EAS can be seen in detail in Appendix C.

6.4.1.3 These possession requirements will need to go through consultation with both TOCs and FOCs as part of the EAS development. The strategy used in order to come up with the construction methodology has been based on previous planning works at GRIP 3 and review of the known available opportunities.

6.4.1.4 Typically, the winter timetable offers increased opportunities to extend possession times compared to the summer timetable. These extensions of time are used to achieve longer Relief or Mains only possessions.

6.4.1.5 Within the proposed construction methodology, 16-hour weekend Relief Line possessions are utilised in 2023 as seen in Table 12.

Table 12: Non-Standard Possession Requirements

Stage	Timing	Possession detail	Justification
5A & 5B	Week 21 2024	Extension of the all line block to 4.5 hrs	Extension of the ALB would be required to allow four track gantry to be erected to the wets of the station. Currently no spare capacity during Christmas possessions
6	Christmas 2024	4 day all lines block with additional 2 track railway for 5 days relief side	All line block is to cover installation of Acton Cutting OHLE Portals and 4 track signalling Gantry. Extended relief side beyond Christmas to be used for wing wall modifications.
7C	Weeks 41 to ,5 in 2025	Saturday night 16 hours Relief Line with Poplar included	Delivery of Gantry steel work and troughing route via rail. This is due to limitations on road haulage

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Stage	Timing	Possession detail	Justification
9A & 9B	Christmas 2026	6 days ALB followed by 5 days two track railway. Relief side	Stage 9 includes major signalling commissioning for relief sides as well as significant Pway extents and Wiring runs.
11	Christmas 2025	2 x 54 hours ALB followed 1x 72-hour commissioning. 1x 16 hour follow up shift. Reliefs only.	This Requirement is to install both 8112A/B and 8113A/B along with a significant length of plain line form temporary to final up relief alignment. The option to undertake these works cannot be earlier due to signalling data Changes needing to be in place. Due to temporary alignment and retaining wall staging there is a significant length of associated Plain line and wiring on the Up relief.
12A & 12B	Christmas 2027	6 Day ALB (with a 5 day then 1-day split), with 2TT for additional 4 Days	Significant Stage works
13A	Week 50 & 51 2029	2x 54 hour ALB back-to-back 1x standard NBS weekend possession of the Mains	This stage is to accommodate significant track lowers in Acton cutting. Works are significant and require a temporary alignment prior to stage 15 and 9047 A/B install. Stressing and welding to be included within the second 54-hour block.
15	Christmas 2029	6 Day ALB (with a 5 day then 1-day split), with 2TT for additional 4 Days	Installation of 9047A/B, 9023 and 9024 which includes switching over to the final mains alignment and associated wire runs.
16B	Easter 2031	54 hr ALB followed by a 16 hour Follow up	Works for this stage are particularly difficult due to the significant distance between the Up relief and Down relief alignments. This means all Pway material has to be double handled form the Up Relief. Ideally this work would be done in an ALB as would be more efficient than a 2TT.
18	Christmas 2031	Christmas 2027: 2-day ALB with 2TT for additional 3 days. (ALB - OHLE works between Mains and Reliefs. 2TT	The full detail of this possession cannot be quantified until the Temporary signalling designs are complete. The time allows for significant testing and commissioning works. this would also be opportunity for any remaining ALB works.

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6.4.1.6 Detail of the breakdown of overall possession timings is contained within the Pway Gannt Charts in Appendix F

6.5 Isolation Limits

6.5.1.1 All isolations are to be planned in accordance with Network Rail Standard NR/L3/ELP/29987, Module 6, Planning of Isolations.

6.5.1.2 The ECO shall consult with the Nominated Person and shall issue the Form B 'Authority to Test' once the isolation of the OHLE has been made and all paperwork is complete and accurate.

6.5.1.3 The Nominated Person shall test and apply the earths to the OHLE, issue the Form C 'Overhead Line Permit' to any COSS(s) whose work requires a Form C to be issued and shall brief the COSS(s) about the isolation and any local hazards.

6.5.1.4 After work has ceased, the COSS(s) shall confirm to the Nominated Person, using the Form C, that the work is finished who shall then remove the isolation as per the requirements of NR/SP/ELP/29987.

6.5.1.5 The "normal" limits of Isolation in the Old Oak Common area run between Ladbrook Grove East (see Figure 75) and Acton West Junction (see Figure 76).

6.5.1.6 Having reviewed all the proposed RRAP locations the "normal" isolation limits covers the most Western proposed RRAP at Jewson's Yard – Acton, and the most Eastern at Balby Road.

6.5.1.7 **Please note:** There is work in progress as part of the "Old Oak Common Station Early Works Packages" which are to support the all lines isolations East of Acton West by providing additional sectioning in the Acton West area. At the time of writing this work is ongoing, the impacts therefore have not been included in this report, however the impacts will need to be concluded during GRIP Stage 5.

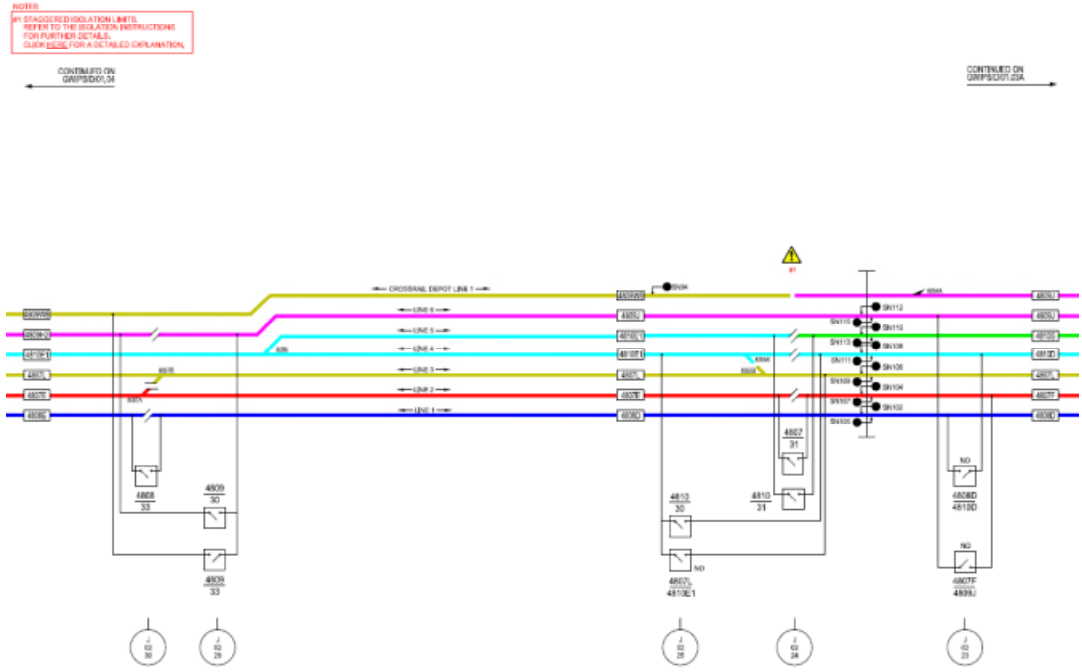


Figure 75: Extract from Isolation Diagram GW/PS/D/01.03B

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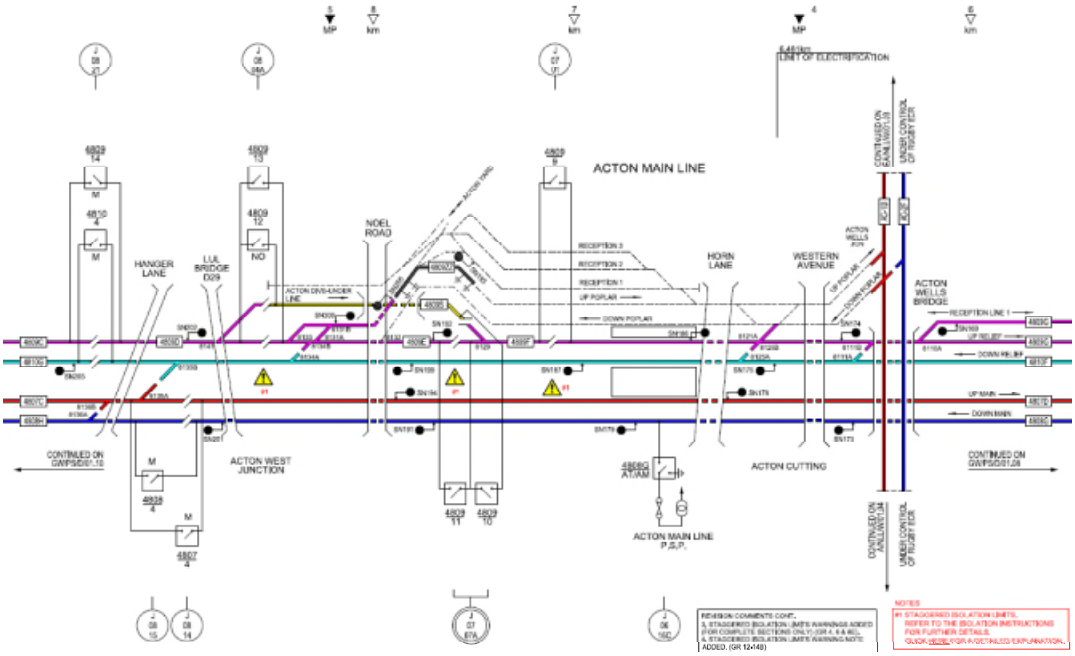


Figure 76: Extract from Isolation Diagram GW/PS/D/01.09

6.6 Route Proving

6.6.1.1 There is a requirement following any engineering possession to validate that the route is clear of vehicles and rail mounted plant. The line clear verification process (LCV) NR/L3/OPS/084 shall be adhered to during all stages of this project, whereby following each possession an enhanced version of the possession management arrangements, as defined by GE/RT8000, shall be followed.

6.6.1.2 Where the LCV process is to be used, this shall be indicated in the published possession details in the Weekly Operating Notice (WON).

7 Testing and Commissioning strategy

7.1 Signalling commissioning strategy

7.1.1.1 The Old Oak Common Rail systems project falls within the geography of the Network Rail Paddington to Reading (P2R) Signalling Team. The overall purpose of this team is to provide vertical integration between projects that may physically, technically, or spatially overlap.

7.1.1.2 Paddington to Reading (P2R) is a stand-alone delivery organisation, responsible for project delivery including;

- Crossrail ONW works Stage M Records updates from 0mp to 29 MP.
- Cross Rail West Outer Platform extensions (Associated signalling changes) between mile 12 ½ & 29 MP.
- Western ASDO Eurobalises project between 16 1/2 MP and 29 MP
- ETCS Level 2 overlay Area B & C 0mp to 12 1/2 MP
- Paddington to Stockley Train detection Conversion programme, 0mp to 12 1/2 MP
- Colnbrook Branch (Heathrow 3rd runway) 12 1/2 MP to 16 1/2MP
- Western Rail Link to Heathrow, 16MP to 12MP.

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7.1.1.3 Paddington to Reading is undertaking a large portfolio of projects utilising a functional team structure. The works are planned from GRIP 4-6 and include the HS2 On-Network Works for signalling.

7.1.1.4 The P2R organisation has mandated the frequency of major signalling stages as to minimise the disruption to the infrastructure and to secure the procurement of the key's skills and testing resource. The Periods available for significant changes are therefore prescribed by Network Rail. The Signalling Testing Strategy for Old Oak Common has been designed in partnership with the P2R team, considering their prerequisite data and interlocking change frequency.

7.1.1.5 The OOC rail systems signalling stages comprise 5 major signalling testing stages that all occur over the Christmas periods, with some early additional preparatory stages not included in the scope of this document. The first of the preparatory signalling testing stage is a joint enabling stage between HS2 and Network Rail referred to as stage 4A and Stage R1 respectfully.

7.1.1.6 Testing and Commissioning of the ETCS level 2 system will be required with a test train ran through the site. All pre-commissioning testing will be off site simulation with target hardware configuration and validated test simulations. Resonate and ATBE would also be involved in the commissioning with the Part 15/First Pass CIXL data is released by ATUK to them. They would then use the data to simulate from the office.

7.1.1.7 The first major stage within scope of consideration of the OOC rail systems signalling is aligned to construction stage 6. The Staged Signalling Design is still in production at the time of writing this report, but the following details have been taken from the draft design.

7.1.1.8 The operational signalling changes at stage 6 are relatively minor, with speed changes and route alterations in the data, including the provision for the Rail Head in the Western end of the site. The majority of physical changes on site are not significant in this stage, predominantly including removal of Reception Line 1, where there are only 4 signals and the associated four-foot equipment.

7.1.1.9 The Construction Programme allows 8 months for these works to be undertaken and these are not significant. Also, at this stage there are data design changes associated with the configuration change of the S&C around 9017 points and 8077 points. There are other signalling works detailed in draft on the Scheme Plan around Grand Canal Junction area and Mitre Bridge but the physical relocation of signal SN6080 will be undertaken in a single shift and does not present any significant integration issues.

7.1.1.10 The next significant signalling testing stage is the stage 9 Construction staging. Once again, these details are currently in Draft across 3 Scheme Plans at the time of issuing this report: 20-GW-025-01-02, 20-GW-025-03-02-, 20-GW-025-02-02.

7.1.1.11 Stage 9 20-GW-025-01-02, changes are around the Ladbroke Grove area. These changes are predominantly associated with Crossrail works and do not have a particular influence on the actual HS2 Old Oak Common Station area.

7.1.1.12 There are minor changes to speeds and the temporary removal of certain aspects on signals such as SN123. In terms of construction, these are not physical changes but changes in the Disconnection Box or modules in the back of the signals.

7.1.1.13 Stage 9 20-GW-025-03-02, involves changes to the West end of the site. There are some minor ETCS changes, not associated with the Old Oak Common project. These occur around the Acton West Ground frame; the physical changes are not significant and are unrelated. The biggest changes associated with Old Oak Common are those around Friars Junction. These include the alterations to 3 signals and associated Four Foot equipment and 4-point ends. In this area there are no further changes on the Up and Down Relief until the final stage at stage 18. Furthermore, these works can be carried out at any time aligned to the P-way changes.

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7.1.1.14 Stage 9 20-GW-025-02-02 is the central area changes and the most significant works associated with the other rail systems disciplines. There are also significant Crossrail changes on the depot lines.

7.1.1.15 At the East end around 2 1/2mp there are changes to the controls of SN135 signal on the Down Main. These are not physical changes but will have an impact on the four-foot equipment. Movement of overspeed sensors associated with changes on the Down and Up Relief associated with SN134 and SN149 signal respectively also occur at this stage.

7.1.1.16 Most of the physical changes in this area, associated with 9017pts and 9016pts will have happened in between stages 6 and 9, as is typical, and as soon as the P-Way works have completed, the signalling works will follow. The Physical track changes in this area see the relocation of the Down Relief to the North, which in turn moves the associated signals, SN149 in the East and then all the signals through to SN435.

7.1.1.17 The Up Relief is also moved to divert around the new platform 8 of the Old Oak Common station, including the movement of signal SN449 up to SN144 in the East. In Terms of signalling, the physical changes have a lot of time to be undertaken. There are regular midweek and weekend possessions and up until the commissioning of the newly aligned tracks at Christmas in stage 9, this whole area is greenfield as the two Relief lines are running on their original positions.

7.1.1.18 The next significant Construction & Testing Stage for signalling is Stage 12. There is only a year between stages 9 and 12, with Stage 9 taking place at Christmas 2026 and Stage 12 at Christmas 2027. In between the two significant signalling stages the other disciplines begin to transform the Northern section of the station ready to accommodate the new alignment of the Up and Down Main. These lines are temporarily diverted through platforms 4 and 5.

7.1.1.19 Stage 12 20-GW-026-01-02 covers the Eastern area of the Old Oak Common signalling scope of works around Kensal green with significant speed changes. The introduction of the temporary 35/60 replaces the current 85/100 on the Down Main. Apart from replacement of the speed board and associated ATP, there is little else in terms of construction as a lot of the signalling works will have been undertaken in the early build before stage 6.

7.1.1.20 Stage 12 20-GW-026-03-02 covers the West end changes, again, most of the construction required in this area will have been carried out as part of development of stage 6 but these bring those changes into use.

7.1.1.21 Repositioned OSS on the Up Main will have been in situ for some time un-commissioned and the risk to construction and the commissioning will be with reinstating this equipment. Another element of work is the position of the rear car markers on the Up Relief adjacent to SN192 signal. There is minimal construction risk but early engagement with operations is required.

7.1.1.22 Stage 12 20-GW-026-02-02 covers the Central Area and undergoes another very significant change in terms of signalling. This is arguably the most significant data change throughout the project and the riskiest layout with the diversion of the Main Lines. 9023 points around the 3mp remain in position to support the temporary siding in the East. The entire Down Main is shifted North including signals SN159 and associated four-foot equipment.

7.1.1.23 These works will follow the track works as per the described methodology. Also, at this stage the Up Main is shifted North onto a temporary alignment and signal SN160 and associated four-foot equipment is moved as per the design. These are concurrent activities with the other disciplines and these two signals pose particular risk.

7.1.1.24 The other significant signalling testing stages are aligned to construction stages 15 & the final stages 17 & 18. These stages are in their early design development at the time of issuing this report, and the signalling changes are still being confirmed by the designer. The narrative around the stages can be found in section 6.

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7.1.1.25 The signalling works will always look to follow the general sequence of construction and will always follow closely aligned to the P-Way discipline. Overall, the volumes and complexity of these changes have been developed such that a reasonable and manageable amount of change is introduced gradually as to not import undue risk onto the infrastructure. Changes are introduced in a timely fashion to support operations and drivability.

7.1.1.26 All the stages have also been designed such that each change is recognisable enough in its own right so that signallers, drivers, and other ops staff have sufficient time for training and staff development.

7.2 Entry into Service considerations

7.2.1.1 Whilst Network Rail acts as Infrastructure Manager, the design and constructability work has taken into account the requirements of NR/L2/INI/CP0075 procedure for the entry into operational service of Railway Infrastructure. This has led to the development of 18 Major Stages. The introduction of Major Stages follows the best practice of projects such as Reading Station Area Remodeling and the Crossrail West On-Network Works.

7.2.1.2 Throughout the design we have ensured that the assets provided, whether new, temporary or modification of legacy assets, are suitable, sufficient, and correctly designed to provide for the safe functional & operational requirements of the railway infrastructure. Significant operational and signalling changes are made with sufficient time between each stage to allow the arrangements to become familiar.

7.2.1.3 The constructability work undertaken in GRIP 4 has identified the Major Stages of this project and identified them as Key EIS Stages in the context of NR/L2/INI/CP0075. This will result in a master schedule of deliverables being produced and agreed upon by the responsible persons at each and every stage.

7.2.1.4 The 18 stages for commissioning of the Old Oak Common project should have a project master file produced to support the safe and compliant authorisation for placement into service. As each of these stages can stand alone, they have protection from project delay and unforeseen circumstances.

7.2.1.5 In GRIP 5, A major project such as this one should also look to align the stage works to the CSM Authorisation Plan. The 18 stages are also designed such that a project master file for each stage will support progressive assurance for the final commissioning and completion of the final technical file.

7.3 S&C Commissioning

7.3.1.1 S&C delivery is staged over the whole construction programme, with the full layout being commissioned in Stage 18 over Christmas 2031.

7.3.1.2 S&C commissioning is required at 4 different stages:

- Stage 9B – Christmas 2026
- Stage 11 – Acton Crossovers January 2027
- Stage 15 – Christmas 2029
- Stage 16b – Easter 2031
- Stage 18 – Christmas 2031

7.3.1.3 Not all the S&C is installed and commissioned at the same time, with a large percentage of the units are installed in final state but not commissioned for some time. Others are installed with just the turnout or through-route Commissioned.

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7.3.1.4 Section 7.1 details the S&C commissioning strategy across the project, with the following describing the state of installation.

- **Installed commissioned** – the criteria are for S&C that is installed and commissioned within the same stage.
- **Installed Not Commissioned** – S&C units that are installed in their final state with all bearers and ironwork, but not commissioned to a later stage.
- **Installed Plain lined Baseplates** - for this option S&C layouts will be installed but the switch rails and crossing ironwork will be Plain lined using specialist S&C baseplates.
- **Installed Formation only** – this applies to layouts where plain line baseplates are not available. The S&C formation will be installed but temporary plain line panels will be installed rather than S&C.

Table 13: S&C Commissioning Strategy

Pts No	Installed Commissioned	Installed not commissioned	Installed Plain lined Baseplates	Installed Formation only	Final commissioning
9020	N/A	N/A	Stage 9B	No	Stage 16B
9024	Stage 15	N/A	N/A	N/A	Stage 15
9023	Stage 15	N/A	N/A	N/A	Stage 15
9018	Stage 5B	N/A	N/A	N/A	Stage 9B
9016 (8077)	N/A	Stage 6	N/A	N/A	Stage 9B
9017	N/A	N/A	N/A	Stage 6	Stage 9B
9019	N/A	Stage 5B	N/A	N/A	Stage 9B
9022	N/A	Stage 5B	N/A	N/A	Stage 9B
9025B	N/A	Stage 5B	N/A	N/A	Stage 9B
9025A	N/A	Stage 5B	N/A	N/A	Stage 9B
9026B	N/A	N/A	Stage 5B	N/A	Stage 18
9026A	N/A	N/A	Stage 5B	N/A	Stage 18
9030	N/A	N/A	N/A	Stage 7B	Stage 18
9031	N/A	N/A	N/A	Stage 7B	Stage 18
9032	N/A	Stage 7B	N/A	N/A	Stage 18
9033	N/A	Stage 17	N/A	N/A	Stage 18
9034B	N/A	Stage 7B	N/A	N/A	Stage 18
9034A	N/A	Stage 7B	N/A	N/A	Stage 18

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Pts No	Installed Commissioned	Installed not commissioned	Installed Plain lined Baseplates	Installed Formation only	Final commissioning
9035	N/A	Stage 7B	N/A	N/A	Stage 18
9036	N/A	Stage 7B	N/A	N/A	Stage 18
9040	N/A	N/A	Stage 7B	N/A	Stage 18
9037	N/A	Stage 7B	N/A	N/A	Stage 18
9041B	N/A	Stage 7B	N/A	N/A	Stage 18
9041A	N/A	Stage 7B	N/A	N/A	Stage 18
9039	N/A	Stage 16A	N/A	N/A	Stage 18
9043	N/A	N/A	Stage 13B	N/A	Stage 18
9044	N/A	Stage 13B	N/A	N/A	Stage 15
9046B	N/A	Stage 13B	N/A	N/A	Stage 15
9046A	N/A	Stage 13B	N/A	N/A	Stage 15
9047B	Stage 15	N/A	N/A	N/A	Stage 15
9047A	Stage 15	N/A	N/A	N/A	Stage 15
8112B	Stage 7	N/A	N/A	N/A	Stage 11
8112A	Stage 7	N/A	N/A	N/A	Stage 11
8113B	Stage 7	N/A	N/A	N/A	Stage 11
8113A	Stage 7	N/A	N/A	N/A	Stage 11

7.3.1.5 Additional to the strategy above there may be instances where switches are installed with the through or turnout route only operating. In the current proposed strategy, there are no switches proposed to be installed and not detected by the signalling system.

7.3.1.6 9020 and 9039 do however get installed but Clipped out of use with the turn or through route not available. In this instance control measures to clip and padlock the switches will be required.

7.4 OHLE Commissioning

7.4.1.1 To minimise the number of isolation diagram and instruction updates, it is anticipated that the majority of the sectioning changes will be carried out during stages 17 and 18 when the final scheme is commissioned.

7.4.1.2 Additional updates to the isolation diagrams and instructions will potentially be required for stages 9 and 12. Following completion of these stages, OHLE will remain in place over the existing Relief and Main Lines in close proximity to the Live OHLE which is diverted through

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the station. Permanent earths could be installed at each end of the existing OHLE to enable works to be carried out safely without the need to take an isolation.

8 Delivery Strategy

8.1.1.1 The overall construction programme is considered in detail in the Box Plan, Schematics and layout included within Appendices A-C.

8.1.1.2 This section of the report covers the overarching construction strategy from enabling phase through to commissioning, detailing discipline specific considerations.

8.1.1.3 Timescales for consents are currently not factored into programme as they are not envisaged to present an issue to be grated in later design stages. A list of consents and stages for them to be sough is found below:

Permission / Consent Required	Regulator	Action to be taken	Responsibility	Timescale
Waste Carriers Licence (WCL)	Environment Agency (EA)	If waste is to be removed from site by the Principal Contractor's personnel for disposal a WCL or exemption maybe required, contact the EA.	Principal Contractor	Requires registration priorto works
Hazardous Waste Premise Code (HWPC)	Environment Agency (EA)	If required contact the EA to obtain a HWPC or exemption due to the potential production of hazardous waste e.g. contaminated soil arisings.	Principal Contractor	Requires registration prior to works
Section 61 consent	London Boroughof Hammersmith& Fulham Council	Contact the Local Authority to obtain a Section 61 consent if required due to site noise.	Principal Contractor	Obtained at GRIPStage 5, prior to starting works
Access to Third PartyLand	Third Party Landowner	Consult with Local landowners for permission for access prior to construction.	Network Rail	Prior to starting works.
Track Access / Possessions	Network Rail (NR)	Obtain access permission from NR	Arcadis	Prior to starting works.
EuropeanProtected Species Licences	Natural England	If bat roosts identified within lineside features to be affected by the scheme,then an EPS would be required to enable the works.	Principal Contractor	Prior to starting works.

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8.2 Enabling Phases

Depot Decommissioning

8.2.1.1 Prior to the implementation of the proposed railway systems upgrades, the Depot Decommissioning Project is undertaking works to rationalise the existing depot layouts. These works will not only facilitate the construction of OOCRS but also the construction of the HS2 Box and interchange station.

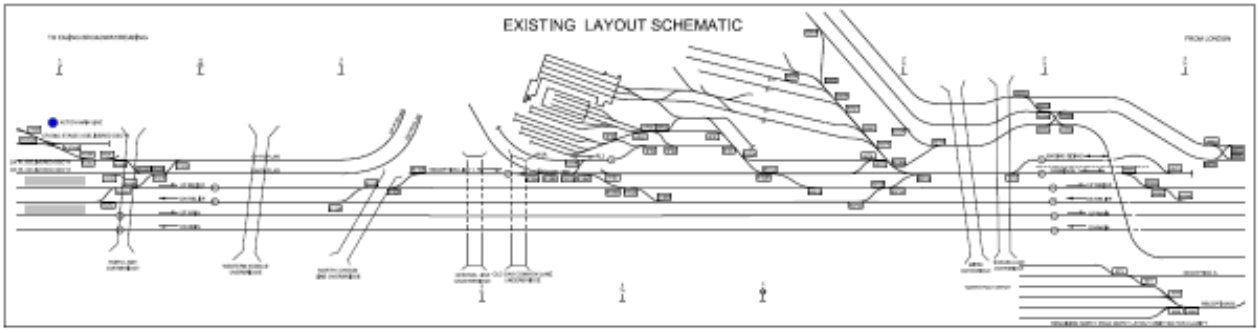


Figure 77: Layout prior to site works commencing.

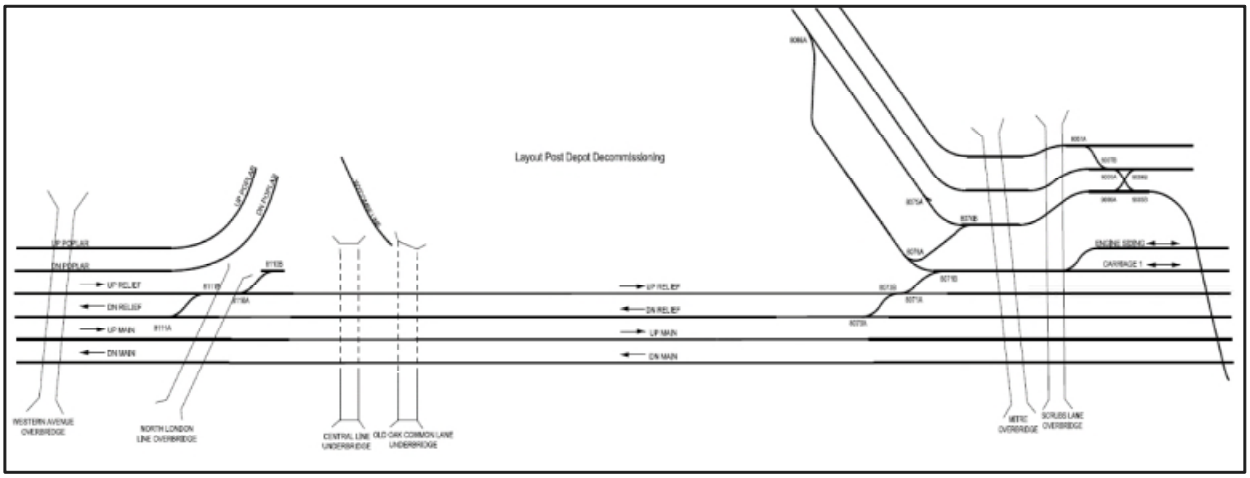
8.2.1.2 The overall scope of Depot Decommission works is to recover the existing GWR HST depot and HEX depot layouts, with rationalisation of the depot connection to the running lines via Reception line 1, Engineering Carriage lines and Cross Rail Depot Back Line. The programme also includes the recovery of the Wycombe branch line to the West of OOC lane Under Bridge.

8.2.1.3 The programme of works is ongoing at the time of producing this report but is currently only outstanding the Stage 4 works. Stage 4 works are separated into two main items of work which involves the recovery of the HEX depot followed by recovery of Reception Line 1.

8.2.1.4 The HEX recovery will also see the recovery of several S&C units currently serving connections to and from the Relief Lines. This will include the recovery of 8104B from the Down Relief with 8104A,8106B and 8101B recovered From the Up relief.

8.2.1.5 In the second part of Stage 4 the project will recover Reception Line 1 and the connection to the Backline via points 8077. 8110A and 8110B are being retained to enable a railhead during the OOCRS and Station construction stages.

8.2.1.6 The final layout, post Depot Decommissioning works, is the foreseen layout from which the OOCRS track layout will be constructed. The existing conditions reports have therefore been assessed based on the anticipated layout post Depot Decommissioning Stage 4.



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Figure 78: Layout Post Depot Decommissioning

8.2.2 Ground works

8.2.2.1 Prior to the commencement of the rail systems work HS2 will be undertaking construction works for the station and underbridges. This will involve ground preparation works for which there is currently no design detail.

8.2.2.2 In order to understand the level of groundwork required for staging the OORS works, an assumption has been agreed via integration with HS2. Agreement on the validity of this assumption is ongoing with discussions ongoing to determine who is best placed to deliver the formation works. Assumption below:

8.2.2.3 The station/civil engineering contractor shall provide a cleared site at a nominal 500mm below proposed rail level. The formation shall be prepared to an agreed specification outlined in the Track Geotechnical Design Report, 152270-ARC-REP-EGE-000002. The boundary extents of this nominal clear are displayed in Appendix B – Staging Layouts, Stage 2A. Through the station area the station contractor would provide a prepared formation level through all tracks 8 through to 1.

8.2.2.4 In addition there is an option for scope allocation, which places all drainage works through the new footprint outlined in Figure 79 with the Station/Civil engineering contractor rather than rail systems. Potential benefits are still being explored but it is thought this might provide some programme efficiency and enable works to be installed prior to the Rail Systems Contractor arrives on site.

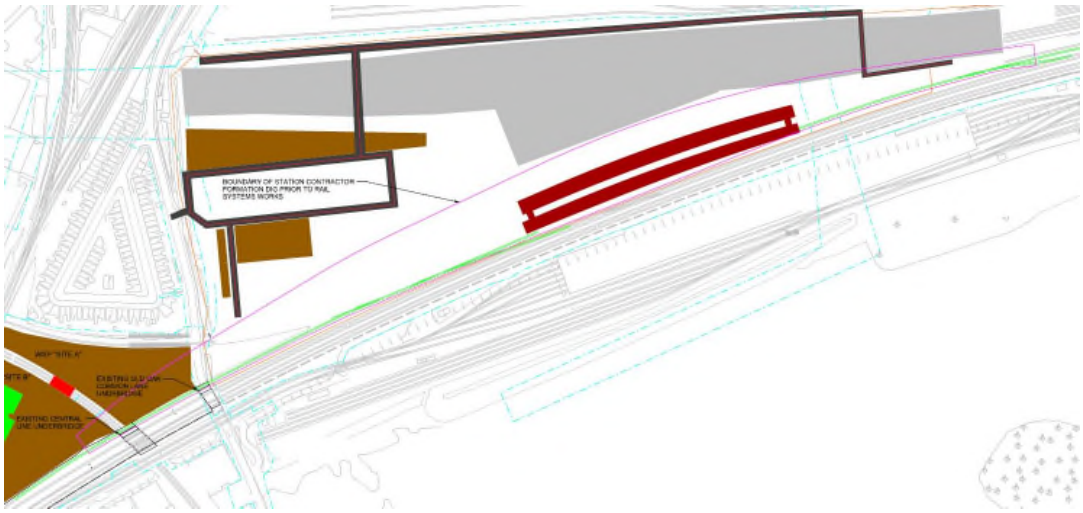


Figure 79 Formation Assumption Extents

8.2.2.5 Additionally, to overall ground clearance there is the unknown risk of existing structures being left beneath the surface that may obstruct the rail systems works. These issues need to be covered in ongoing integration during the project construction stages.

8.2.2.6 As other parties recover infrastructure, as-built detail should be supplied to the rail system constructor to be able to identify any potential remaining structures that may impede installation. Without detail designs at this stage it is not possible to identify what foundations or existing structures will remain in situ.

8.2.2.7 Particular items of concern are as follows.

- OHLE Pile foundations
- Existing UTX and Turning Chambers
- Depot and historic building foundation
- Disused equipment loc suite and signalling structures.

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- Disused and historic abandoned cable routes
- Disused drainage chambers
- Old gas and water pipes

8.2.3 Establish compounds & RRAPS

8.2.3.1 Compounds have been considered based on logistic needs and available locations within suitable travelling distance of the construction site. Some of the compounds are located within the OOC site and will require ongoing integration with the station works.

8.2.3.2 Two key compounds are Acton and Jewson's yard, utilization of which the construction programme has been broadly based on. prior to the commencement of stage 4, these compounds will need to be established and ready to operate. This is to facilitate the delivery of portal structures to Acton cutting.

8.2.3.3 Jewson's yard is a key location to support the proposal for the OOCRS but is reliant on compulsory purchase and/or negotiations with the owner of site. These negotiations should commence as early as possible as works to reconfigure or fit out the compound would need to begin in mid-2022 to prepare for works at Christmas 2022.

8.2.3.4 Acton depot is currently being used by Network Rail and has previously been utilised for delivering Cross Rail works. However, negotiations and arrangements to establish a project hub here if Jewson's is not secured will need to be in place by stage 4.

8.2.3.5 Existing RRAPs already operate at Acton and North Pole Depot (Barlby Road). Further RRAPS will be established at Jewson's and Hitachi North Pole Depot.

8.2.3.6 Jewson's RRAP should be in place for stage 4 Christmas 2022. The proposed new RRAP within the Hitachi North Pole depot would benefit the early stage of works so installation by Christmas 2022 would be beneficial. If negotiations for a RRAP at Jewson could not be agreed, the Hitachi RRAP would have to be used in place of Jewson's to support stage 4 onwards.

8.2.3.7 To date the access at Hitachi and Jewson is yet to be agreed and poses a significant risk to the project if not agreed.

8.3 Construction Phases

8.3.1.1 The construction stages of the programme of OOCRS works are summarised in the following table.

Table 14: High Level Phasing

Construction Phase	Stage Start	Stage Finish
Phase 1	Stage 1	Stage 4
Phase 2	Stage 5	Stage 8
Phase 3	Stage 9	Stage 12
Phase 4	Stage 12	Stage 15
Phase 5	Stage 16	Stage 18

8.3.2 Early Stages - Phase 1

8.3.2.1 The initial stages of the project at the time of writing are underway and fairly advanced. These works are concerned with site clearance and decommissioning of the both the HST and HEX depots. Both depots will be removed from service, with the infrastructure for both being removed to make way for the new station.

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8.3.2.2 The first depot to be removed is the HST site, which is the location for early HS2 works and the launch location for tunnel boring machines. The site will then become the location of the Old Oak Common HS2 box station.

8.3.2.3 The HEX depot is the second depot to be removed and is currently sited where the GWML station and Turnback lines are proposed.

8.3.2.4 The layout without the depots can be seen in Figure 80.

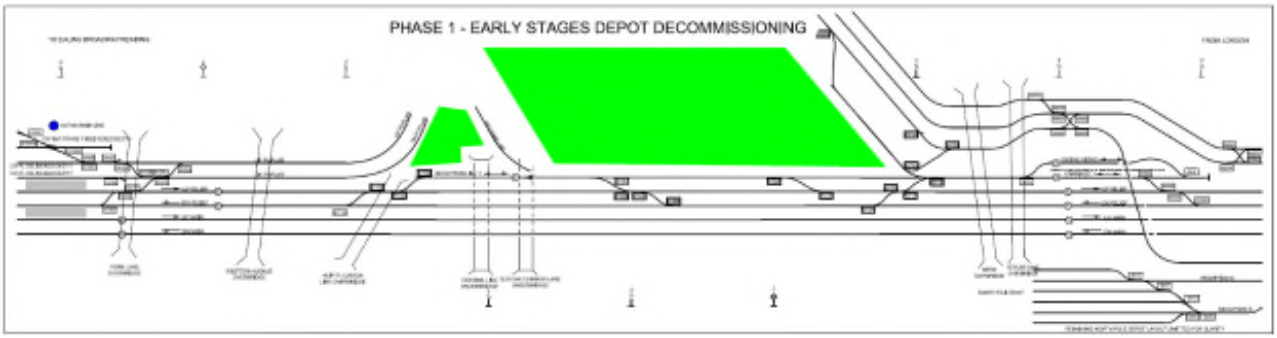


Figure 80: Phase one early stages

8.3.3 North of Station – Phase 2

8.3.3.1 Phase 2 is the start of the Rail Systems works, with platforms 3-8 and the associated infrastructure being built alongside the Rail Systems infrastructure. The majority of this work will be undertaken in a high-street environment separated from the operational railway.

8.3.3.2 The HS2 station works will include the construction of the station building from platforms three to eight, the partial reconstruction of Old Oak Common Lane underbridge and the Central Line underbridge. Materials for these stages are to be delivered via road haulage.

8.3.3.3 The multidisciplinary Rail Systems work will be undertaken in parallel to the station build with integrated logistics and site arrangements. The east of the station infrastructure will be constructed first, followed by the platform areas and then all equipment to the west of the station. The limits of these works will be determined by the ability to work adjacent to the operational railway.

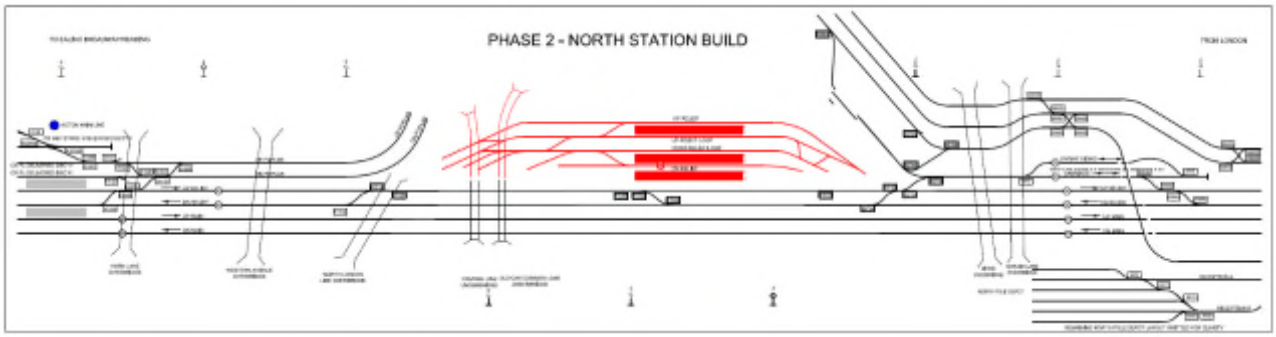


Figure 81: Phase two North of station build

8.3.4 Temporary Alignment – Phase 3

8.3.4.1 In this Phase of work the Relief and Main lines are temporarily diverted through the new layout. This renders the south side of the station infrastructure redundant, allowing for recovery of these assets and allowing the station and bridge construction to the south to begin.

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8.3.4.2 This is the first commissioning stage of the project where the existing signalling control system will be altered. Data changes will be required, along with interim signalling designs.

8.3.4.3 The station works will continue behind a solid hoarding, as the lines within the platforms become operational. Any Rail Systems work to the North will be undertaken within possessions.

8.3.4.4 The recovery of assets at the south will be undertaken with adequate separation to the operational running lines. Road access will be via the southern boundary and Hitachi's North Pole Depot.

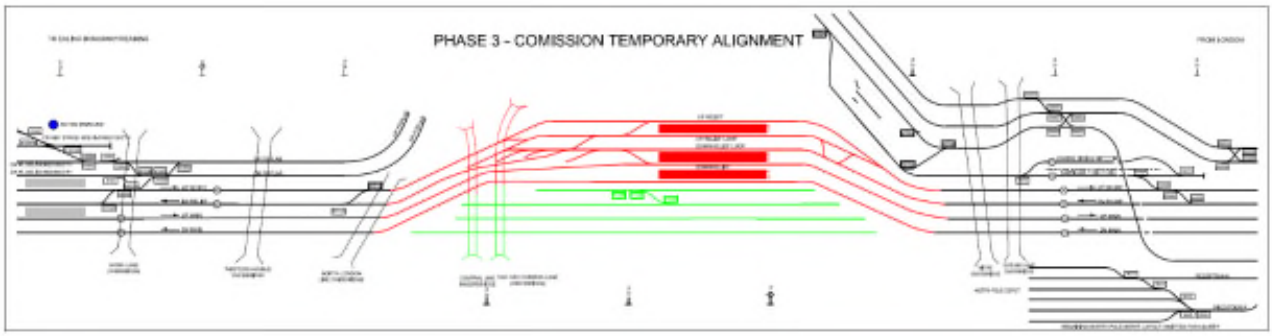


Figure 82: Phase three temporary alignment

8.3.5 South of Station Build - Phase 4

8.3.5.1 During this phase access to the southern site boundary is restricted, with no current road access point, resulting in the site being a construction "island" between operational running lines. Therefore, construction of the Rail Systems works will require road access from the south and additional road rail access to the west.

8.3.5.2 Once the redundant assets to the south are recovered, works to the station platforms 1 and 2 will begin and the remainder of the underbridges to Old Oak Common Lane and the Central Line. Materials for the station works will be brought to site via the new proposed station foot bridges.

8.3.5.3 The Rail Systems work will be carried out in a high-street environment, beginning to the east of the station whilst the under bridges are being constructed to the west. As with the north of the station this will be followed by construction to the west. As much as physically possible up to separation from the running lines will be installed.

8.3.5.4 The majority of material delivery for Rail Systems will be via rail. Inbound engineering trains will be on the Down Main. RRV deliveries will also be on the Down Main and coming from a locally established depot to the west next to Acton Main Line Station or existing North Pole RRAP (Road Rail Access Point) to the east.

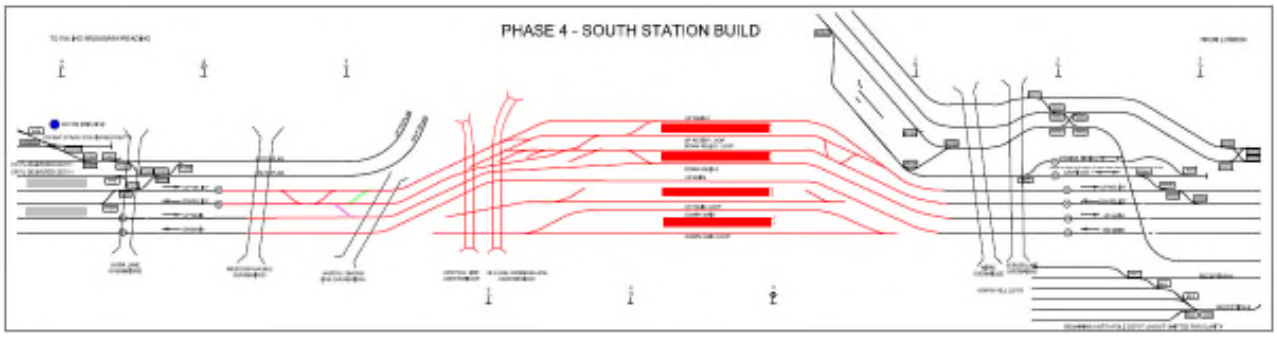


Figure 83: Phase four South station build

8.3.6 Final Commissioning - Phase 5

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8.3.6.1 The final stage construction phase sees the staged introduction of the final layout. The station build is completed, and the Rail Systems works is all now in Possessions with no available high-street environment.

8.3.6.2 The works will involve the testing and commission of the final layout. The Main Lines and Reliefs during the stages are staged away from their temporary alignments and begin to be routed along their final paths. The remaining system works is then concerned with installing any assets that have been deferred during the temporary stages.

8.3.6.3 Material delivery during these stages will be by rail and just in time delivery during possessions.

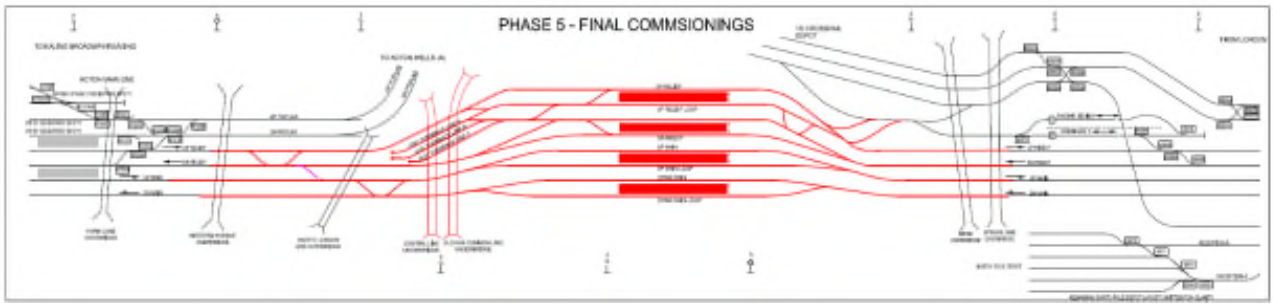


Figure 84: Phase five final commissioning stages

9 Construction Methodology

9.1 Track & Drainage

9.1.1.1 The overall track installations methodologies are based on conventional relaying techniques. Modular layouts have been avoided in the design production however wherever possible the befits of modular delivery have been incorporated.

9.1.1.2 The full detail of the track methodology can be found in the detailed Pway Gannt charts in Appendix F. Staging notes have been included in Table 16 Pway Staging Notes

9.1.2 Delivery of Material

9.1.2.1 More detail on the logistics of material delivery is covered in Section 5. This section is concerned with the specifics around certain Pway related material delivery rationale.

9.1.2.2 Depending on the stage of delivery, heavy materials such as ballast, rail and sleepers are delivered by train. This is either unloaded form trains in possession from adjacent line to the construction site or the purpose-built rail head siding.

9.1.2.3 Rail will be unloaded as CWR in 108m strings from LWRT in the Up Relief 4ft and then positioned within the site for later installation. 108m strings are suggested as opposed to 216m lengths to aid offloading and installation. Once unloaded the rails will be walked into position by the use of McCullough TRT machines. Prior to offloading, the line will be profiled and brushed with any existing assets protected from possible damage from unloading the CWR. Once unloaded the CWR will be temporarily pegged in the 4ft to prevent movement prior to later positioning.

9.1.2.4 All track ballast, spoil removal and drainage aggregate will be unloaded / loaded from open top 60T Falcon wagons. Side tippers have not been proposed due to the need to unload materials far enough away from the Up Relief to allow material to be moved during the day.

9.1.2.5 Concrete sleepers will be unloaded from Salmon wagons. These will be a max of 3 layers at 168 sleepers per wagon but will depend on OLE wire heights. These will then be unloaded into stockpiles on site ready for use.

9.1.2.6 Drainage pipes will be unloaded from Bass wagons in 6m lengths with 24 pipes per wagon. These will be stored in the compounds or transported to the construction area.

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9.1.2.7 Small material deliveries are assumed by road or RRV. This will include materials such as drainage rings, catch pits, pads, clips & insulators etc. they will be delivered in the first instance by road to Acton or Jewson yards prior to conveyance to site by RRV. However, there are opportunities to deliver these materials by road to save RRV moves, but this does require site storage located at OOC which at the time of writing has not been agreed with the Station Building Contractor.

9.1.3 Formation Works

9.1.3.1 At the time of writing ongoing discussions are taking place to determine who is best placed to deliver the formation works discrete areas of the groundworks in the project area. Once this is confirmed the report will be updated with details of the construction methods proposed to deliver these works. As part of the station and bridge construction haul roads will be constructed through the site to allow for movement of materials and equipment. Following their use they are to be removed. The works to prepare the grounds for these haul roads may provide opportunity to install track formation at an earlier stage.

9.1.3.2 Preliminary modelling has only taken account of a Geo separator installation which could also be the Geo Sand Membrane. Following the transmittal of the Track Bed Design report (ref: 152270-ARC-REP-EGE-000002) the quantity of materials required on the project increased considerably. This is due to the design incorporating a larger depth of granular fill material to bring about stability improvements. The depth of this fill and the spoil from excavation could be reduced by incorporating wider use of geocell with sand fill on the project. Figure 85 is an extract from the GDR to show reduction in fill by using geocell. Value engineering will be undertaken at later design stages to evaluate benefits. A conservative approach to fill quantities is taken in GRIP 4.

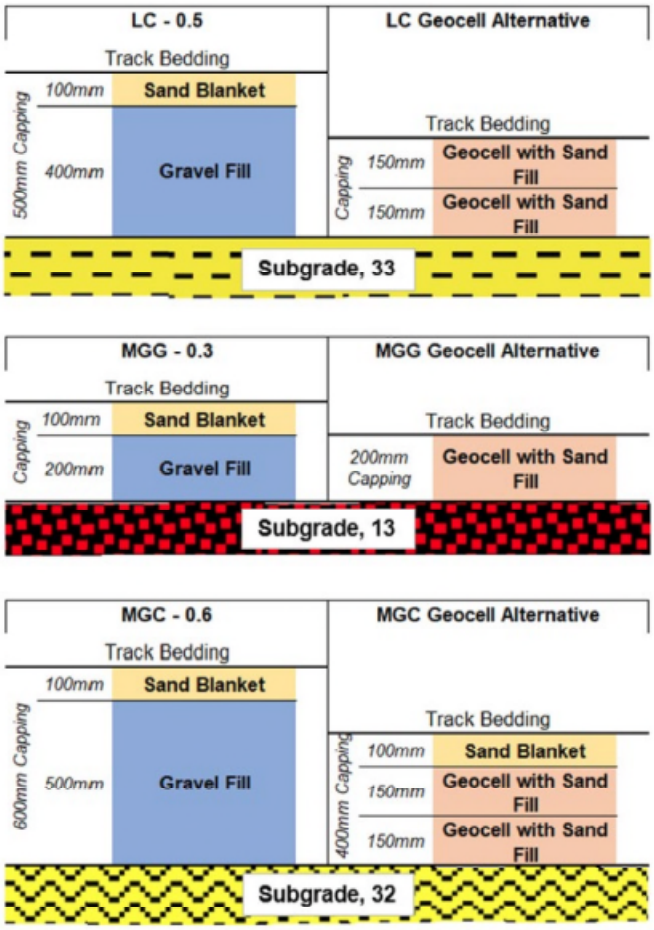


Figure 85: Fill Materials

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9.1.4 Plain line methodology

9.1.4.1 The plain line methods to be used are aligned to traditional methods. Where works are in a possession this will consist of relaying being from train consist positioned in the adjacent line. Where the interval is too great, for example in stage 16B, double handling and increase in plant will be required.

9.1.4.2 Formation installation will be undertaken by 3D formation design and controlled dozing. Bulking out will be by traditional RRV and production rates expedited by the use of front shovel excavators where possible. The same 3D dozing techniques will be used for installing bottom ballast to design level.

9.1.4.3 A benefit to the OOC site is that it will be straightforward to access for Bowmag intelligent rollers into the site for compacting the bottom ballast. If this is not possible at any location, triple whackers will be used.

9.1.4.4 Sleepers will be loose laid with the use of seven sleeper bailers. Where this is not possible and in the high-street environment RRVs with Pandrol chains will be used.

9.1.4.5 Top ballast will be installed form Auto Hoppers where possible, however in the high-street environment with no direct rail connection, top ballast will be unloaded and stockpiled form 60t open wagons, and then distributed by RRV's .

9.1.5 Acton – Installation of Modular S&C

9.1.5.1 The installation of crossovers 8112AB and 8113AB through Acton Cutting to the West of site on the Up and Down Reliefs are planned to be undertaken during a series of two back-to-back 54h ALB possessions and one 72h ALB possession in – Stage 11, but the exact stage the crossovers are installed to a certain extent is quite flexible.

9.1.5.2 In section 12.1.5 the possibility of moving the works forward in construction program to 2024 is noted. This is now the preferred option and is to non going forward.

9.1.5.3 Due to the volume of permanent way being renewed and installed in this stage and the tightness of this specific location in the cutting with high retaining walls along both cesses, the installation of the new S&C layout has been considered to be installed as a standard modular S&C layout for both crossovers.

9.1.5.4 For non-modular S&C to be installed in this location would require panels to be delivered and off-loaded to a laydown area large enough to take a complete through-bearer. Due to the tight cesses, lineside furniture, OHLE, the maximum bearer width of a Tilting Wagon, and time factor of possessions which restrict this to modular install.

9.1.5.5 On completion of excavation and bottom ballast activities, standard modular panels arrive on site on S&C tilting wagons and are offloaded by Kirow crane directly into position on their final alignment. The Kirow relays panels through 8112A and 8113B Pts with all panels fully installed and plated up on the Down Relief.

9.1.5.6 On completion of the Down Relief, the Kirow crosses over onto the opposite line and the second tilting wagon train positions on site. The remaining panels are offloaded and installed through 8112B and 8113A Pts, with all panels fully installed and plated up on the Up Relief. The through route is correctly gauged with modular shrouds between S&C split bearers fully installed and torqued. Strict adherence to construction tolerances will be needed, the use of 3D for all bottom ballast and S&C installation should be used to ensure long term quality is achieved.

9.1.5.7 For this specific stage of installing 8112 and 8113AB through Acton Cutting the works have been planned with TT possession of the Reliefs only, therefore ALO and ELO of the Mains would be in operation. It is assumed all plant movements will have the required slew restrictors and necessary safety arrangements in place as determined by the ALO / ELO guidelines.

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9.1.5.8 If ALO / ELO working is not achievable in this location, then an ALB of the Reliefs and Mains would be required to complete the planned works. The resultant of this may therefore require this stage to be programmed in line with a period of less disruption such as a bank holiday weekend, Easter or Christmas extended possession.

9.1.5.9 Arcadis design team has identified 2 hidden historic catchpits which are likely present in the S&C footprint. If these exist these would need to be reduced to formation level and capped. This may require additional access or a possession to dig both roads in one possession. Further investigation is required at GRIP 5 to verify the pit locations and survey. The pit locations are identified in the below Figure 86 circled in Cyan.

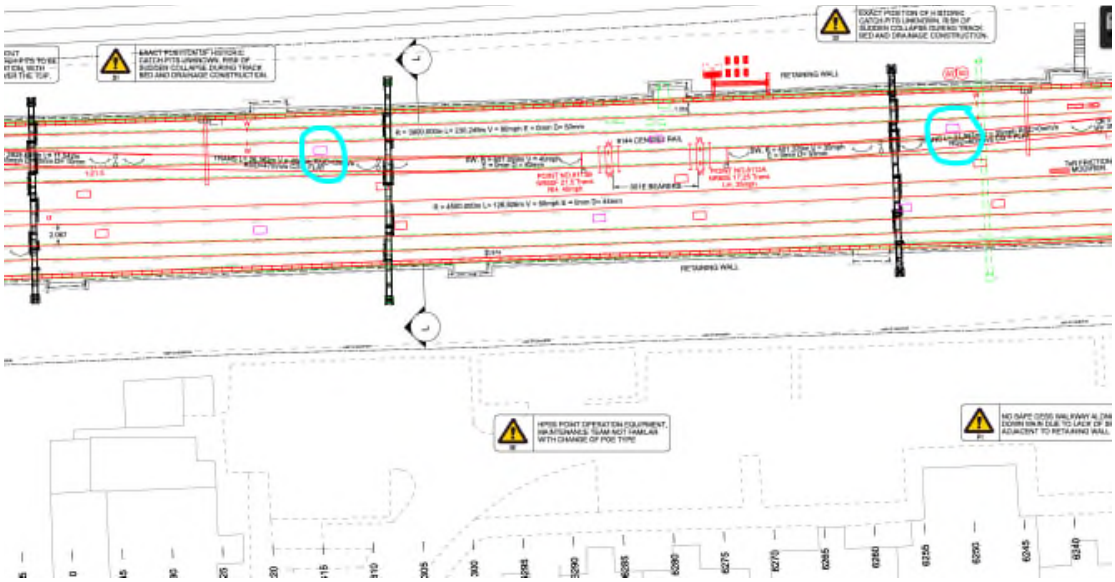


Figure 86: P-Way drawing 152270-25067-P2R-MLN1-DRG-ETR-400005 extract identifying Pit clash with S&C

9.1.6 Non-Modular S&C Installation

9.1.6.1 NR preference/requirement is that as much S&C as possible should consist of through bearers NOT modular. Requirements lead us to a through bearer design but that efficiencies could be realised if the RAM could buy in to modular layouts.

9.1.6.2 Where possible all S&C units will be installed as complete through bearer layouts and installed in panel configuration. To enable this, where applicable all S&C layouts will be pre-delivered by rail utilising an existing live line as a service line or a temporary Rail Head, with panels offloaded to a pre-constructed laydown area by Kirow crane or road crane / crawler crane from the site of work during NBS and ROTR possessions.

9.1.6.3 For switch layouts that have bearers with a maximum width greater than that of a S&C tilting wagon the S&C layout will be temporarily slaved by the S&C manufacturer to allow loading to a train, followed by unloading and panel installation on the prepared bottom ballast.

9.1.6.4 This installation of the S&C panels in the main site of work in the greenfield environment will be carried out by Crawler Crane or Road Crane in a sequential process. Slave bearers and rails will then be removed from the installed layout with the new through bearers installed ‘in the hole’ and subsequent S&C ironwork such as switches and crossings fully installed and set up in preparation for commissioning.

9.1.7 Tamping

9.1.7.1 Post installation tamping of the permanent way will be carried out by a combination of Plain Line, S&C 4x4 and Beaver Tampers.

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9.1.7.2 For planned works during NBS, ROTR and blockade possessions all tamping will be carried out by a conventional Plain Line or 4x4 S&C Tamper depending on the work scope for each individual stage.

9.1.7.3 For Stage 5, 7 and 14 the permanent way installation is installed and constructed in a greenfield environment with no live connection to an existing running line. For these stages the first initial tamping will therefore be carried out by a mobile Beaver Tamper. The Beaver Tamper is delivered by road into site and self-offloads and onloads to any specified line within the area of work.

9.1.7.4 Tamping is carried out, lifting and slewing the track to design position as required during the standard dayshift site working hours and on completion the Beaver Tamper leaves site by road.

9.1.7.5 As the stages progress and new layouts become accessible via a live open line all follow up tamping of these sections will be carried out by a conventional Plain Line or 4x4 S&C tamper to achieve final design tolerances prior to linespeed opening and commissioning.

9.1.8 Welding & Stressing

9.1.8.1 Welding and stressing of the new installed permanent way will be carried out as each stage permits with regards to possession time for NBS / ROTR planned works, and also achievable yardages for the island working sections in the greenfield sections.

9.1.8.2 Where possible all joints should be welded as soon as possible and if time and anchor lengths allow stressing should be planned and completed simultaneously. Special consideration for stages that are planned to be installed during the winter season should aim to have layouts stressed before the onset of warm weather to reduce the requirement for ESR/TSR requirements in line with the Critical Rail Temperature (CRT) process and to also reduce the risk of track misalignments (buckles).

9.1.8.3 For stages that involve a temporary installation of track that will remain in situ for a prolonged period of time, these should also be planned to be fully welded and stressed.

9.1.8.4 All S&C will be stress compatible with either stress transfer blocks or ball and claw layouts with a fully continuous welded rail of the plain line throughout the scheme, therefore a fully stressed track layout will be provided on completion.

9.1.9 Plain lined S&C

9.1.9.1 In line with the strategy to commissioning S&C at different stages of the project, some layouts will be installed plain lined. This will mean that only one route of the S&C will be used, either the turnout or through route.

9.1.9.2 In order to accommodate this, the S&C can be installed in its final state and then the switch and crossing rail will be removed and replaced with plain rails, removing the switching capability of the layout.

9.1.9.3 Some plain line baseplates are already readily available with product acceptance and manufacturing details already produced. The range of base plates already approved does however not cover all combinations of S&C geometry.

9.1.9.4 Table 15 below details the proposed layouts which are to be plain lined under the current methodology. The layouts that do not currently have catalogue products against them may require new base plates to be cast and then also taken through the product acceptance process.

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S&C	Switch Size	Crossing angle	Base plate	Through Route Geometry	S&C Design	Switch hand	Route to PL	Baseplate LH	Baseplate RH
9026A	D	1 in 13.5	057/003846	Straight	NR60	RH	THR	057/003828	057/003829
9026B	D	1 in 13.5	057/003846	Straight	NR60	RH	THR	057/003828	057/003829
9030	C	1 in 9.25	N/A	Straight	NR56V	LH	THR	N/A	N/A
9040	E	1 in 12.5	N/A	Straight	NR60	RH	THR	057/003833	057/003832
9020	SG	1 in 27	N/A	straight	NR60	RH	TO	N/A	N/A
9031	C	1 in 9.25	N/A	Straight	NR56V	RH	THR	N/A	N/A

Table 15: Plain Line Base Plates

9.1.10 Drainage

9.1.10.1 At the time of writing the new proposed track drainage design can effectively be split into three areas, the East, the West and OOC Station area. This these areas are roughly depicted by Figure 87: Track Drainage Outfall Locations.

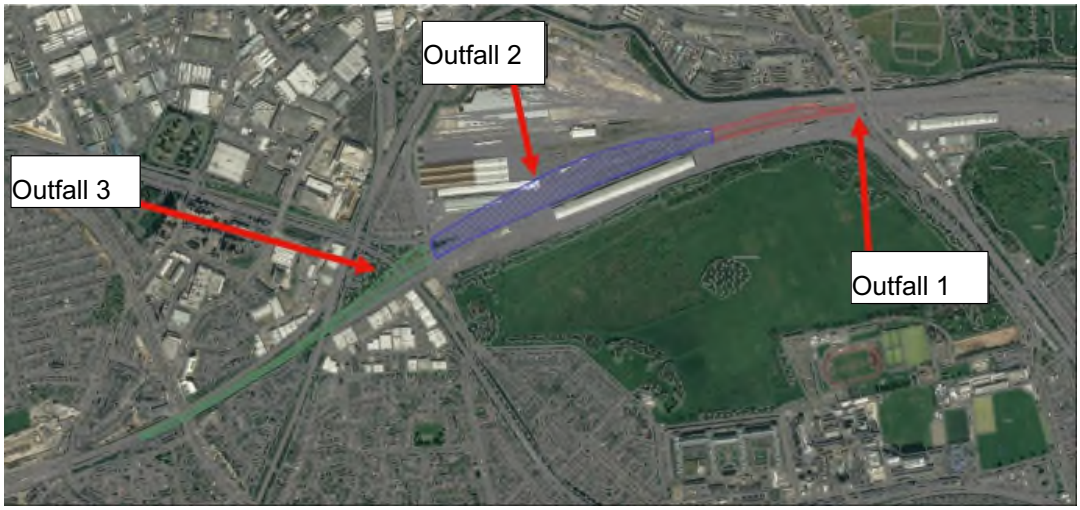


Figure 87: Track Drainage Outfall Locations

9.1.10.2 The East area (highlighted Red) is proposed to outfall into designated Outfall Location 1, located at 4400, and is an existing track drainage outfall already used by the existing track drainage East of Scrubs Lane. The proposed design includes a flow rate restrictor before connecting into Outfall 1. The outfall was modified to compensate for poor asset condition in 2018 (WLG4B-EDR-DRG-CAA-000100-C02) The flow rates agreed for this outfall will need to be adhered to during any temporary construction stage. Therefore, it is recommended the restrictor be installed as soon as possible.

9.1.10.3 The West area (highlighted Green) is proposed to outfall into designated Outfall Location 3, located at chainage 5755, just West of the Central Line Bridge. This outfall is an existing outfall that eventually discharges into Stamford Brook Sewer. Thames water have agreed discharge rates which will be restricted to a maximum of 141 l/s.

9.1.10.4 OOC Station area (highlighted purple) is planned to outfall into Attenuation Tanks that control the flow rate, that ultimately, discharges into the Stamford Brook Sewer. The Attenuation Tanks are being constructed by BBVS (HS2 Station Contractor), are located outside the footprint of the OOC RS worksite. The proposed installation date for Attenuation

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Tanks, currently programmed towards the end of the Station works, remains unknown at the time of writing (but estimates place the date between 2026-2027). The location of designated Outfall 2 is chainage 5320, just West of Platform 8. Due to the staging of the Outfall 2 Attenuation, the track drainage will discharge direct into new proposed Stamford Brook outfall connection for a period time until the Attenuation Tanks are installed. During this temporary stage the commissioned new track drainage will need to be over pumped into the Stamford Brook Sewer with controlled discharge rates, all of which are subject to agreement with Thames Water, will be required.

9.1.10.5 Wherever possible drainage will be installed at the same time as the track formation. In some instances, this is not possible, and the drainage has to be installed after the track.

9.1.10.6 Wherever possible track drainage will be constructed prior to UTX's if the drainage is below the UTX. If the track drainage is above the UTX, the UTX will be constructed prior. This is to avoid where possible damage to each of the constructions.

9.1.10.7 The key consideration when installing the drainage is to maintain routes from the existing and proposed runs to outfall. Once installed, new drainage will start to catch and convey water. A comprehensive drainage strategy and temporary designs will be required to maintain levels and flows throughout. Wherever possible drainage will be constructed from the outfall up stream to minimise the need for over pumping to an outfall. If this is not possible it will inevitably lead to a requirement for over pumping to the designed outfall location.

9.1.10.8 Drainage runs will be excavated by excavators with spoil loaded to dumpers or adjacent trains. Trench support shall be installed throughout lining and levelling of trenches.

9.1.10.9 Geotextiles shall be overlapped into the drainage trench. From track formation, pipes will be installed on a bedding material and connected. Backfill of granular fill will be placed from either dumpers or adjacent open wagons.

9.1.10.10 A review of the position of temporary drainage runs to be installed during the construction stages has been completed. This identifies three locations where temporary drainage is required which will serve the slewed alignments. Areas of permanent track drainage which will need to be installed to during staging to support the temporary alignments is also highlighted. These are shown in Appendix J. Where temporary track alignments pass over new drainage during the construction phase; the affected sections of drainage will be designed and installed with the appropriate specification of pipe and materials for rail loadings in these specific locations.

9.1.10.11 Standard design detail from NR/CIV/SD/350 is to be used for all cross-track drainage. Pipe surround to be formed of concrete or granular fill to provide continuous support to the pipe. Following installation and subsequent movement of running lines in the construction staging the drainage is to be left in situ. The temporary design has been created so that there are minimal interfaces with the permanent alignments following construction. Cross track drainage to all be formed of solid wall pipe to increase stability and reduce likelihood of fouling the system during construction.

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Table 16 Pway Staging Notes

Summary		Methodology
Stage 5	Installation of track and drainage to the West of the site during dayshift working in a greenfield environment	• Material delivery by rail from the Up Relief and West rail head during ROTR possessions • Laydown and stockpiling areas used throughout this stage with materials unloaded from trains to facilitate dayshift working • Rail unloaded as CWR in 108m strings from LWRT in the Up Relief 4ft and then positioned in site for later installation • All track ballast, spoil removal and drainage aggregate unloaded / loaded from open top 60T Falcon wagons • New concrete sleepers unloaded from Salmon wagons – max of 3 layers at 168 sleepers per wagon • Drainage pipes unloaded from Bass wagons in 6m lengths with 24 pipes per wagon • Small material deliveries assumed by road such as drainage rings, catch pits, pads, clips & insulators etc • Where applicable S&C panels arrive on Tilting wagons and offloaded with Kirow crane into adjacent laydown areas • Non-modular S&C units constructed and installed utilising temporary slave plain line panels with S&C bearers and ironwork installed where required where panel width greater than allowable for Tilting wagons • Installation of S&C in greenfield environment carried out by Crawler Crane • 9030 Pts and 9040 Pts installed with temporary plain line panels through the switches and crossings with all S&C bearers and ironwork programmed to be installed and commissioned in later stages • Spoil removal, drainage and bottom ballast installation constructed using traditional track renewal methodology using tracked excavators, 3D dozers, dumper trucks and RRV plant • Compaction of formation and bottom ballast achieved by Bomag Roller or Triple Wacker • Sleepers run out and relayed using tracked excavator with 7 sleeper spacer beam attachment • CWR installed in 108m sections using McCulloch Rail Tracked Rail Transposers (TRTs) • Rail clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing and Top ballast ran out and profiled from stockpiles using dumper trucks and RRV plant where required • Initial tamping of relayed sections in this stage to be undertaken by Beaver tamper due to no direct access from an operational line for a conventional tamper. Final tamping to design and subsequent line speed will be undertaken by conventional plain line and 4x4 S&C tampers in the latter stages
Stage 6	Installation and commissioning of 9016 (8077) and 9017 points formation only. during Christmas blockade working	• Installation and commission of 9016 Pts (8077 Pts) • Installation of 9017 Pts – renewal of formation only; S&C temporarily plain lined • 6-day ALB & 5-day 2TT. Possession must include the Back Line into Crossrail Depot • S&C panels, ironwork and all materials delivered and offloaded into wideway during prep shifts prior to Christmas blockade • All track ballast and drainage materials installed from stockpile in wideway • Small material deliveries assumed by road such as drainage rings, catchpits, pads, clips & insulators etc • Installation of S&C carried out by Crawler Crane from wideway

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		• 9017 Pts installed with temporary plain line panels through the switches and crossing with all S&C ironwork programmed to be installed and commissioned in Stage 9 • Spoil removal, drainage and bottom ballast installation constructed using traditional track renewal methodology using tracked excavators, 3D dozers, dumper trucks and RRV plant • On completion stockpiled spoil loaded into train of 15MT Falcon wagons on the Up Relief • Compaction of formation and bottom ballast achieved by Bomag Roller or Triple Wacker • Rail clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing and Top ballast ran out and profiled from stockpiles using dumper trucks and RRV plant where required • All joints to be fully welded and track stressed • Tamping undertaken with a 4x4 S&C Tamper – 2 runs of each point end and any associated plain line
Stage 7	Installation of track and drainage to the East of the site during dayshift working in a greenfield environment	• Material delivery by rail from the Up Relief during ROTR possessions • Laydown and stockpiling areas used throughout this stage with materials unloaded from trains to facilitate dayshift working • Rail unloaded as CWR in 108m strings from LWRT in the Up Relief 4ft and then positioned in site for later installation. 108m strings considered as opposed to 216m to aid offloading and installation • All track ballast, spoil removal and drainage aggregate unloaded / loaded from open top 60T Falcon wagons • New concrete sleepers unloaded from Salmon wagons – max of 3 layers at 168 sleepers per wagon • Drainage pipes unloaded from Bass wagons in 6m lengths with 24 pipes per wagon • Small material deliveries assumed by road such as drainage rings, catchpits, pads, clips & insulators etc • Where applicable S&C panels arrive on Tilting wagons and offloaded with Kirow crane into adjacent laydown areas • Non-modular S&C units constructed and installed utilising temporary slave plain line panels with S&C bearers and ironwork installed where required where panel width greater than allowable for Tilting wagons • Installation of S&C in greenfield environment carried out by Crawler Crane • 9025AB and 9026AB installed with temporary plain line baseplates and rails through the switches with all S&C ironwork programmed to be installed and commissioned in Stage 18 • Spoil removal, drainage and bottom ballast installation constructed using traditional track renewal methodology using tracked excavators, 3D dozers, dumper trucks and RRV plant. • Compaction of formation and bottom ballast achieved by Bomag Roller or Triple Wacker • Sleepers run out and relayed using tracked excavator with 7 sleeper spacer beam attachment • CWR installed in 108m sections using McCulloch Rail Tracked Rail Transposers (TRTs) • Rail clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing and Top ballast ran out and profiled from stockpiles using dumper trucks and RRV plant where required • West Rail Head constructed and installed off the back of existing 8110B Pts into site to facilitate deliveries into greenfield site • West Rail Head constructed as a single line protected by a temporary buffer end or chained sleeper with a PLB board

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		• Initial tamping of relayed sections in this stage to be undertaken by Beaver tamper due to no direct access from an operational line for a conventional tamper. Final tamping to design and subsequent linespeed will be undertaken by conventional plain line and 4x4 S&C tampers in the latter stages
Stage 8	• Stage 7 follow up works. • West Rail Head Recovery • Stage 9 prep works	• Joints welded and track stressed where applicable • Ballast delivered and offloaded into site from the West Rail Head on ROTR possession strategy of the Reliefs • Boxing and top ballast ran out and profiled from stockpiles using dumper trucks and RRV plant where required – dayshift greenfield working • Initial tamping of relayed sections in this stage to be undertaken by Beaver tamper due to no direct access from an operational line for a conventional tamper. Final tamping to design and subsequent line speed will be undertaken by conventional plain line and 4x4 S&C tampers in the latter stages • Rail unloaded as CWR in 108m strings from LWRT in the Up Relief 4ft and then positioned in site for later installation • Stage 9 S&C panels arrive on Tilting wagons and offloaded with Kirow crane into adjacent laydown areas, working from the Reliefs • S&C panels, bearers and ironwork positioned on site as required for Christmas installation • West Rail Head recovered in 18m panels and stacked in wide way for installation as plain line panels in later stages • Laydown and material storage areas prepped, RRAPs constructed, and site set up and fully prepped in readiness for Stage 9

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Stage 9	• Up and Dn Reliefs - East • Up and Dn Reliefs - West • 9017 Pts – units only (formation and ballast completed in Stage 6) • 9018 Pts • 9020 Pts – Formation & ballast only (temp plain lined)	**6-day ALB with additional 5 days 2TT** • Access to site from Hitachi for the West and North Pole for the East sections • Up Relief East (incl 9018 Pts) • Trains arrive from the West, cross onto the Dn Relief, stack to the East and cascade Locos • Section works East to West with scrap, spoil and ballast loaded and unloaded from trains on the Dn Relief • Rail burned into 20fts, unclipped and scrap rail and sleepers loaded loose to Falcon wagons • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail clipped up using mechanically operated plant such as Rosenqvist or Cembres • 9018 Pts panels installed from wide way using Crawler Crane • Boxing / top ballast unloaded from Falcon wagons on the Dn Relief and profiled • All trains exit worksite and possession to the West on the Dn Relief **Up Relief West** • Trains arrive from the West, cross onto the Dn Relief, stack to the East and cascade Locos behind Up Relief trains • Section works East to West with scrap, spoil and ballast loaded and unloaded from trains on the Dn Relief • Rail burned into 20fts, unclipped and scrap rail and sleepers loaded loose to Falcon wagons • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing / top ballast unloaded from Falcon wagons on the Dn Relief and profiled • All trains exit worksite and possession to the West on the Dn Relief • Tamper arrives from the West and tamps to design, 2 runs • On completion of West section Tamper conveys to East section and tamps plain line and 9018 Pts, 2 runs • On completion of Up Relief East tamper stables in Carriage Line for next stage **Dn Relief West** • Trains arrive from the West on the Up Relief after Up Relief Trains exit the possession • Trains position East, stack and cascade Locos • Section works East to West with scrap, spoil and ballast loaded and unloaded to/from trains on the Up Relief • Rail burned into 20fts, unclipped and scrap rail and sleepers loaded loose to Falcon wagons • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller

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		• Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing / top ballast unloaded from Falcon wagons on the Up Relief and profiled • All trains exit worksite and possession to the West on the Dn Relief via 8111 Pts • Convey Tamper from Carriage Line and tamp to design, 2 runs • On completion of Dn Relief West tamper stables in Carriage Line for next stage **Dn Relief East (incl 9020 Pts)** • Trains arrive from the West on the Up Relief, stack to the East and cascade Locos • Tilting Wagon train with Kirow arrives from the West, onto the Dn Relief via 8097 x-over and stables East • Section works East to West with scrap, spoil and ballast loaded and unloaded to/from trains on the Up Relief • Rail burned into 20fts, unclipped and scrap rail and sleepers loaded loose to Falcon wagons • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail installed as CWR and clipped up using mechanically operated plant such as Rosenqvist or Cembres • 9020 Pts relayed from Kirow over-end on the Dn Relief, relaying panels from Tilting Wagons on the Up Relief • Boxing / top ballast unloaded from Falcon wagons on the Up Relief and profiled • Convey Tamper from Carriage Line and tamp to design, 2 runs • All trains exit worksite and possession to the West on the Dn Relief via 8111 Pts • Welding of joints on all sections where possible completed in coordination with S&T, OHLE installation works for the remainder of the possession where applicable using insulated bogies if required
Stage 10	• Recovery of Up and Dn Reliefs	• Existing Up and Down Mains burned into 20fts, rails unclipped, removed and stacked with loose sleepers during dayshift working in ALO environment • All scrap materials stockpiled in wide way adjacent to the Up Main for loading • Scrap materials loaded loose to trains on the Up Main during ROTR possessions of the Mains • All trains enter and exit worksite and possession from the West. Train to be top and tailed or Loco requires run round move to exit back to West. • Note: For run round move on the Mains possession and worksite limits would require covering 8136 x-over at Acton West Jn and 8063B Pts at Ladbroke Grove Jn

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Stage 11	• Acton Cutting Crossovers – 8112AB & 8113AB	• Renewal of the Up Relief and Dn Relief including the removal of 8111AB and the installation of 8112AB and 8113AB Crossovers • Core works carried out over a series of three back-to-back 54h possessions of the Reliefs • Due to the volume of track being relayed both the Up and Down reliefs are fully excavated, re-ballasted and relayed as plain line over the first two 54-hour blocks • On the third 54h block temporary plain line panels through the S&C footprint are removed and 8112AB and 8113AB S&C units fully installed and commissioned • Due to the location in Acton cutting it is assumed that Modular S&C units are installed for both crossovers • The Up-Relief renewal involves removal of the Temporary Up Relief and installation to final alignment • 200m of the Temporary Up Relief is lifted out in 18m panels and stacked in the wide way for reuse in the Turnbacks A, B and C in the later stages • The remaining sections of Up Relief and Dn Reliefs are scrapped out loose through the existing S&C and plain line in 9m panels to Falcon and Osprey wagons respectively • Trains arrive from the West, stack to the East, cascade Locos and work back through site East to West • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail installed as CWR and clipped up using mechanically operated plant such as Rosenqvist or Cembres • 8112AB and 8113AB S&C units installed by Kirow crane and S&C Tilting Wagons • Boxing and top ballast offloaded by a combination of open top Falcon wagons and Autoballasters • Tandem tamping to design carried out by two 4x4 S&C Tampers through the crossovers • Welding of plain line joints carried out where required • Following the third 54h block an extended 16h NBS is required to carry out a spate tamp, welding, OHLE and S&T works • A regime of ROTR possessions will follow to complete welding and stressing for this section

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Stage 12	• Up and Dn Mains - East • Up and Dn Mains - West • Installation of Temporary Turnout to South Rail Head	**6-day ALB with additional 5 days 2TT** • Possession and worksite require to cover 8136 x-over at Acton West Jn and 8063B Pts at Ladbroke Grove Jn • Access to site from Hitachi for the West and North Pole for the East sections **Methodology** • Up Main East & Up Main West • Staged as two separate renewal sites working simultaneously with own plant, resources and haulage • Trains arrive from the West, cross onto the Dn Main, stack to the East and cascade Locos • Sections work East to West with scrap, spoil and ballast loaded and unloaded to/from trains on the Dn Main • Rail burned into 20fts, unclipped and scrap rail and sleepers loaded loose to Falcon wagons • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • CWR installed & rail clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing / top ballast unloaded from Falcon wagons on the Dn Main and profiled • Convey Tamper into site from the West and tamp to design, 2 runs (both sections) • On completion Tamper stables in Carriage line until next stage • All trains exit worksite and possession to the West on the Dn Main • Welding of joints on all sections where possible completed in coordination with S&T, OHLE installation works for the remainder of the possession where applicable using insulated bogies if required • **Dn Main East (incl Temp Turnout)** • Trains arrive from the West on the Up Main, stack to the East and cascade Locos on completion of Up Mains East & West sections • Tilting Wagon train with Kirow arrives from the West, onto the Dn Main via 8063B Pts and stables East • Section works East to West with scrap, spoil and ballast loaded and unloaded to/from trains on the Up Main • Rail burned into 20fts, unclipped and scrap rail and sleepers loaded loose to Falcon wagons • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail installed as CWR and clipped up using mechanically operated plant such as Rosenqvist or Cembres • Temporary Turnout relayed from Kirow over-end on the Dn Main, relaying panels from Tilting Wagons on the Up Main • Boxing / top ballast unloaded from Falcon wagons on the Up Main and profiled • Convey Tamper from Carriage Line and tamp to design, 2 runs • All trains exit worksite and possession to the West on the Dn Main via 8136 crossovers

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		• Welding of joints on all sections where possible completed in coordination with S&T, OHLE installation works for the remainder of the possession where applicable using insulated bogies if required **Dn Main West** • Trains arrive from the West on the Up Main after Dn Main West section Trains exit the possession • Trains position East, stack and cascade Locos • Section works East to West with scrap, spoil and ballast loaded and unloaded to/from trains on the Up Relief • Rail burned into 20fts, unclipped and scrap rail and sleepers loaded loose to Falcon wagons • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail installed as CWR and clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing / top ballast unloaded from Falcon wagons on the Up Main and profiled • All trains exit worksite and possession to the West on the Dn Main via 8136 crossover • Convey Tamper from Carriage Line and tamp to design, 2 runs • On completion Tamper exits worksite and possession to the West on the Dn Main • Welding of joints on all sections where possible completed in coordination with S&T, OHLE installation works for the remainder of the possession where applicable using insulated bogies if required

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Stage 13	Up and Dn Main – Acton Lowers	**Methodology** • Renewal of the Up Main and Dn Main plain line implementing track design lowers to final alignment • Core works carried out over a series of two back-to-back 54h possessions of the Mains • Possession and worksite require to cover 8136 x-over at Acton West Jn • Trains arrive from the West, stack to the East, cascade Locos and work back through site East to West • All trains exit worksite and possession to the West on the Dn Main (using 8136 x-over for Dn main renewal trains) • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail installed as CWR and clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing and top ballast offloaded by a combination of open top Falcon wagons and Autoballasters • Tamping to design, 2 runs per line as required • Welding of plain line joints carried out where required • A regime of ROTR possessions will follow to spate tamping, welding and stressing for this section • Installation of track and drainage to the South and West of the site during dayshift working in a greenfield environment • Installation of South Rail Head • Material delivery by rail from the Dn Main or South Rail Head and West rail head during ROTR possessions • Laydown and stockpiling areas used throughout this stage with materials unloaded from trains to facilitate dayshift working • Rail unloaded as CWR in 108m strings from LWRT in the Dn Main 4ft and then positioned in site for later installation • All track ballast, spoil removal and drainage aggregate unloaded / loaded from open top 60T Falcon wagons • New concrete sleepers unloaded from Salmon wagons – max of 3 layers at 168 sleepers per wagon • Drainage pipes unloaded from Bass wagons in 6m lengths with 24 pipes per wagon • Small material deliveries assumed by road such as drainage rings, catch pits, pads, clips & insulators etc • S&C panels arrive on Tilting wagons and offloaded with Kirow crane into adjacent laydown areas from South Rail Head • Non-modular S&C units constructed and installed utilising temporary slave plain line panels with S&C bearers and ironwork installed where required where panel width greater than allowable for Tilting wagons • Installation of S&C in greenfield environment carried out by Crawler Crane • Spoil removal, drainage and bottom ballast installation constructed using traditional track renewal methodology using tracked excavators, 3D dozers, dumper trucks and RRV plant • Compaction of formation and bottom ballast achieved by Bomag Roller or Triple Wacker • Sleepers run out and relayed using tracked excavator with 7 sleeper spacer beam attachment • CWR installed in 108m sections using McCulloch Rail Tracked Rail Transposers (TRTs) • Rail clipped up using mechanically operated plant such as Rosenqvist or Cembres

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Stage 14	• Stage 13 follow up works • Stage 15 prep works	• Joints welded and track stressed where applicable • Ballast delivered and offloaded into site from the South Rail Head or Dn Main on ROTR possession strategy of the Mains • Boxing and top ballast ran out and profiled from stockpiles using dumper trucks and RRV plant where required – dayshift greenfield working • Initial tamping of relayed sections in this stage to be undertaken by Beaver tamper due to no direct access from an operational line for a conventional tamper. Final tamping to design and subsequent line speed will be undertaken by conventional plain line and 4x4 S&C tampers in the latter stages • Laydown and material storage areas prepped, RRAPs constructed, and site set up and fully prepped in readiness for Stage 15

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Stage 15	• 9023 Pts • 9024 Pts • 9047AB Crossover	**6-day ALB with additional 5 days 2TT** • Possession and worksite require to cover 8136 x-over at Acton West Jn and 8063B Pts at Ladbroke Grove Jn • Access to site from Hitachi for the West and North Pole for the East sections **9023 Pts** • Trains arrive from the West on the Up Main, stack to the East and cascade Locos • Kirow detaches and conveys onto Dn Main via 8063B Pts • Section works East to West with scrap, spoil and ballast loaded and unloaded to/from trains on the Up Main • Existing temporary turnout disc cut into panels and loaded to Salmon wagons on Up Main form Kirow on Dn Main • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • 9023Pts relayed from Kirow over-end on the Dn Main, relaying panels from Tilting Wagons on the Up Main • Boxing / top ballast unloaded from Falcon wagons on the Up Main and profiled • Convey Tamper into site and tamp to design, 2 runs • Convey Tamper into Carriage Line for next stage • All trains exit worksite and possession to the West on the Dn Main via 8136 crossovers • Loco and Kirow consist remains on site for next stage **9047AB Crossover** • Trains arrive from the West on the Dn relief via 8113AB crossover • Kirow positions on Up Main to the West of site and stables • Section works West to East with scrap, spoil and ballast loaded and unloaded to/from trains on the Dn Relief • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • 9047AB relayed from Kirow relaying panels from Tilting Wagons on the Dn Relief • Kirow relays panels on the Up-Main over-end first, followed by Dn Main panels on completion • Boxing / top ballast unloaded from Falcon wagons on the Dn Main and profiled on both lines • Convey Tamper into position from the Carriage Line and tamp to design, 2 runs • Convey Tamper into Carriage Line for next stage • Trains position East on completion, cascade Locos and then exit worksite and possession to the West • Loco and Kirow consist remains on site for next stage **9024 Pts** • Convey Kirow consist back through site to the East and shut down clear on the Up Main • Trains arrive from the West on the Dn Main via 8047 x-over, stack to the East and cascade Locos

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		• Section works East to West with scrap, spoil and ballast loaded and unloaded to/from trains on the Up Main • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • 9024Pts relayed from Kirow over-end on the Up Main, relaying panels from Tilting Wagons on the Dn Main • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail installed as CWR and clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing / top ballast unloaded from a combination Falcon wagons and Autoballasters and profiled • Convey Tamper into site and tamp to design, 2 runs • Convey Tamper into Carriage Line for next stage • All trains and tamper exit worksite and possession to the West on the Dn Main via 8136 crossovers • Welding of joints on all sections where possible completed in coordination with S&T, OHLE installation works for the remainder of the possession where applicable using insulated bogies if required

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Stage 16	• Recover temporary Mains Relay PL sections • Install 9039 Pts • Dn Relief to final • Install S&C bearers & ironwork: 9020 and 9040 Pts	• Removal and installation of track to the West of the site during a combination of dayshift working in a greenfield environment and ROTR possessions of the Mains and Reliefs • Rail unloaded as CWR in 216m strings from LWRT and then positioned in site for later installation • All track ballast and spoil removal unloaded / loaded from open top 60T Falcon wagons • Temporary Mains disc cut into 18m panels and lifted out and stacked with McCullochs Panel Lifters during dayshift ALO working • Excavation and bottom ballast works carried out in ROTR possession loading and unloading to/from Trains on the Up Relief and Dn Reliefs • Excavation and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line panels relayed with McCulloch Panel Lifters • Slave rails removed from panels, CWR installed with TRTs and clipped up using mechanically operated plant such as Rosenqvist or Cembres • S&C panels and ironwork for 9039 Pts arrive as temporary slaved panels on Salmon wagons on the Dn relief and offloaded into site during ROTR possession • Installation of 9039 Pts during dayshift working. 'Build in hole' layout using temporary panels. All slave materials removed with S&C bearers and ironwork fully installed • Boxing / top ballast unloaded Falcon wagons on ROTR possession from Train on Up Main • Welding of plain line joints carried out where required in dayshift working • Renewal of the Dn Relief plain line implementing track design to final alignment • Installation of S&C bearers and ironwork on 9020 and 9040 Pts (non-commissioned) • Core works carried out over a 54h possession of the Reliefs and Mains • Trains arrive from the West on the Dn Main, stack to the East, cascade Locos and work back through site East to West • Existing Dn Relief disc cut into 18m panels and recovered by McCullochs Panel Lifter, stacking in wide way for next stage usage • Excavation, drainage and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line sleepers unloaded from Salmon wagons and spaced using excavator with 7 sleeper spacer • Rail installed as CWR and clipped up using mechanically operated plant such as Rosenqvist or Cembres • Boxing and top ballast offloaded from open top Falcon wagons • Tamping to design, 2 runs per line as required including tamping of 9031 Pts and plain line sections installed in Stage 16.1 • Welding of plain line joints carried out where required • Working from the Up Relief and Up Relief Loop at the same time as the above activities; existing temporary plain line rails, baseplates and bearers removed with new S&C bearers, baseplates and ironwork fully installed as required through 9020 and 9040 Pts. Note: installation only – commissioning planned for Stage 18

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Stage 17	• Install connections to 9035 and 9033 • Install Remaining Turn Backs	• Removal and installation of final remaining sections of track during a combination of both dayshifts working in a greenfield environment and ROTR possessions of the Mains and Reliefs • Rail unloaded as CWR in 108m strings from LWRT and then positioned in site for later installation • Material delivery by rail from the Dn Relief or Up Main during ROTR possessions • Laydown and stockpiling areas used throughout this stage with materials unloaded from trains to facilitate dayshift working • All track ballast and spoil removal unloaded / loaded from open top 60T Falcon wagons • Excavation, drainage and bottom ballast completed with road rail excavators and 3D dozer • Formation and ballast compaction achieved by Triple Wacker or Bomag roller • Plain line panels relayed with McCulloch Panel Lifters • Slave rails removed from panels, CWR installed with TRTs and clipped up using mechanically operated plant such as Rosenqvist or Cembres • S&C panels and ironwork for 9033 Pts arrive on Tilting Wagons on the Up Relief and relayed by Kirow over-end on the Dn Relief Loop during ROTR possession of the Reliefs • Welding of plain line joints carried out where required in dayshift working • Final tamping to design of all lines in a strategy of ROTR possessions of Mains and Reliefs • Final welding and stressing of all lines in a strategy of ROTR possessions of Mains and Reliefs • Final unloading and profiling of top ballast of all lines strategy of ROTR possessions of Mains and Reliefs • Installation of drainage in a strategy of ROTR possessions of Mains and Reliefs based on achieving 60m of drainage during a standard 8h NBS block
Stage 18	Installation of Switches and final commissioning	• Installation of 9030 and 9031 Pts: remove existing temp plain line, skim ballast and relay new S&C for both layouts (NR56) • 9026AB: remove existing temporary plain line and install ne S&C baseplates and ironwork (NR60) • Commissioning: Full mechanical set up and testing of all remaining S&C units within final layout

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9.2 OHLE

9.2.1 Introduction

9.2.1.1 As with the other disciplines, construction of the OHLE is heavily dependent on possession availability. With the multi-day ALB possessions restricted to Christmas periods, it is essential to construct as much of the new OHLE within the 'high street' environment and utilising the current Relief/Mains possession regime. As detailed in the commentary below, the OHLE works have been staged to make the best possible use of the Christmas ALB possessions. Refer to Appendix C for anticipated access availability and possession durations.

9.2.1.2 Foundations and main steel for Acton Cutting and the structures along the Down Main will be brought in using RRV's and trailers from Acton Yard or the proposed Jewson Yard.

9.2.1.3 The foundations and main steel for the northern station area will be brought to site by train via the proposed railhead. The materials will be unloaded and stored in compounds on site until they are ready to be installed.

9.2.1.4 In the same way as for the Northern station area, the foundations and main steel for the Southern station area will be brought to site by train via the proposed existing Down Main railhead. The materials will be unloaded and stored in compounds on site until they are ready to be installed.

9.2.1.5 As detailed in section 4.1.1 above, all SPS, drop tubes and registration equipment will be assembled offsite by either the supplier or the installation contractor and delivered on pallets to site by RRV.

9.2.1.6 Loadings on temporary anchors to be verified within detailed design to ensure sufficient capacity.

9.2.2 Construction Staging

9.2.2.1 At the time of writing the exact dates for some of the commissioning stages are under review and subject to final confirmation. Dates are currently based on those instructed by Network Rail and will be reviewed throughout workshops with BBVS. Larger staged OLE drawings can be found in Appendix I and predicted activity durations in Appendix L.

9.2.2.2 **Stage 3 – January to December 2022 (alternate Mains/Relief possessions)**

Acton Cutting (Down Main Cess and Up Relief)

- Trial Holes.
- Installation of augured concrete foundations.
- Installation of masts and struts/ties.

Station South (Down Main)

- Trial Holes.
- Installation of steel pile foundations.
- Installation of masts and struts/ties.

9.2.2.3 **Stage 4 – Christmas 2022 (ALB)**

Acton Cutting (Down Main and Up Relief)

- Erect Portal Booms.

Station East (Mains/Reliefs 10 foot)

- Trial Holes.
- Installation of steel pile foundations.
- Installation of masts and struts/ties.

9.2.2.4 **Stage 5A and 5B – January - August 2024**

Station North (West of Station)

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- Installation of new SPS, drop tubes, registration assemblies, ATF support assemblies and anchor assemblies.

9.2.2.5 Stage 5C – August - December 2024 (high street environment)

Station North (West of Station)

- Installation of masts and struts/ties.
- Erect Portal/TTC Booms.

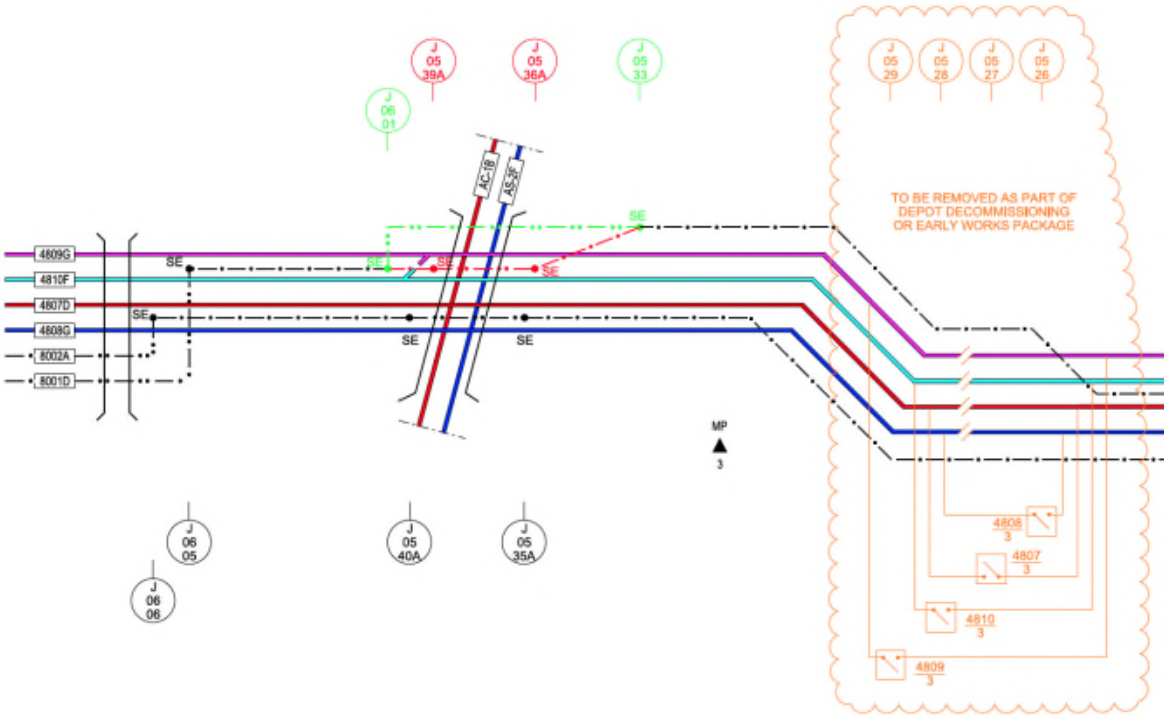


Figure 88: Proposed sectioning update for Acton Cutting ATF prior to Christmas 2024 blockade Stage 6

9.2.2.6 Stage 6 – Christmas 2024 (ALB)

Station North (East of Station)

- Erect 12. No Portal Booms

Station North (West of Station)

- Erect 5. No Portal Booms

9.2.2.7 Stage 7A – January - February 2025 (high street environment)

Station North (East of Station)

- Trial Holes.
- Installation of steel pile foundations.

9.2.2.8 Stage 7B – February - April 2025 (high street environment)

Station North (East of Station)

- Installation of masts and struts/ties.
- Erect Portal/TTC Booms.

9.2.2.9 Stage 7C – April - July 2025

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Acton Cutting (Relief Lines)

- Trial Holes.
- Installation of steel pile foundations.
- Installation of masts.
- Installation of new SPS, cantilevers and ATF support assemblies.
- Transfer WR 63 & 65 from existing structure J-05-36 to structure J-05-35A.
- Splice in new aerial ATF at J-05-33, re-route and terminate at J-05-35A.
- Splice in new aerial ATF at J-06-02 re-route and terminate at J-05-39A.
- Run new ATF cable in Relief Lines 6 foot between structures J-05-35A and J-05-39A.
- Install sealing ends and associated SPS at structures J-05-35A and J-05-39A and connect jumpers to aerial ATF.

Station North (West of Station)

- Trial Holes.
- Installation of steel pile foundations.

9.2.2.10 **Stage 8 – August - December 2025 (high street environment)**

Station North (West of Station)

- Installation of new SPS, drop tubes, registration assemblies, ATF support assemblies and anchor assemblies.

Station North (General)

- Run catenary, install droppers and run contact wire for new wire runs A219, A218, A217, A216 and A215.
- Install anchor span insulation and carry out final registration checks for wire runs A219, A218, A217, A216 and A215.
- Run new aerial ATF from structure J-04-55C and temporarily anchor at structure J-04-40A.
- Run new aerial ATF from structure J-05-11F and temporarily anchor at structure J-05-32A.
- Run new Relief Lines ATF cable between structures J-04-55C and J-05-11F through newly built platforms 7 & 8.
- Install sealing ends and associated SPS at structures J-04-55C and J-05-11F and connect jumpers to aerial ATF

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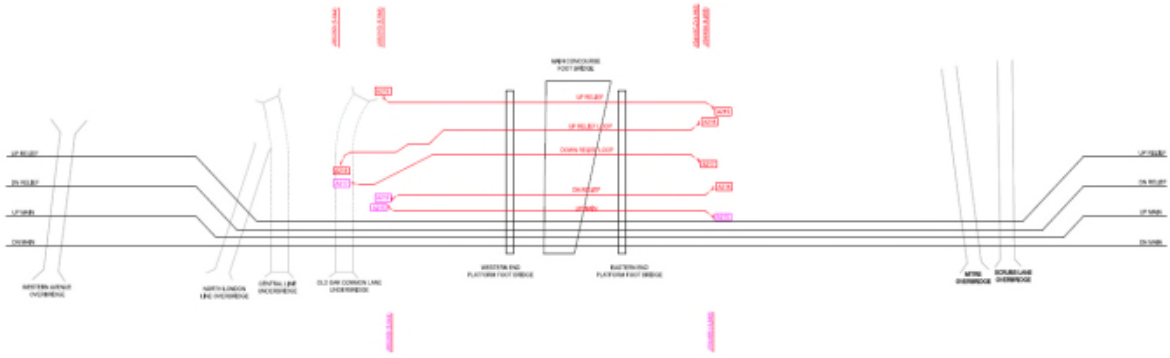


Figure 89: Station North wiring prior to Christmas for Stage 9 blockade

9.2.2.11 Stage 9A and 9B – Christmas 2026 (ALB)

Station North (Relief Lines Temporary Alignment)

- Install temporary anchor for existing wire run 53 at structure J-04-43D.
- Run catenary, install droppers and run contact wire for new wire run A204 from J-04-60D. Note that the new catenary is to be run from structure J-04-60D up to the existing catenary splice for wire run 53 and the new contact wire is to be run up to the existing equalising plate.
- Install temporary anchor for existing wire run 65 at J-05-32A and recover from J-06-01A.
- Anchor existing wire run 65 to create new overlap with wire run A229.
- Run catenary, install droppers and run contact wire between structures J-05-18A and J-06-02A for new wire run A229.
- Install temporary anchor for existing wire run 55 at structure J-04-43D.
- Run catenary, install droppers and run contact wire for new wire run A207 from J-04-60C. Note that the new catenary is to be run from structure J-04-60C up to the existing catenary splice for wire run 55 and the new contact wire is to be run up to the existing equalising plate.
- Install temporary anchor for existing wire run 62 at J-05-32A and recover from J-06-01A.
- Anchor existing wire run 62 to create new overlap with wire run A226.
- Run catenary, install droppers and run contact wire between structures J-05-18B and J-06-02A for new wire run A226.
- Install anchor span insulation and carry out final registration checks for wire runs A229, A226, 62,65, A204, A207, 46 and 42.
- Cut back existing ATF cables and install 2 No. sealing ends and associated SPS at structure J-04-40A.
- Move temporary ATF anchor to final position at J-04-40A and connect jumpers from sealing end to aerial ATF.
- Splice the new ATF into the existing at J-05-32A. Temporarily anchor the remaining existing ATF which is to be recovered in Stage 10.
- Re-route Relief Line ATF to final alignment.

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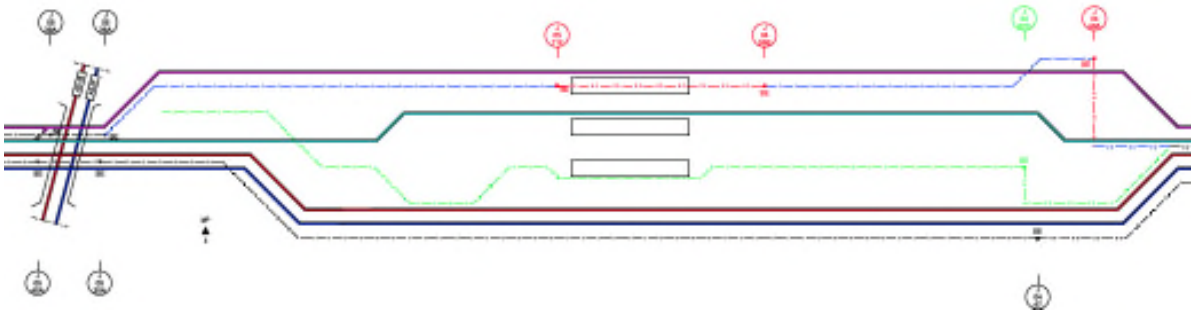


Figure 90: Proposed sectioning update for Stage 9 blockade works

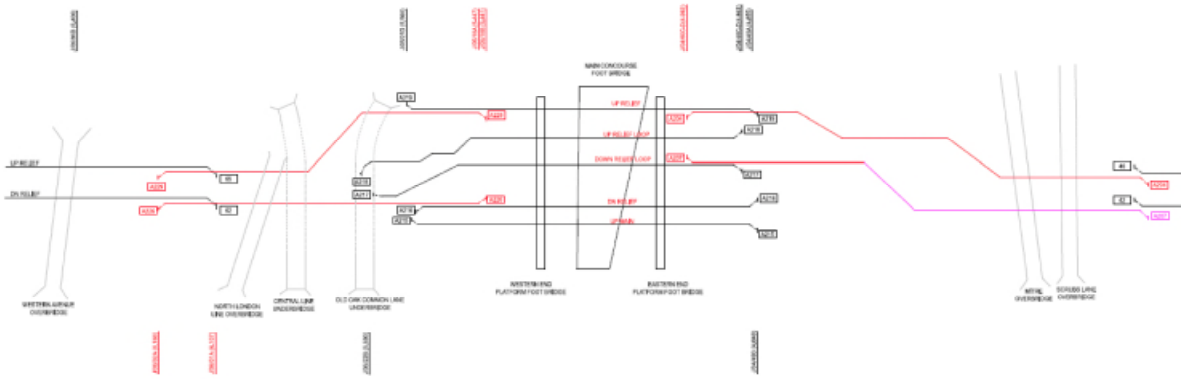


Figure 91: Station North wiring Stage 9 blockade

9.2.2.12 Stage 10 – **January - February 2027**

Station South (Existing Main and Relief Lines)

- Trial Hole, installation of steel pile foundation and installation of mast and boom for 2 No. temporary TTC structures.
- Installation of new SPS, drop tubes and registration assemblies.
- Transfer existing OHLE to 5 No. new/temporary structures and re-dropper to facilitate recovery of existing headspan assemblies.
- Recover redundant wire runs, headspan, registration & termination assemblies.

9.2.2.13 Stage 11 – **Xmas 2027**

Station South (Existing Main and Relief Lines)

- Recover redundant masts and foundations

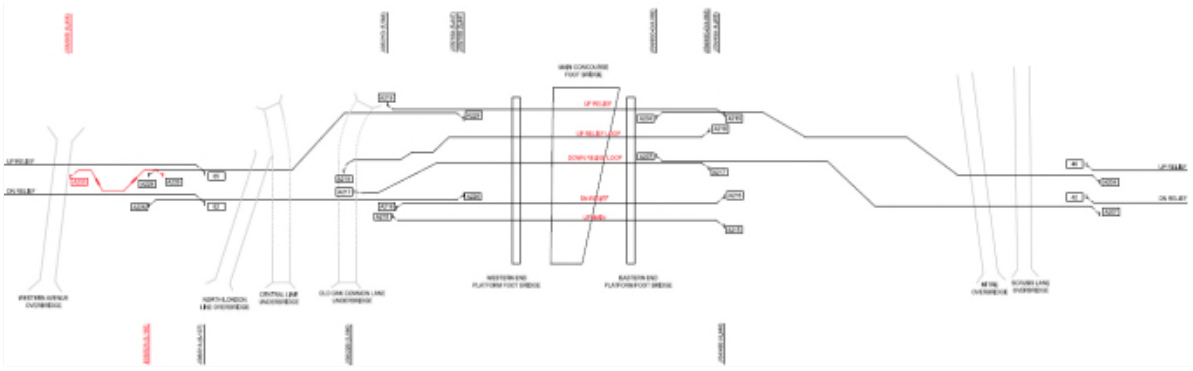


Figure 92: Acton Cutting crossovers wiring prior to Stage 12 blockade

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9.2.2.14 Stage 12A and 12B – **Christmas 2027** (ALB)

Station North (Main Lines Temporary Alignment)

- Install temporary anchor for existing wire run 58 at structure J-04-49B.
- Run catenary, install droppers and run contact wire for new wire run A202 from J-04-60C. Note that the new catenary is to be run from structure J-04-60C up to the existing catenary splice for wire run 58 and the new contact wire is to be run up to the existing equalising plate.
- Install temporary anchor for existing wire run 64 at J-05-32A and recover from J-06-01A.
- Anchor existing wire run 64 to create new overlap with wire run A225.
- Run catenary, install droppers and run contact wire between structures J-05-18B and J-06-02A for new wire run A225.
- Install temporary anchor for existing wire run 56 at structure J-04-43D.
- Run catenary, install droppers and run contact wire for new wire run A209 from J-04-60C. Note that the new catenary is to be run from structure J-04-60C up to the existing catenary splice for wire run 56 and the new contact wire is to be run up to the existing equalising plate.
- Install temporary anchor for existing wire run 61 at J-05-32A and recover from J-06-01A.
- Anchor existing wire run 61 to create new overlap with wire run A223.
- Run catenary, install droppers and run contact wire between structures J-05-18B and J-06-02A for new wire run A223.
- Install anchor span insulation and carry out final registration checks for wire runs A225, A223, 61,64, A202, A209, 47 and 44.

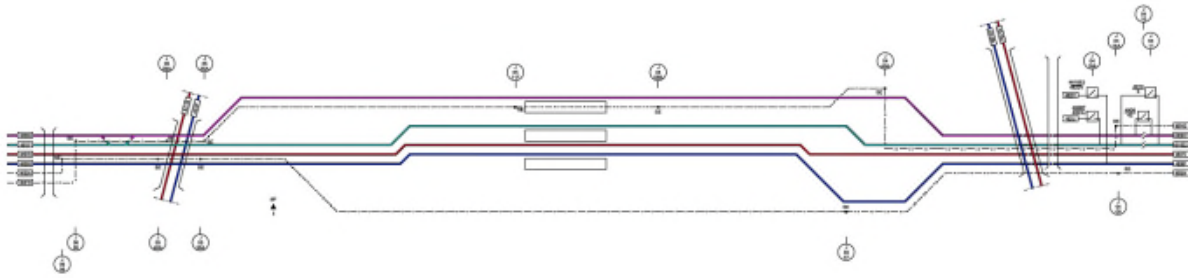


Figure 93: Proposed sectioning update for Christmas 2026 blockade works

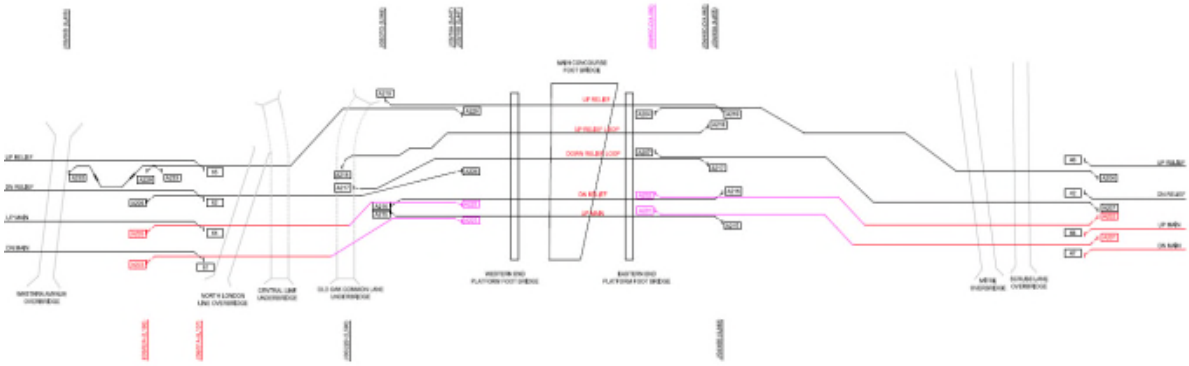


Figure 94: Station North wiring Stage 12 blockade

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9.2.2.15 Stage 13A – **January - March 2029**

Station South (Existing Main Lines)

- Recover redundant wire runs, registration & termination assemblies.
- Recover redundant booms, masts and foundations.

Station South (Proposed Main Lines)

- Trial Holes.
- Installation of steel pile foundations.

Station South (Temporary Main Lines)

- Installation of new SPS, drop tubes and ATF support assemblies.
- Run new aerial ATF from structure J-04-36A and temporarily anchor at structure J-04-60C.
- Run new aerial ATF from structure J-05-11E, splice into existing ATF and temporarily anchor at structure J-05-33A.
- Run temporary Main Lines ATF cable between structures J-04-60C and J-05-11E through newly built platforms 3 & 4.
- Install sealing ends and associated SPS at structures J-04-60C and J-05-11E and connect jumpers to aerial ATF.



Figure 95: Proposed sectioning update for temporary routing of the Main Lines ATF

9.2.2.16 Stage 14 – **August - December 2029**

Station South (East of Station)

- Recover redundant booms, masts and foundations.
- Installation of masts and struts/ties.
- Erect Portal/TTC Booms.
- Installation of new SPS, drop tubes, registration assemblies and anchor assemblies.

Station South (Proposed Main Lines)

- Installation of masts.
- Installation of new OBR drop tubes and registration assemblies.

Station South (West of Station)

- Installation of masts and struts/ties.
- Erect Portal/TTC Booms.

Station South (General)

- Run catenary, install droppers and run contact wire for new wire runs A212, A213, A214, A222 and A224.
- Install anchor span insulation and carry out final registration checks for

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- Installation of new SPS, drop tubes, registration assemblies and anchor assemblies.

wire runs A212, A213, A214, A222 and A224.

- Transfer temporary aerial ATF anchors to structures J-04-55B and J-05-11G.
- Re-route Relief Line ATF to final alignment.
- Run new Relief Lines ATF cable between structures J-04-55B and J-05-11G through newly built platforms 1 & 2.
- Install sealing ends and associated SPS at structures J-04-55B and J-05-11G and connect jumpers to aerial ATF.
- Recover temporary cabled ATF routed through platforms 3 & 4 along with sealing ends and associated SPS.



Figure 96: Proposed sectioning update for routing of the Main Lines ATF to final alignment

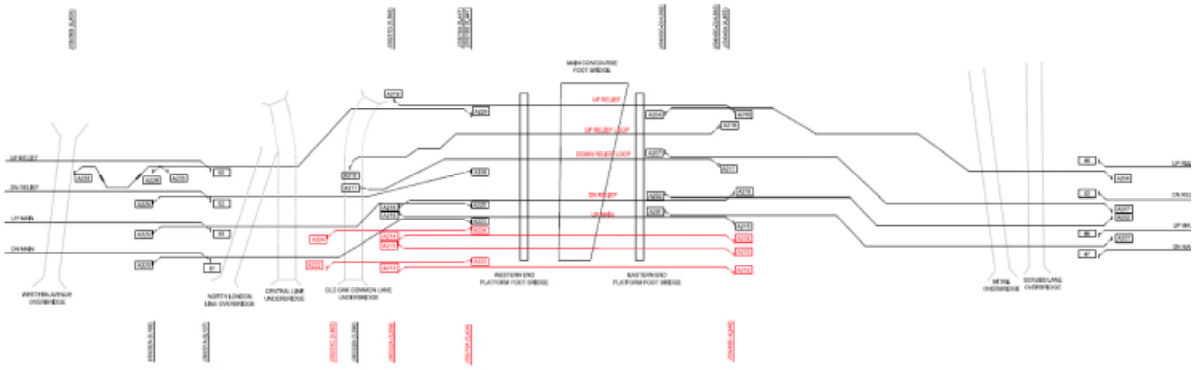


Figure 97: Station South wiring prior to Christmas 2028 blockade

9.2.2.17 Stage 15 – **Christmas 2029 (ALB)**

Main Lines Final Alignment (East of Station)

- Installation of new SPS, drop tubes, registration assemblies, ATF support assemblies and anchor assemblies for

Main Lines Final Alignment (West of Station)

- Recover temporary wire runs and termination assemblies for A225 and A223.

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new overlap between structures J-04-07C and J-04-17A.

- Transfer overlap for wire runs 44 & 47 to new structures between J-04-07C and J-04-17A and re-dropper.
- Recover temporary wire runs and termination assemblies for A202 and A209.
- Reposition SPS, drop tubes, registration assemblies to suit final Main Lines alignment.
- Run catenary, install droppers and run contact wire for new wire run A202 in final position between structures J-04-07C and J-04-60B.
- Run catenary, install droppers and run contact wire for new wire run A209 in final position between structures J-04-07C and J-04-60C.
- Run catenary, install droppers and run contact wire for new wire runs A201 and A210 between structures J-04-43D and J-04-60C.
- Install anchor span insulation and carry out final registration checks for wire runs A202, A209, A201, A210, 47 and 44.
- Reposition SPS, drop tubes, registration assemblies to suit final Main Lines alignment.
- Run catenary, install droppers and run contact wire for new wire runs A225 and A223 in final position between structures J-05-16A and J-06-02A.
- Install anchor span insulation and carry out final registration checks for wire runs A225 and A223.

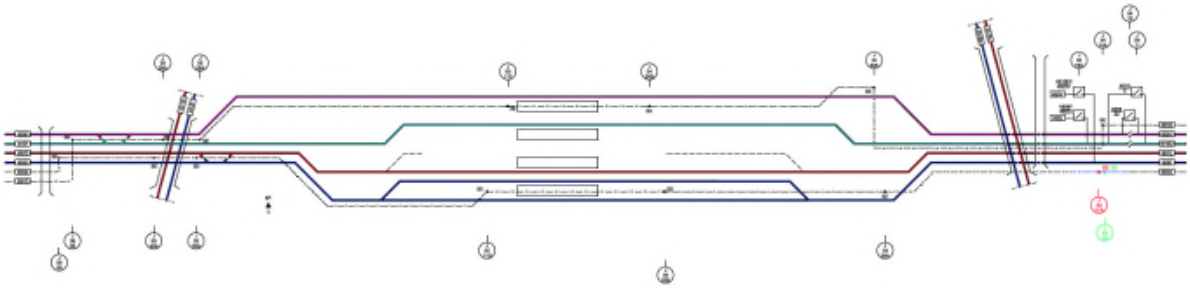


Figure 98: Proposed sectioning update for Main Lines to final alignment

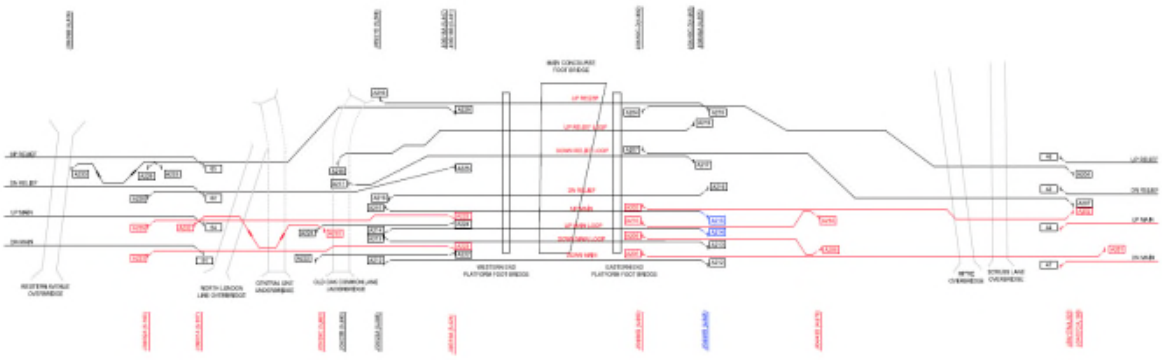


Figure 99: Station South wiring for Main Lines to final alignment

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9.2.2.18 Stage 16A – **January - March 2031**

Main Lines Final Alignment (West of Station)

- Reposition SPS, drop tubes, registration and termination assemblies to suit final Main Lines alignment for wire run A215 and carry out final registration checks.

9.2.2.19 Stage 16B – **Easter 2031**

Relief Lines Final Alignment (East of Station)

- Installation of new SPS, drop tubes, registration assemblies, ATF support assemblies and anchor assemblies for new overlap between structures J-04-07C and J-04-17A.
- Transfer overlap for wire runs 42 & 46 to new structures between J-04-07C and J-04-17A and re-dropper.
- Cut temporary wire run A207, install new anchor at J-04-36A to terminate in final position and recover remaining wire run and termination assembly.
- Run catenary, install droppers and run contact wire for new wire run A203 in final position between structures J-04-07C and J-04-60B.
- Reposition SPS, drop tubes, registration and termination assemblies to suit final Relief Lines alignment, install anchor span insulation and carry out final registration checks for wire runs A216, A203 and A207.
- Install Switch Assembly and associated SPS for switch numbers 4810/5 and 4809/42, connect switch feeds and section prove.

Relief Lines Final Alignment (West of Station)

- Reposition SPS, drop tubes, registration assemblies to suit final Relief Lines alignment.
- Run catenary, install droppers and run contact wire for new wire run A226 in final position between structures J-05-18B and J-06-02A.
- Install anchor span insulation and carry out final registration checks for wire run A226.
- Recover temporary wire runs and termination assemblies for A226.

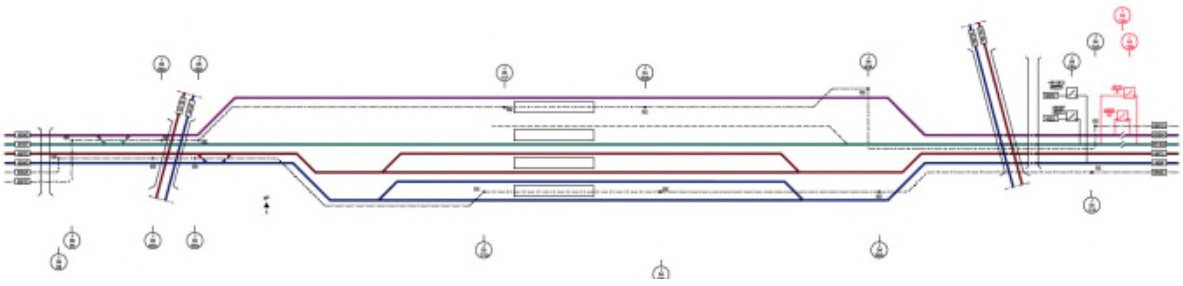


Figure 100: Proposed sectioning update for Relief Lines to final alignment

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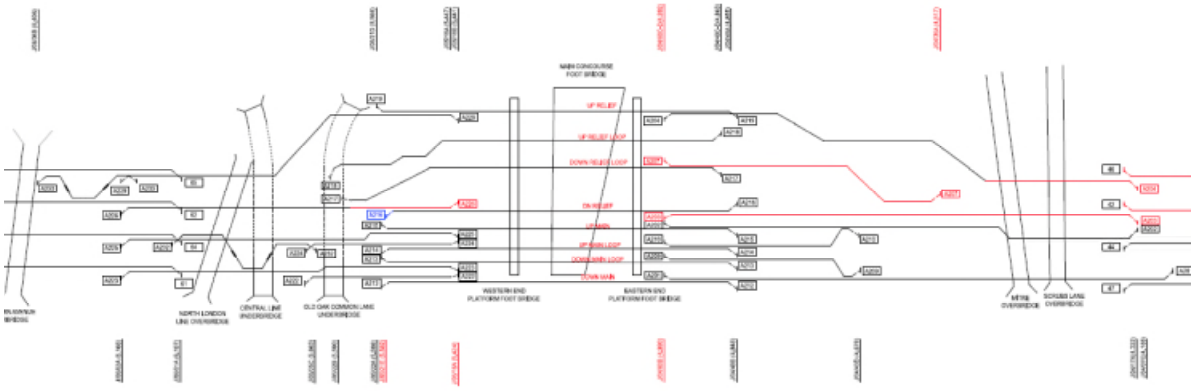


Figure 101: Station North wiring for Relief Lines to final alignment

9.2.2.20 Stage 17 – **April - December 2031**

Relief Line Crossovers (East of Station)

- Install SPS, drop tubes, registration and termination assemblies.
- Run catenary, install droppers and run contact wire for new wire runs A208 and A211.
- Install anchor span insulation, section insulators and carry out final registration checks for wire runs A208 and A211.
- Install Switch Assemblies and associated SPS. Note that switch feeds are not connected at this stage.

Relief Line Crossovers and Sidings (West of Station)

- Install SPS, drop tubes, registration and termination assemblies.
- Run catenary, install droppers and run contact wire for new wire runs A221, A230, A231, A227, A220 and A228.
- Install anchor span insulation, section insulators and carry out final registration checks for wire runs A221, A230, A231, A227, A220 and A228.
- Install Switch Assemblies and associated SPS.
- Connect switch feeds for switch numbers 4809H5/4809H6, 4810E5/4810E6 and 4809H6/4809E6 and section prove. *Note that remaining switch feeds are not connected at this stage*.

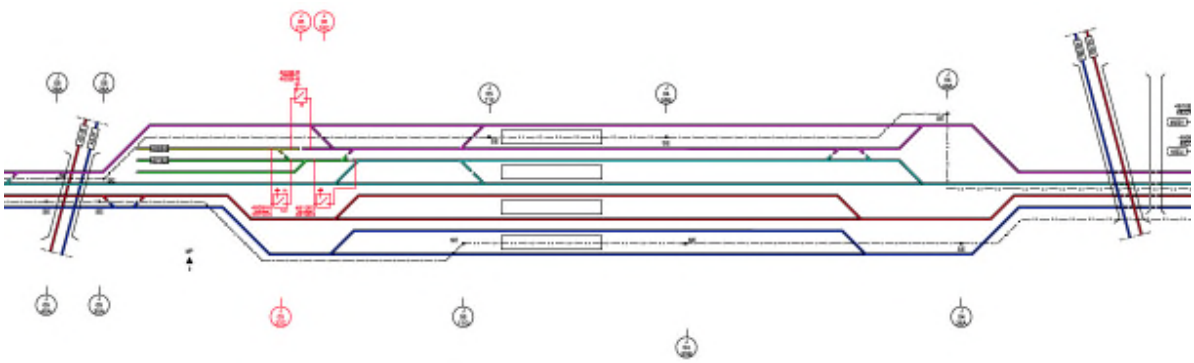


Figure 102: Proposed sectioning update for Relief Line Crossovers

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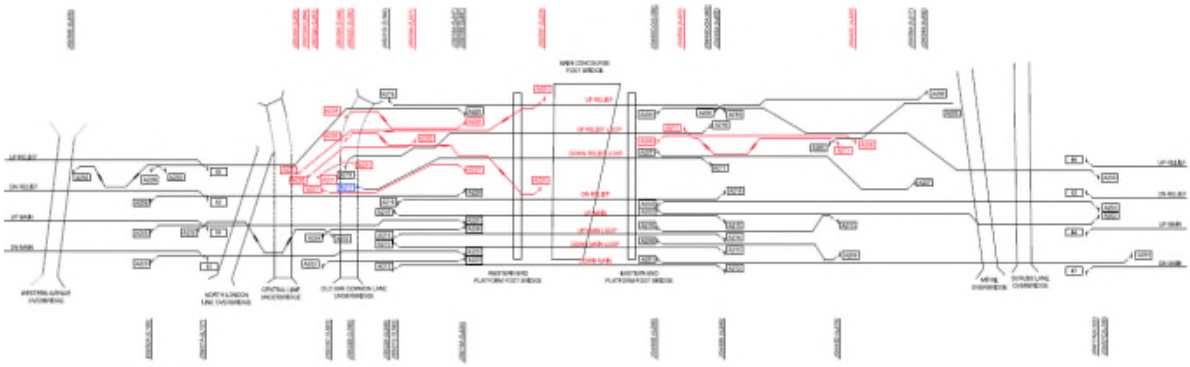


Figure 103: Station North wiring for Relief Line Crossovers

9.2.2.21 Stage 18 – **Christmas 2031**

Final Commissioning

- Cut in overlap insulation assemblies for Eastern and Western overlaps.
- Connect switch feeds for overlap switches and section prove.
- Cut in ATF insulation by structures J-05-12D and J-05-19A.
- Connect switch feeds for ATS switches and section prove.

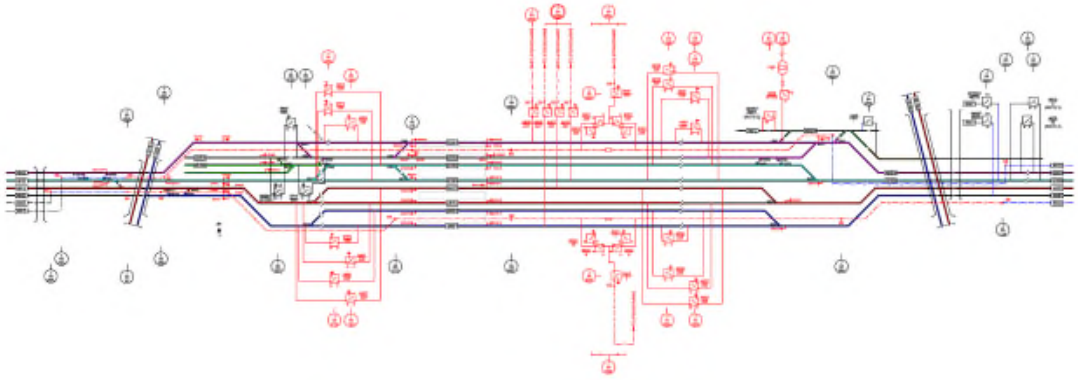


Figure 104: Proposed final sectioning

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9.2.3 Earthing and Bonding Staging

9.2.3.1 A GRIP 4 Earthing and Bonding Strategy has been complied reference 152270-ARC-STR-EMD-000003.

9.2.3.2 The majority of the existing OHLE structures within the project limits are bonded to traction return via an Aerial Earth Wire (AEW) with the remaining structures bonded directly to the traction return rail. This is the proposed method of bonding to be used in the final configuration however, the bonding arrangement will need to be modified throughout the duration of the construction works to ensure a safe and robust E&B system is in place at all times.

9.2.3.3 This will be further developed as the design progresses however, there are several key stages which have been identified where consideration must be given the to the E&B system.

- Stage 9 - rerouting of the Relief Lines
- Stage 12 - rerouting of the Main lines
- Stage 15 - commissioning of the proposed Main Lines
- Stage 18 - final commissioning

9.2.3.4 Coordination with the station contractor will be required to ensure that any OHLE structures with the station area are bonded to the traction return system in readiness for commissioning of the stages listed above. This is likely to require a temporary bonding solution during the earlier stages as the construction of the station will be ongoing when the rerouting of the Relief and Main lines are commissioned.

9.2.3.5 For construction of the OHLE in the ‘high street’ environment areas along with removal of the existing OHLE following the rerouting of the Relief and Main lines, permanent earths would be installed at each end of the OHLE not connected to the ‘Live’ system to enable works to be carried out safely without the need to take an isolation.

9.2.3.6 Further consideration is to be given to installation of proposed OHLE structures along the existing electrified route, for example new masts installed along the Down Main. Typically, new structures would be temporarily bonded to the nearest adjacent OHLE structure and regularly inspected to ensure the temporary bonds have not been accidentally disconnected. However, given the restricted access availability in the area, it is proposed that a permanent bonding solution is implemented to reduce the inspection frequency.

9.2.4 OHLE Enabling Works Specific to Underbridge Construction

9.2.4.1 The HEX Depot Decommissioning contract, for which AECOM are designers is proposing an early replacement of existing structures J05/26, J05/27, J05/28, and J05/29.

9.2.4.2 At the time of writing ongoing discussions are taking place to determine the best solution, however, from a OOC Rail Systems “best for project” perspective it would be sensible to replace J/05/26-29 with structures that satisfy the longer term requirements, as long as they are clear of the temporary staging alignments; in terms of the haul road requirements the Rail South Systems Alliance, should, if possible, consider cantilevers to the Reception (RL1) from the back of the new portals so that these can then be removed once RL1 is removed and the haul road is in use.

9.2.4.3 The current proposal sees the structures replaced with legs relocated along the Reception Line 1 Cess. The proposed haul road is required for the NLL retaining wall works prior to the Bridge Part 1 completion, detailed in section 9.4.2.

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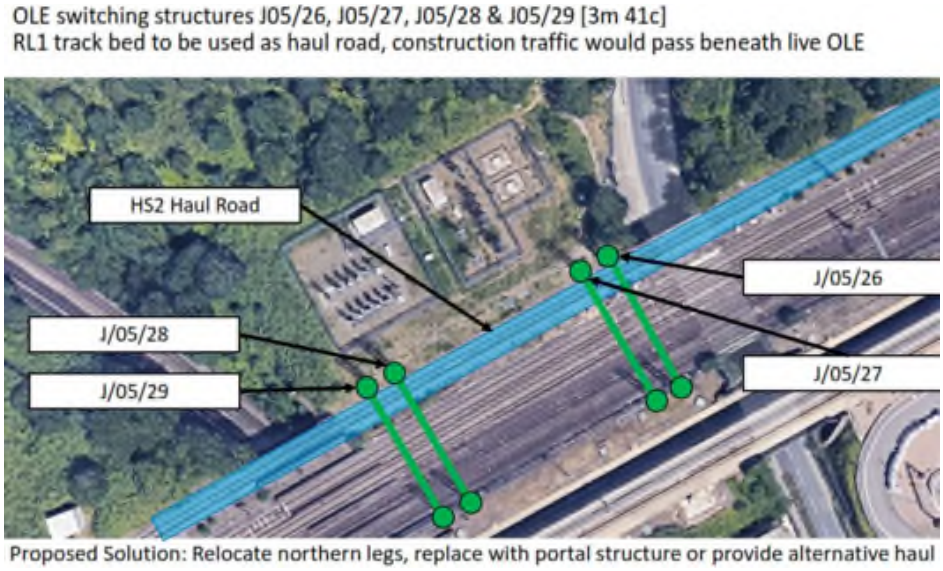


Figure 105: Extract from correspondence with Rail South Systems Alliance

9.3 Signalling

9.3.1.1 The Signalling Design has been undertaken by Network Rail Design Delivery (NRDD). Arcadis have provided a technical lead & integration role and have undertaken some elements of the detailed design including the location area plans (LAP), configuration of the data model (3D BIM) and supported the overall construction and staging methodology of the project. Within this section of the report Arcadis are aiming to highlight the risks, challenges and complexities associated with the construction of the signalling in the Old Oak Common Area

9.3.1.2 The Signalling works within the Old Oak Common Area are led by the Network Rail, Paddington to Reading (P2R) Signalling delivery organisation. They have an ongoing scope of works that includes the following 7 projects in the same geographical area at the same time:

- Crossrail ONW works Stage M Records updates from 0mp to 29mp.
- Cross Rail West Outer Platform extensions (Associated signalling changes) between mile 12 ½ & 29mp,
- The Western ASDO Eurobalises project between 16 1/2mp and 29mp.
- The ETCS Level 2 overlay Area B & C 0mp to 12 1/2mp.
- Paddington to Stockley Train detection Conversion programme, 0mp to 12 1/2mp
- Colnbrook Branch (Heathrow 3rd runway) 12 1/2mp to 16 1/2mp
- Western Rail Link to Heathrow 16mp to 12mp

9.3.1.3 The nuances of signalling construction are far less complex than the design and testing and commissioning. All Signalling contractors have their own method for construction as they typically provide and install their own Control Centre equipment and their own trackside object controllers and follow the NR installation handbooks for any equipment that is typical.

9.3.1.4 Alstom are the incumbent signalling contractor in this geographical area and the details of the existing signalling system are detailed in the Signalling Design Specification. Throughout the design of the stages and sequence of construction, Arcadis have considered the general sequence for signalling construction. The general sequence of construction has been used to inform the decisions and evaluate risks and impacts. The

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overall design and methodology of Old Oak Common Rail Systems does not deviate from what is expected in conventional signalling.

9.3.1.5 The site-specific constraints are detailed in Section 3.3, The site logistics are detailed in Section 4 and the Possessions and isolations are detailed in Section 6.

9.3.1.6 One of the biggest assumptions of the constructability is around the unproven construction of the ETCS overlay system. A full Level 2 overlay system is due to be installed, then commissioned between Paddington and Acton by Christmas 2021. This is the first installation of its kind of 12 miles of ETCS level 2 overlay, which involves overlaying the ETCS on to the existing layout around the old oak common area but without any significant alteration to the train detection sections or signal positions.

9.3.1.7 The design of the ETCS will be based upon the existing train detection sections and positioned to suit the optimum lineside signal locations for the existing layout, prior to the Old Oak Common Project. Upon completion of all stages the final ETCS train stopping positions will be located in accordance with the train detection sections designed around new lineside signal position.

9.3.1.8 The overlay will increase the total volume of four-foot equipment, signage and marker boards, as well as fundamentally changing the way that this area is driven. The transitions onto ETCS signalling for fitted trains will happen around 12 miles on the approach to the Old Oak Common area from the West and continue all the way into the platforms at Paddington. Trains dispatching from Paddington will be exiting the platforms onto the ETCS signalled area and will not transition off ETCS until beyond the Old Oak Common Area.

9.3.1.9 Arcadis have drawn upon their ETCS experience in Europe to provide ongoing assistance to Network Rail as they develop their own plans for the implementation of ETCS. The initial implementation of ETCS does happen in advance of any significant works for the Old Oak Common Scheme but only by 12 months, which in terms of signalling changes, is a short gap in time.

9.3.1.10 Not only does the railway in this area undertake the biggest change in signalling methodology for 100 years, but the scale and complexity of the remodeling of an already ETCS configured railway has not happened in the UK before.

9.3.1.11 The main equipment differences between a conventional signalling system and the ETCS overlay system is the addition of the fixed Eurobalises used for location purposes. These are installed on to the Sleepers. There is also a change to the system architecture with the introduction of the RBC to manage the communications between the train, balises and interlocking.

9.3.1.12 The construction methodology makes allowances for the positioning of the balises in the four-foot, with the equipment bring similar to the positioning and installation methodology of the ATP. A balise is typically installed in advance of its commissioning by anything up to 18 months to allow for a period of soak testing.

9.3.1.13 The main construction risks associated with ETCS remodeling are around the temporary staging and implementation of balises and the repetitive configuration of the RBC Data. The P2R signalling organisation have implemented a data configuration strategy that includes a 2-year period between operational requirement and infrastructure changes. Which allows for a significant period of detailed data design to support the resilience of the RBC. Once the RBC is configured the other risk around ETCS installations are associated with inaccurate positioning of Balises.

9.3.1.14 In conventional signalling, there are significant construction tolerances up to 10m for the positioning of Axle counters and some other four-foot equipment. ETCS requires a greater level of accuracy to ensure that the configuration of the train and track communications is valid in the intelligence of the interlocking. To support the risk of inaccuracy of balise installation, the Arcadis Old Oak common Rail Systems design team have worked with the

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Paddington to Reading team to ensure that the stages align. The details of these stages can be found in Section 7 and the testing and commissioning details in Section 7.4.

9.3.1.15 Apart from the introduction of a new signalling system and the first-time remodeling of an emerging technology, the complexity in the delivery of Old Oak Common is around the interfaces and volume of work in the same physical footprint. To support the volume of change there is a requirement for multiple construction stages. Where any project undertakes multiple stages. Careful consideration must be given to the construction sequence of the signalling assets. Best practice is to prioritise the installation of equipment that is outside of the changes of the other physical infrastructure.

9.3.1.16 Old Oak common signalling changes take place far outside the boundary of the other discipline changes. These changes include signage, signals, cabling and four-foot equipment. The vast majority of these works can be undertaken during mid-week and weekend rules of the route possessions and should not require irregular disruptive possessions to install.

9.3.1.17 When considering signalling construction risks and methodology, a lot of the main constraints and risks sit within the existing condition of the site. Whereby legacy equipment, cabling and trackside apparatus cases are vulnerable to significant changes. In the instance of Old Oak, there will be entirely new cabling, equipment, and trackside apparatus cases which were replaced or heavily modified in the last 10 years. The signalling in the area is of a modern installation, <10 years, in the context of signalling and the condition and records are well understood.

9.3.2 Temporary signal sighting

9.3.2.1 One of the other considerations for the constructability of the signalling in Old Oak Common area is the complex signal sighting considerations, throughout multiple phases. The construction of a new 8 platform station on a curved, high speed infrastructure, creates challenges in sight lines around the station area.

9.3.2.2 There are also the challenges around signal sighting associated with OLE and other overhead structures. During the physical construction, there are risks around temporary visual obstructions such as hoardings or signage and the nature of a changing view of the site, which may lead to confusion and misreading of signals. To control this risk, the Arcadis construction methodology for signalling recommends that at all times during the construction and intermediary stages, the full signal sighting process must be followed. All signals, whether existing temporary or final alignment must have the associated valid signal sighting assessment. This may result in the requirement to install additional temporary signal locations, so that critical aspects of the proposed staging can be installed.

9.3.2.3 At the time of writing a temporary signal sighting assessment has been completed on the following signals:

Temp Signals	Notes	Stages in use
SN151	Temporary Signal location needed for temporary Down Main	Stage 12 → 15
SN445	Temporary Signal location needed for temporary alignment of Down Relief	Stage 9 → 16
SN162	Temporary Signal for temporary alignment of Up Main.	Stage 12 → 15
SN159	Temporary Signal for temporary alignment of Down Main.	Stage 12 → 15

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Table 17: Temporary Signals that have been checked

9.3.2.4 Temporary signals noted in Table 17 were reviewed against the technical principles of Track and OLE design alongside carrying out a rudimentary sighting exercise by plotting sighting lines on a plan layout at 1:400 scale. A full sighting assessment, using the 3D model remains to be completed.

Notes for SN151

9.3.2.5 Prior to Stage 6 SN151 (and possibly its Banner Repeater) will need to be moved before the OHLE structure masts can be installed on the Down Main Cess. The masts will obscure SN151 in its existing position.

9.3.2.6 A solution that seems simple at this stage, would be to move SN151 and position on a temporary Cantilever structure, which could be left hand mounted, subject to sighting, but also right hand mounted in an extreme case if permitted. The chainage would be similar. The SN151 would be controlled from the current signalling therefore there would be no required data changes. Looking at the sighting lines, a small move closer to the track will improve sighting significantly, which is being impacted by the new OHLE masts which are required to be installed prior to Stage 6.

9.3.2.7 In addition, a review was undertaken looking at Temporary OHLE structures to support Stage 9 commissioning which avoids sighting issues for the existing SN151. The option proved to be very problematic in terms of locating the Temporary structure, given the existing and new proposed alignments, as well as the requirements to remove some of the existing OHLE structures prior to Stage 9 commissioning, therefore enabling the new Relief alignments to be installed. Temporary OHLE structures to address the identified sighting issue is not recommended.

Notes for SN445

9.3.2.8 Temporary SN445 will be repositioned on the temporary Down Relief alignment from Stage 9 to Stage 16. From review of the new alignments which are proposed to be constructed track prior to Stage 9, there is limited space in the Cess which would prevent locating a left-hand mounted signal.

9.3.2.9 A solution for addressing the location of Temporary SN445 is positioning it on the boom of the OHLE structure J05/25B. This proposal was presented to NR and an exercise to check the sighting lines with the signal 900mm left of the rail running edge proved to be acceptable in principle. A formal sighting exercise remains to be completed.

Notes from SN162

9.3.2.10 Based on our initial assessment there was no obvious sighting issues.

Notes SN159

9.3.2.11 Based on our initial assessment there was no obvious sighting issues, however a more detailed check with the Station Platform model with hoarding will need to be undertaken.

9.3.2.12 **GRIP 5 –** further work will be required to complete the temporary signal designs and complete the sighting checks.

9.3.3 Stage 6 Commissioning

9.3.3.1 Prior to Stage 6 SN151 (and possibly its Banner Repeater) will need to be moved if OLE structures are being installed to the current plan as the legs in the Mains Cess are likely to obscure the existing signal. This is currently subject to assessment and replanning and therefore is not reflected in the current stage scheme plans which show it being moved to its final position at stage 15. It may be moved to final position or be installed in a temporary position prior to stage 6.

9.3.3.2 For the reconstruction of Old Oak Common Lane underbridge, by others, it is proposed that SN164 will need to be moved away from the construction area, Network Rail project

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team is currently advising a 40 metre move East will alleviate the risk from construction whilst retaining the sighting of the signal during piling works. The project team are expected to instruct this change to the relevant parties and then a stage scheme plan can be produced.

9.3.3.3 Stage 6 sees position lights being re-positioned on the back line for entry to and exit from the Crossrail Depot to allow for the future installation of 9017 points which is brought into data at stage 9.

9.3.3.4 The Old Oak Common Station Material Railhead is also brought in to use with existing signals SN174 routing trains onto it and SN169 allowing trains to leave it. SN174 route A onto the Railhead will be route barred as a main route and only in use as a shunt route (SN174 A(S)).

9.3.3.5 A stretch of the East end of Reception Line 1 is retained, approximately 20 metres before SN6072. The rest is removed, although retained in data, to facilitate the construction of platforms.

9.3.3.6 This stage requires no new location cases or REBs.

9.3.3.7 Points 8077 will be renewed.

Table 18: New or modified Stage 6

Document Number / Scheme Plan Number	Stage	Asset	Action
TBC	TBC	SN151	Moved/Renewed
TBC	TBC	SN164	Moved/Renewed
152270-NRD-DRG-ESG-000005_P04 20-GW-018 v0.4	6	8077	Renewed
		9017	Plain Lined
		SN6080	Moved/Renewed
		SN6083	Moved/Renewed

9.3.4 Stage 9 Commissioning

9.3.4.1 Stage 9 sees the transfer of train running from the existing Up and Down Reliefs to the new Up Relief (through Platform 8) and the new Down Relief Loop (through Platform 6).

9.3.4.2 As passenger trains are running on the new infrastructure the signalling power supply Relief feeder should be dual end fed (Ladbroke Grove to Old Oak Common to Acton PSPs) and at least ARS ready. The Mains feeder will be untouched at this stage. All the OOC RS location cases / REBs and associated cases (Fibre and FSP) on the Relief feeder will be in operation.

9.3.4.3 The PSP at OOC should be dual fed, preferably with an OLE feed transformer providing the primary feed and a DNO as the secondary, if OLE connection is not available then DNO will be the primary supply with an external generator available as the secondary supply.

9.3.4.4 Stage 9 Scheme Plan 1 of 3 (20-GW-025-01 version 0.4), shows changes (in blue) around the Ladbroke Grove area. These changes are predominantly associated with Crossrail / P2R works and do not have a particular influence on this project. The only work for OOC RS project shown on this scheme plan is the addition of two ATP Beacons for the protection of SN123. A PSR OSS is being removed and the existing signals SN114, SN123 and SN127 are being converted from four aspect to three aspect. There are several options for this conversion, but it is possible that the new configuration is not suitable for the existing

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post and a new straight post signal needs to be constructed for some or all of these signals. The speed board at SN123 is changed from 65/80 to 25/50.

9.3.4.5 Stage 9 Scheme Plan 2 of 3 – Green Work (20-GW-025-02/2 version 0.4) shows the current Relief Lines becoming redundant along with the Old Oak Common Station Materials Railhead. Although the stage scheme plan shows the ATP loop and AWS for signal SN134 as unaffected, they may need to be removed and replaced to avoid them being damaged as the new track is joined to the existing. The recovery of the Reliefs is to the West from approximately 4170 scheme plan metres to 6077 scheme plan metres, the west limit of which is usually detailed on the 'Acton to West Ealing" scheme plans, as it is on the red stage scheme plans for installation.

9.3.4.6 Signals SN134 and SN137 are converted from four aspect to three aspect. If the new configuration is not suitable for the existing structure, then new straight posts may need to be constructed for these signals. SN139 and SN143 are converted from 3 aspect to 4 aspect and require alterations to the displays on their route indicators (SARI and SN139, MARI and SARI on SN143). These are both recent installations so should be suitable for alteration of the existing equipment (subject to suitable assessment), although it should be noted that SN139 is suspended from an OLE structure and therefore is subject to further access requirements.



Figure 106- SN139 and SN143

9.3.4.7 Stage 9 Scheme Plan 2 of 3 – Red Work (20-GW-025-03-02/1 version 0.6) shows the operational railway routed on new track through the new platforms numbered 6 and 8. Signals associated with Platforms 5 and 7 are placed in data at this stage, signals will be route barred and bagged as they are not available for use. Prior to stage 9 the signalling equipment will have been installed on Up Relief, Up Relief Loop, Down Relief Loop and Down Relief lines. The equipment on the (final) Down Relief is installed and tested where possible and where it doesn't interfere with this lines future role a Temporary Up Main. Signals not in operational use will be bagged as "Out of Use". Signal SN445 will be commissioned in a temporary position. SN151 is shown in its current position and without a Banner Repeater on this plan, as detailed in Stage 6 section this is expected to be moved prior to OOC RS works commencing.

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9.3.4.8 Preparations may be made at this stage for the implementation of the temporary sidings (South Rail Head) off the Down Main, further details are yet to be confirmed. The Normal detection of the points off the DM will be cut-in to the relevant train detection section so that trains will not run on the DM unless the points are Normal. The South Rail Head will be added to data at this stage for use around stage 12.

9.3.4.9 All the signals that will be Reliefs signals at final are being added to the IECC data at Stage 9 although most will be “Route Barred” for this railway configuration as necessary.

9.3.4.10 The route from Platform 6 to SN171 will be 50mph plain lined, the interlocking data will contain the elements of the final crossovers but will simulate the operation of the plain line, hence the references on the scheme plan to physical and virtual points detection, which allows trains to run on the plain lined sections whilst containing the final detection in data.

9.3.4.11 Acton to Ealing Broadway – Stage 9 Scheme Plan 3 of 3 (20-GW-025-03 version 0.3) picks up the depiction of the Reliefs being replaced between 6077 and around 6585 metres, again some equipment associated with SN175 will need to be removed and refitted around the track works, but this is not highlighted upon the stage scheme plan. This stage sees a speed sign and an AWS installed outside the track remodeling area. The signalling data will be updated to include 8113 and 8112 points even though they will only become operational at stage 11.

9.3.4.12 Data change on the IECC is usually planned to take part during the first day of the possession and signalling testing will occur after this as planned in the Testing and Commissioning Strategy in a future GRIP stage.

9.3.4.13 Before the Relief feeders of the signalling power supply from Old Oak Common PSP are connected into the existing Acton – Ladbroke Grove Relief feeder, the feeders will power up the signalling equipment on the new UR, URL, DRL and DR lines so that the equipment can be tested. At stage 9 commissioning these feeders will be connected to replace the existing feeder between R2/137 and R3/168.

Table 19: New or modified Stage 9

Document Number / Scheme Plan Number	Stage	Asset	Action
152270-NRD-DRG-ESG-000006_P04 20-GW-025-01 v0.4	9	SN123 rehead	Replaced
		SI-DR D 1M 72CH	Replaced
		SN114 rehead	Replaced
		SN127 rehead	Replaced
152270-NRD-DRG-ESG-000007_P06 20-GW-025-01 v0.6	9	SN134	New head
		SN137	New head
		SN139	New head and Route Indicator
		SN143	New head and Route Indicators
		SI-EC U 2M 58CH	New
		SI-EC D 2M 58CH	New
		SI-CL U 2m 61ch	New
		SI-CL D 2m 61ch	New
		SN149	New

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		SI-UR U 2m 65ch	New
		9017	New
		9020	New
		9018	New
		SN144	New
		SI-UR U 2m 68ch	New
		9019	New
		9025 A&B	New
		9022	New
		9026 A&B	Plain lined
		SN417	New
		SN418	New
		SN419	New
		SN420	New
		SN421	New
		SN422	New
		SN423	New
		SN424	New
		SN433	New
		SN435	New
		SN436	New
		SN437	New
		SN438	New
		SN439	New
		9030	Plain lined
		9031	Not installed
		9032	New
		9033 (virtual)	x
		9033 (physical)	Plain lined
		9034 A&B	New
		9035 (virtual)	x
		9035 (physical)	new (not connected to IXL)
		SI-UR D 3m 30ch	New
		SI-URL D 3m 30ch	New
		9036	New
		9037	New
		9039 (virtual)	x

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		9039 (physical)	New (not connected to IXL)
		9041 A&B	New
		9040	New
		9039	New
		SN446	New
		SN444	New
		SN445	New
		SN448	New
		SN449	New
		SN171	New
		SN170	New
		SN174	New
152270-NRD-DRG-ESG-000009_P04 20-GW-025-03 v0.4	9	8112A&B	New (plain lined)
		8113A&B	New (plain lined)
		SI-UR U 3m 68ch	New
		SWI-UR U 4m 35ch	New
		SN186	Modified

9.3.5 Stage 12 Commissioning

9.3.5.1 Stage 12 sees the current Mains being decommissioned and trains running through the newly built platforms 4 and 5 of what will become the Old Oak Common GWML station.

9.3.5.2 The Up and Down Main signalling equipment will be replicated on Temporary Up Main and Temporary Down Main. The Temporary Down Main will become, at a later stage, the Up Main through Platform 4.

9.3.5.3 Paddington Stage 12 Scheme Plan 1 of 3 (20-GW-026-01 version 0.4) shows many alterations in blue where Crossrail joins the Great Western Main Line (GWML), these are to be enacted by others.

9.3.5.4 The only construction work indicated on this plan for OOC RS is the change of a speed board at approx. 3340 metres, from 80/100 to 60 mph. This may or may not need to be a new post, whichever it is will be completed during the Stage 12 possession. The necessity of further alterations to speed or ATP infill loops remains TBC at this time.

9.3.5.5 Stage 12 Scheme Plan 2 of 3 (20-GW-026-02/01 version 0.4) shows trains running on the temporary alignment between approximately 4770 and 6000 metres.

9.3.5.6 The signals installed at Stage 9 on the future Down Relief are still route barred and bagged, the Temporary Up and Down Mains will utilise temporary installations of equipment, including signals, replicating what is on the current Up and Down Main. This will use the existing data and infrastructure so the Location suites will remain in their current positions and extended tail cables will feed the equipment. The route that each cable takes through the construction site and the appropriate level of protection will need to be agreed. If suitable protection cannot be assured for the signalling equipment for the operational Temporary Mains, then the location suites will need to be replicated to the north of the

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construction site also. This will involve building bases, replicating the power and fibre connections, as well as the signalling location cases for suites M3/48 and M3/72.

9.3.5.7 Assessment of the signalling power supply will be necessary to show that the existing feeder can power both sets of signalling equipment in the run up to the changeover to allow for testing, if not then an over & back regime could be implemented such that only one set was powered at any one time, so testing under power could only occur when the operational signalling equipment was not powered.

9.3.5.8 Part of the current Down Main will be used as a temporary siding for construction purposes, protection of the operational railway from errant vehicles will be addressed, currently the scheme plan shows a derailer, and the detection for the points (9023) into the siding will be cut into the adjoining train detection track section ((P)LC), so that any issue with the position of the points will be brought to the attention of the signaller.

9.3.5.9 It is expected that to facilitate the construction of Platform 1 / 2, the siding will be shorter than represented on the current scheme plan, as in it will terminate at around 5000m whereas the current scheme plan shows it extending to Old Oak Common Lane underbridge, terminating at around 5600m.

9.3.5.10 A Limit of Shunt sign is to be placed in the DM Cess at 4212m for trains exiting the Temporary Siding although as stated on the scheme plan, “stage for LOS-DM provision to be confirmed”.

9.3.5.11 The current version of the scheme plan shows SN151 in the same position as it is in today and with no Banner Repeater. Analysis shows that the signal will be obscured by the ongoing installation of OLE structures and it is expected that the signal will be moved to its final position early and a new Banner Repeater installed early to facilitate signal sighting as the OLE structures are installed. If possible, this will occur as part of an ETCS or P2R signalling Stage prior to the first OOC RS signalling stage.

9.3.5.12 Acton to Ealing Broadway – Stage 12 Scheme Plan 3 of 3 (20-GW-026-03 version 0.4) shows that a new speed board is needed for the transition to the temporary UM alignment, this will be in the 10’ at 6352 metres, with an OSS at around 7200 metres and a warning sign in the 10’ at 8327 metres.

9.3.5.13 REBs M3/13 & M3/45 will be installed just after stage 12 but will not be operational.

Table 20: New or modified Stage 12

Document Number / Scheme Plan Number	Stage	Asset	Action
152270-NRD-DRG-ESG-000010_P04 20-GW-026-01 v0.4	12	SI-DM D 2M 4CH	Modified
152270-NRD-DRG-ESG-000010_P03 20-GW-026-01 v0.3	12	LOS-DM U 2m 47ch	New
		SN159	New / Replicated
		SN160	New / Replicated
152270-NRD-DRG-ESG-000012_P04 20-GW-026-03 v0.4	12	SI-DM D 3m 66ch	New
		SI-UM U 3m 74ch	New
		SWI-UM U 5m 12ch	New

9.3.6 Stage 15 Commissioning

9.3.6.1 Stage 15 sees train running through platforms 1, 2 and 3 of the new OOC station, respectively on Down Main Loop, Down Main and Up Main Loop. The Up Main is not fully installed at the time of commissioning although it, and its associated signals will be in data.

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9.3.6.2 The Stage Scheme Plan for the Paddington Approaches, 152270-NRD-DRG-ESG-000013_P03 20-GW-51-01 v0.3, shows SN120 and SN125 being converted from 4 to 3 aspect. This plan shows also a 60-mph speed board being replaced by a 35/60 sign 13 metres west of the original sign.

9.3.6.3 The Stage Scheme Plan for Old Oak Common area, 152270-NRD-DRG-ESG-000014_P04 20-GW-51-02/01 v0.4, shows the removal of the LOS introduced at stage 12 as the temporary siding was removed at stage 13B.

9.3.6.4 This stage shows all OOC RS signalling equipment installed on the Mains, including the part of the (future) Up Main that is not yet installed. As a result of this all the Location cases, REBs and their associated equipment need to be installed and powered up prior to the commissioning. This will require that the new Mains feeders between Acton, Old Oak Common and Portobello PSPs are operational.

9.3.6.5 SN135 is to be converted from 4 aspect to 3 aspect.

9.3.6.6 The new SN151 and its Banner Repeater are shown here as new, these may have been installed earlier to facilitate OLE install in the Down Main cess, this is still to be resolved and will be altered through scheme design once it is decided upon. Current proposal is for a non-accessible cantilever a year before stage 9. The new banner will be commissioned at this stage.

9.3.6.7 The stage scheme plan for Acton / West Ealing area, 152270-NRD-DRG-ESG-000015_P04 20-GW-51-03 v0.4 shows a Speed Board and its associated Speed warning Indicator being installed on the Up Main, with associated equipment such as OSS, along with some new and renewed ATP equipment for SN194.

Table 21: New or modified Stage 15

Document Number / Scheme Plan Number	Stage	Asset	Action
152270-NRD-DRG-ESG-000013_P03 20-GW-51-01 v0.3	15	SN125	Rehead / Replace
		SI-DM D 2M 5CH	35/60 Replaces 60 At 2M 4CH
		SN120	Rehead / Replace
152270-NRD-DRG-ESG-000014_P04 20-GW-51-02/01 v0.4	15	SN418	New
		SI-UM U 2m 35ch	New
		SN135	Rehead / Replace
		SN151BR	New
		SN150	New
		SN151	New
		SN410	New
		SN412	New
		SN414	New
		SN416	New
		SN416BR	New
		SN425	New
		SN427	New

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		SN429	New
		SI-UM D 3m 22ch	New
		SN431	New
		SI-UML D 3m 22ch	New
		SN441	New
		SN443	New
		SN450	New
		SN452	New
		SI-UM U 3m 49ch	New
		9046 A&B	New
		SI-DM D 3m 46ch	New
		SI-DM D 3m 50ch	New
		9047 A&B	New
		SI-UM U 3m 56ch	New
		SN168	New

9.3.7 Stage 16 Commissioning

9.3.7.1 Stage 16 sees the Up Main and Down Relief brought into use in their final configuration.

9.3.7.2 Points 9039 and 9031 are plan lined while 9020 are commissioned physically having been added to data at stage 9. The connection and 'virtual' points between Platform 6 west end and the Down Relief is decommissioned in preparation of the final configuration at stage 17.

9.3.7.3 Signal SN445 is replaced in its final position, SN440 is installed and commissioned, SN433 and 418 are brought into use having been installed at stage 9. SN417 is installed in its final position.

9.3.7.4 Points 9043 are brought in to use allowing both Up Main and Up Main Loop to be operational.

Table 22: New or modified Stage 16

Document Number / Scheme Plan Number	Stage	Asset	Action
152270-NRD-DRG-ESG-000016_P04 20-GW-052 v0.4	16	9020	New, Existing In Data
		SN417	New To Data
		SN418	Existing, Brought Into Use
		SI-DRL D 3m 22ch	Replaced
		SI-DR D 3m 22ch	New
		9031	Existing In Data, Plain Lined
		9039	Existing In Data, Plain Lined
		9043	Existing In Data

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		SN445	Replace
		SN440	New
		SI-DR D 3m 43ch	New
		SN170	Existing, Brought Into Use

9.3.8 Stage 17 Commissioning

9.3.8.1 Stage 17 sees the installation of the three Turnback Lines (A, B and C) and completion of the crossovers 9040/9036, 9039/9037, 9032/9030 and 9033/9031 all to the west of the station between the Relief Lines. To the East of the station the crossover 9026A/B is installed and brought in to use.

9.3.8.2 At this stage all route bars are removed as the configuration is now final.

Table 23: New or modified Stage 17

Document Number / Scheme Plan Number	Stage	Asset	Action
152270-NRD-DRG-ESG-000017_P01 20-GW-072 v0.1	17	SI-DRL D 2m 78ch	New
		9026 A&B	New, Already In Data
		9030	New, Already In Data
		9031	New, Already In Data
		9033	New, Already In Data
		SN442	New
		9039	New, Already In Data
		9040	New, Already In Data
		SN444	New
		Turnback Line C	New
		AGQ(INT)R	New
		Turnback Line B	New
		AKP(INT)R	New - Note: Should Be AKN(INT)R
		Turnback Line A	New
		AKA(INT)R	New

9.3.9 Signalling Assets Overview

Table 24: New & Modified Old Oak Common Signals

Number	ID	Type	Status	Line	Meterage	Change
1	SN123	Straight Post	Modified	Down Relief	3090	4 aspect to 3 aspect
2	SN125	Straight Post	Modified	Down Main	3206	4 aspect to 3 aspect
3	SN114	Straight Post	Modified	Up Relief	3324	4 aspect to 3 aspect

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Number	ID	Type	Status	Line	Meterage	Change
4	SN120	Straight Post	Modified	Up Main	3389	4 aspect to 3 aspect
5	SN127	Straight Post	Modified	Down Relief	3641	4 aspect to 3 aspect
6	SN148	Straight Post	Proposed	Up Main	3920	3 aspect
7	SN134	Straight Post	Modified	Up Relief	3988	4 aspect to 3 aspect
8	SN135	Straight Post	Modified	Down Main	4019	4 aspect to 3 aspect
9	SN137	Straight Post	Modified	Down Relief	4083	4 aspect to 3 aspect
10	SN139	Cantilever	Modified	Carriage Line	4336	add 1 SARI route
11	SN143	Straight Post	Modified	Engine & Carriage Line	4337	add 2 SARI routes remove 1 MARI route
12	SN149	Straight Post	Proposed	Down Relief	4525	4 aspect & JI 2 routes
13	SN6080	Ground Position Light	Proposed	Back Line	4586	2 routes
14	SN150	Straight Post	Proposed	Up Main	4642	3 aspect
15	SN144	Straight Post	Proposed	Up Relief	4642	3 aspect & JI 2 routes
16	SN151	Straight Post	Proposed	Down Main	4675	3 aspect & JI 1 route
17	SN419	Straight Post	Proposed	Down Relief Loop	5010	4 aspect
18	SN421	Straight Post	Proposed	Up Relief Loop	5010	4 aspect
19	SN423	Straight Post	Proposed	Up Relief	5010	4 aspect
20	SN410	Straight Post	Proposed	Down Main Loop	5013	Fixed Red
21	SN412	Straight Post	Proposed	Down Main	5013	Fixed Red
22	SN414	Straight Post	Proposed	Up Main Loop	5013	3 aspect
23	SN416	Gantry 1	Proposed	Up Main	5013	3 aspect
24	SN417	Gantry 1	Proposed	Down Relief	5013	4 aspect
25	SN418	Gantry 1	Proposed	Down Relief	5013	Fixed Red
26	SN420	Straight Post	Proposed	Down Relief Loop	5013	3 aspect & JI 1 route
27	SN422	Straight Post	Proposed	Up Relief Loop	5013	3 aspect
28	SN424	Straight Post	Proposed	Up Relief	5013	3 aspect & JI 2 routes
29	SN427BR	Bracket	Proposed	Down Main	5027	3 aspect banner repeater
30	SN435BR	Bracket	Proposed	Down Relief Loop	5156	3 aspect banner repeater
31	SN433	Straight Post	Proposed	Down Relief	5303	4 aspect & SARI 4 routes (3 symbol on SP)
32	SN435	Straight Post	Proposed	Down Relief Loop	5303	4 aspect & SARI 4 routes

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Number	ID	Type	Status	Line	Meterage	Change
33	SN437	Straight Post	Proposed	Up Relief Loop	5303	4 aspect & SARI 4 routes
34	SN439	Straight Post	Proposed	Up Relief	5303	4 aspect & SARI 4 routes
35	SN436	Straight Post	Proposed	Up Relief Loop	5306	4 aspect
36	SN438	Straight Post	Proposed	Up Relief	5306	4 aspect
37	SN425	Straight Post	Proposed	Down Main Loop	5312	4 aspect
38	SN427	Straight Post	Proposed	Down Main	5312	4 aspect
39	SN429	Straight Post	Proposed	Up Main Loop	5312	3 aspect
40	SN431	Straight Post	Proposed	Up Main	5312	3 aspect
41	SN442	Ground TBC	Proposed	OOC Turnback Line C	5565	3 aspect & SARI 4 routes
42	SN444	Ground TBC	Proposed	OOC Turnback Line B	5622	3 aspect & SARI 4 routes
43	SN446	Ground TBC	Proposed	OOC Turnback Line A	5622	3 aspect & SARI 4 routes
44	SN441	Straight Post	Proposed	Down Main	5665	4 aspect
45	SN443	Straight Post	Proposed	Up Main	5665	4 aspect & JI
46	SN445	Straight Post	Proposed	Down Relief	5665	4 aspect
47	SN440	Straight Post	Proposed	Down Relief	5675	4 aspect & SARI 2 routes
48	SN450	Straight Post	Proposed	Down Main	5675	2 aspect & JI
49	SN452	Straight Post	Proposed	Up Main	5675	4 aspect & JI
50	SN448	Straight Post	Proposed	Up Relief	5679	4 aspect & JI
51	SN449	Straight Post	Proposed	Up Relief	5892	4 aspect & JI
52	SN171	Cantilever	Proposed	Down Relief	5955	4 aspect
53	SN168	Gantry 2	Proposed	Up Main	6040	4 aspect & JI
54	SN170	Gantry 2	Proposed	Down Relief	6040	4 aspect
55	SN174	Gantry 2	Proposed	Up Relief	6040	4 aspect

9.3.9.1 As well as the introduction and modifications there are also the removal of 19 signals as detailed in the below table, with reference to the Scheme Plan that they are removed from.

Table 25: Removed Old Oak Common Signals

Number	ID	Status	Plan
1	SN146	Removed	19-GW-034-01/2
2	SN6080	Removed	
3	SN144	Removed	
4	SN6072	Removed	
5	SN151	Removed	
6	SN6109	Removed	
7	SN153	Removed	
8	SN154	Removed	
9	SN156	Removed	

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Number	ID	Status	Plan
10	SN157	Removed	
11	SN159	Removed	
12	SN160	Removed	
13	SN162	Removed	
14	SN163	Removed	
15	SN164	Removed	
16	SN169	Removed	
17	SN6122	Removed	19-GW-034-02
18	SN174	Removed	
19	SN174BR	Removed	

9.3.9.2 There are also 35 new points being installed or significantly modified to require new Points operating Equipment. The POE units are delivered to site pre-built in a factory environment and require connection and testing by signalling.

Table 26: POE Old Oak Common

Number	ID	Status	Line	Scheme Plan Metres (approx.)
1	9016	Proposed	Back Line	4492
2	9017	Proposed	Back Line	4535
3	9020	Proposed	Down Relief	4578
4	9018	Proposed	Up Relief	4630
5	9019	Proposed	Up Relief	4655
6	9024	Proposed	Up Main	4690
7	9023	Proposed	Down Main	4740
8	9025B	Proposed	Up Relief Loop	4750
9	9022	Proposed	Up Relief	4780
10	9025A	Proposed	Down Relief Loop	4810
11	9026B	Proposed	Down Relief Loop	4830
12	9026A	Proposed	Up Relief Loop	4900
13	9030	Proposed	Up Relief	5307
14	9031	Proposed	Down Relief	5307
15	9032	Proposed	Up Relief Loop	5420
16	9033	Proposed	Down Relief Loop	5420
17	9034B	Proposed	Up Relief Loop	5440
18	9035	Proposed	Down Relief Loop	5440
19	9036	Proposed	Up Relief Loop	5480
20	9034A	Proposed	OOC Turnback Line B	5492
21	9037	Proposed	OOC Turnback Line B	5510
22	9041B	Proposed	OOC Turnback Line B	5550

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Number	ID	Status	Line	Scheme Plan Metres (approx.)
23	9040	Proposed	Up Relief	5600
24	9041A	Proposed	OOC Turnback Line A	5610
25	9039	Proposed	Down Relief	5620
26	9043	Proposed	Up Main	5620
27	9044	Proposed	Down Main	5620
28	9046B	Proposed	Up Main	5780
29	9046A	Proposed	Down Main	5870
30	9047B	Proposed	Down Main	5895
31	9047A	Proposed	Up Main	5985
32	8112B	Proposed	Up Relief	6185
33	8112A	Proposed	Down Relief	6280
34	8113B	Proposed	Down Relief	6290
35	8113A	Proposed	Up Relief	6400

9.3.10 General Sequence of Signaling Installation

9.3.10.1 Throughout the design of the stages and sequence of construction, the following general sequence for signalling construction has been used to evaluate the credibility of the signalling changes.

Surveys

9.3.10.2 Initial surveys shall be undertaken as required by the signalling contractor to determine the condition of the infrastructure and locations for the positioning of new equipment. In this particular area Alstom have been working concurrently with NR to implement ETCS and other schemes. Accordingly, correlation waiver should be possible as Alstom hold the records and have been modifying all signalling equipment over the last ten years or so.

Signaling Civils

9.3.10.3 All civil building materials for equipment bases and sub routes are in small quantities and shall be delivered to site using approved access points by lorry / HIAB, or road rail delivery under possession where road access is not available or practical. Civils installation works shall be undertaken during normal working hours where protection methods can be achieved, but if not possible, mid-week and weekend possessions shall be allocated.

9.3.10.4 Civil works shall be co-ordinated with the P/Way contractors and major civils to ensure works can be undertaken safely and ground levels are finalised before construction. There are no areas of significant concern throughout the Old Oak Common Area. All necessary minor civil engineering works will be completed and inspected prior to installing cables, signals, lineside cabinets and new REB's. Delivery shall be undertaken utilising road access with lorry or crane where available or rail access using RRV as required.

Cable Management

9.3.10.5 All signalling cable running will be carried out by the signalling contractor and cable installation shall be undertaken by hand where access allows or by RRV during possessions. Tail cables shall be hand pulled or pre-cut lengths used where appropriate. Cables will be correctly labelled at the time of installation to avoid lengthy identification at termination. Maximum use is to be made of plug coupler, preformed, and terminated cables

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to trackside equipment. Where cables cannot be terminated immediately the cut end shall be sealed and placed in a secure position.

9.3.10.6 All new location cases shall be pre-wired, and factory tested. All quality and testing certification is to be supplied with the location cases and shall be subject to audit by the installation and testing groups.

LOCs & REB's

9.3.10.7 The main construction considerations for LOCs and REBs are in the sighting and positioning of the Civils bases as set out in the Civils section. Within the timings allowed for the OOC stages, the following assumptions have been made. All LOC's and REB's shall be delivered prior to planned installation that will enable power up and testing at least two months prior to commissioning stages.

9.3.10.8 REB delivery has been assumed to coincide with the site installation date to avoid the storage of large units at site. Location cases shall be lifted into position and secured immediately. Fire / water proofing works shall be completed following cable termination.

9.3.10.9 The allowances for signalling construction also assume that the signalling contractor will undertake all new cable termination work and populating new locations and REB's. The Signalling Contractor will undertake all new work on existing signalling as detailed on the relevant design.

Trackside and Four-foot Equipment

9.3.10.10 AWS equipment is to be installed in advance in their final position, with the permanent magnets omitted, which shall be installed when commissioned.

9.3.10.11 New TPWS loops shall be installed and set to work, likewise all new ATP requirements.

9.3.10.12 New ETCS balises shall be installed in advanced and under soak testing. All non-operational Four-Foot equipment shall be isolated prior to return to traffic and shall remain disconnected until tested and subsequently commissioned.

9.3.10.13 Axle Counter trackside equipment will be installed as sited in positions of safety; preformed leads shall be used to connect to the Axel Counter heads. Installation of the heads will be undertaken during suitable possessions; permission will be sought from NR prior to any grinding of rail embossing before installation.

9.3.10.14 Axle Counter lineside cabling shall be terminated in new termination cabinets, these shall be sited to suit the design of the cable installation and will follow the same principle of location case installation and construction. The housings being of a smaller type will be delivered and installed by hand.

9.3.10.15 It is anticipated that a number of the location cases installed and commissioned during earlier P2R works may be altered and retained in temporary positions for stage works. Wires will be run within the existing cases in accordance with design in readiness for changeover and test. All wiring will be left insulated and secure at the end of each shift, wiring diagrams will be updated to show the stage of installation and left within the location.

Points & Points Operating Equipment

9.3.10.16 The new points and layouts shall where possible be preinstalled off site dependent on the PWay contractors planned methodology of installation. Where the points are fitted on site during the installation of the layout, all fittings will be delivered to site in advance and checked for completeness before the possession activity.

9.3.10.17 Control of the termination of main power cables and energisation of location cases shall be subject to agreement between the NR power engineer, installation and testing. A permit

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to work system shall be used once any element of the power supply distribution has been energised. This shall be subject to a separate safety procedure.

9.3.11 Operational Signal Relocations to Enable Construction

9.3.11.1 In certain circumstances existing operational signals will need to be relocated to enable construction activities to take place and prevent signal obscurations from newly installed infrastructure like OHLE Masts.

9.3.11.2 At the time of writing a few signals have been identified as needing to be relocated to enable construction.

- SN164 signalling the Up Relief is located just West of Central Line Underbridge and may need to be repositioned to enable the piling and construction of the new Underbridge West Abutment.
- The existing operational SN151 located on the Down Main needs to be repositioned to prevent, the Down Main Cess, mast installation for the OHLE portals causing an obscuration of the signal. The masts for the OHLE portals must be installed prior to the Stage 9 commissioning to enable the new OHLE wire runs to be installed for the new Up Relief and Temporary Down Relief alignments. One option is to install a non-climbable cantilever that moves SN151 closer to the running edge and improves sighting such that the Down Main Cess OHLE mast installation will not obscure the signal. If a possible solution, the non-climbable cantilever for SN151 would be decommissioned once the existing Mains are diverted through the newly constructed platforms 4 & 5 at stage 12.

9.4 Civils

9.4.1.1 This section covers the construction methodology for Civil infrastructure. There is overlap between other discipline sections contained in this report, so this section should not be read in isolation.

9.4.2 North London Line – Embankment Wall

9.4.2.1 Construction works on the North London Line embankment wall can commence once the Reception Line is decommissioned, the track removed, and a path made clear for plant to access. A Form AA/BA will be required for ensuring plant can travel across Old Oak Common and Central Line Bridges.

9.4.2.2 The access, compound and storage area needed to construct the NLL retaining wall requires integration with the Civil Contractor building the bridges. At the time of writing this work is ongoing.

9.4.2.3 The track alignment for the Up Relief will result in modifications to the existing wing wall to the East of the overbridge. To facilitate modifications to the wing wall, existing structures J/05/35 and J/05/37 will need to be removed. Additionally, the cabled ATF will need to be re-routed and it is proposed to replicate the arrangement on the Mains, where the ATF cable is located in ground troughing in the 6 foot through the bridge. These constructability requirements are presented in section 1209.2.

9.4.2.4 Below (*Figure* 107) is an extract from the AIP Form 001 design detailing the location of the new retaining wall (in red) and the extent of the existing wall that is to be removed (in green).

9.4.2.5 The construction of the retaining wall is proposed to commence Stage 3.

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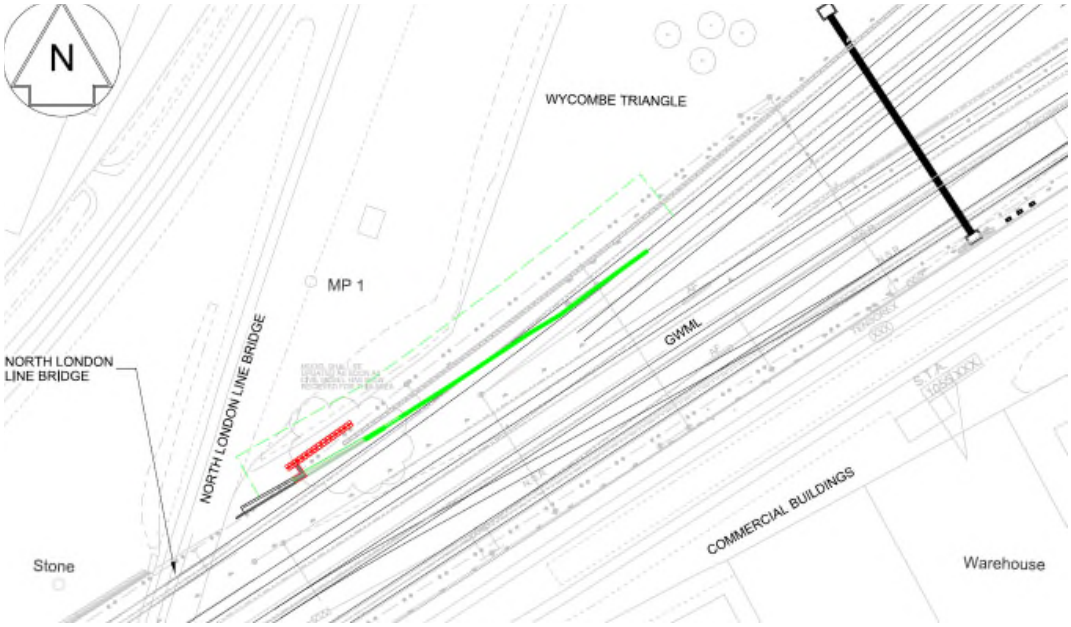


Figure *107: Location of NLL Retaining Wall*

9.4.2.6 A possible construction sequence, that could be followed to construct the North London Line embankment retaining wall is presented below. There will need to be a series of possessions on the Relief lines to ensure the retaining wall construction works are completed safely, but with the correct site setup a lot of work can be completed behind a fence without a possession or isolation.

9.4.2.7 Plant to track down over newly constructed Old Oak Common and Central Line bridge and at proposed location see Figure 100.



Figure *108: Route across Old Oak Common and Central Line bridge in grey*

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9.4.2.8 Once plant can access embankment, de-vegetate to enable regrading works and make access route ready for plant, of which the leading factor will be an estimated 20-50t piling rig. In accordance with Network Rail standard details NR/CIV/SD/270 & NR/CIV/SD/271, vegetation clearance is to be completed within 5m of the structure. The vast majority of vegetation has already been removed as part of ongoing HS2 works. Full site preparation and vegetation clearance will be completed before any works are undertaken to enable space for plant movements and the storage of materials (see Figure 101).



Figure *109: Access to NLL retaining wall*

9.4.2.9 A new access route will require graded fill to be bought, placed and compacted. Consideration will need to be given to protecting ground which will eventually have new track installation.

9.4.2.10 While regrading and compacting works are undertaken excess material, unsuitable for local reuse, will need to be stockpiled locally or removed via the access road along the recovered reception line path for reuse assuming ground is not contaminated.

9.4.2.11 A laydown area will be needed for the pile cages, reinforcement, plant and equipment.

9.4.2.12 It is possible the location of the NLL retaining wall will require embankment strengthening measures to create a suitable piling platform. The likelihood will reduce should the piling rig weight and size not be significant. At the time of writing the piles for NLL have not been designed and so it is not yet possible to confirm the piling plant required. However, the smaller the plant is the less complex access and construction of the piling platform will be. All piling platform locations will require CAT 3 check as per NR/L3/INI/CP0063. See Figure 102 below.

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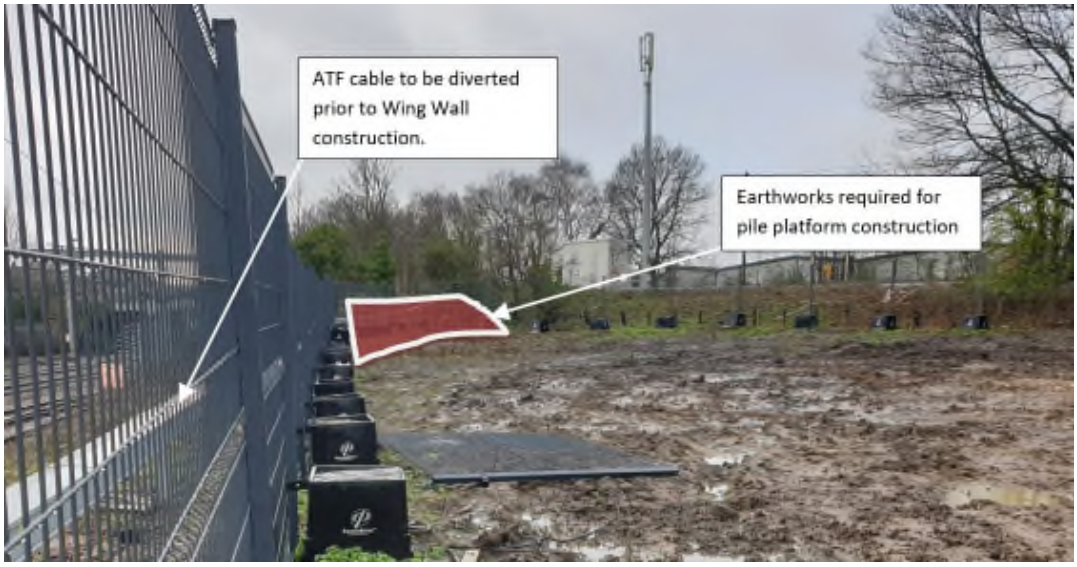


Figure *110: Piling platform location*

9.4.2.13 Once access route is completed, the piling rig can access embankment and travel to the prepared piling platform located adjacent to retaining wall. Piling rig will need to comply with NR/L3/INI/CP0063; see Figure 103 below.

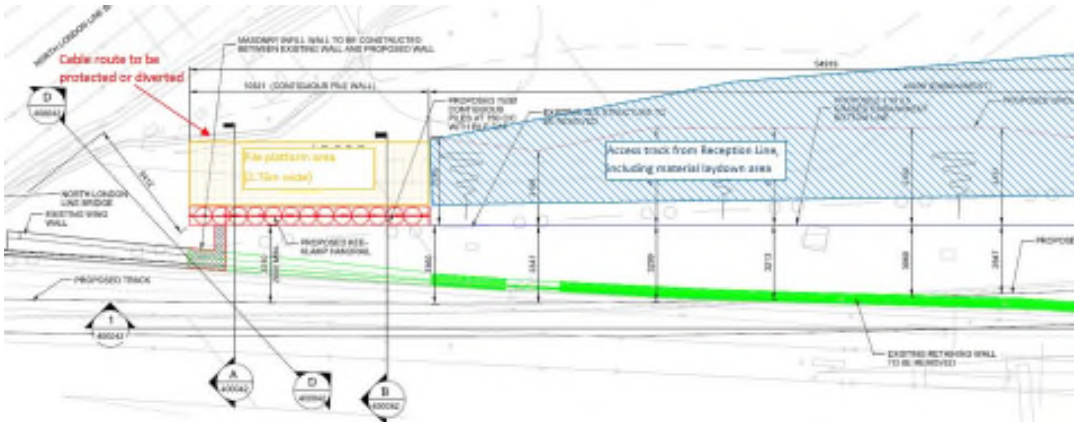


Figure *111: Proposed piling platform for NLL Retaining Wall*

9.4.2.14 Based on assessing the available space, topography, and likely piling plant, at the location of the proposed piling platform, it is considered not possible for piling works to be undertaken without possession and isolation of the Up Relief. Based on similar assessment of the NLL proximity to the piling operations, it should be possible by ensuring the collapse radius of the piling rig and all lifting and plant operations are prevented from encroachment within 3m of the NLL. A fence/barrier can be erected to prevent plant encroaching too close to the NLL, as well as Up Relief, the setting out of the barrier will need to be based on the worst-case collapse radius. It is worth noting that NLL is several meters higher than the proposed piling platform, unlike the case with respect to the Up Relief, which is several meters lower than the piling platform.

9.4.2.15 It is also worth noting the piling operations in this area near the GSMR positioned next to the NLL are not likely to interfere with the GSMR coverage based on an assessment by Telecoms.

9.4.2.16 Piling to commence working from the NLL side of the proposed piled retaining wall back towards access. Including excavation of the holes to the required design depth, pouring of the concrete mix when retracting the auger and installation of a reinforced steel cage. The

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process is repeated along the length of the wall maintaining a top of pile level with existing ground levels.

9.4.2.17 Construction sequenced of piling may require piling 1,3,5,7 etc. and then returning to pile 2,4,6,8 etc. to enable suitable concrete curing.

9.4.2.18 From review of 152270-25067-MLN1-DRG-ECV-400042 P01 (Figure 104 below), a concrete volume estimate has been calculated. Piles are 750mm dia. 13no. Piles.

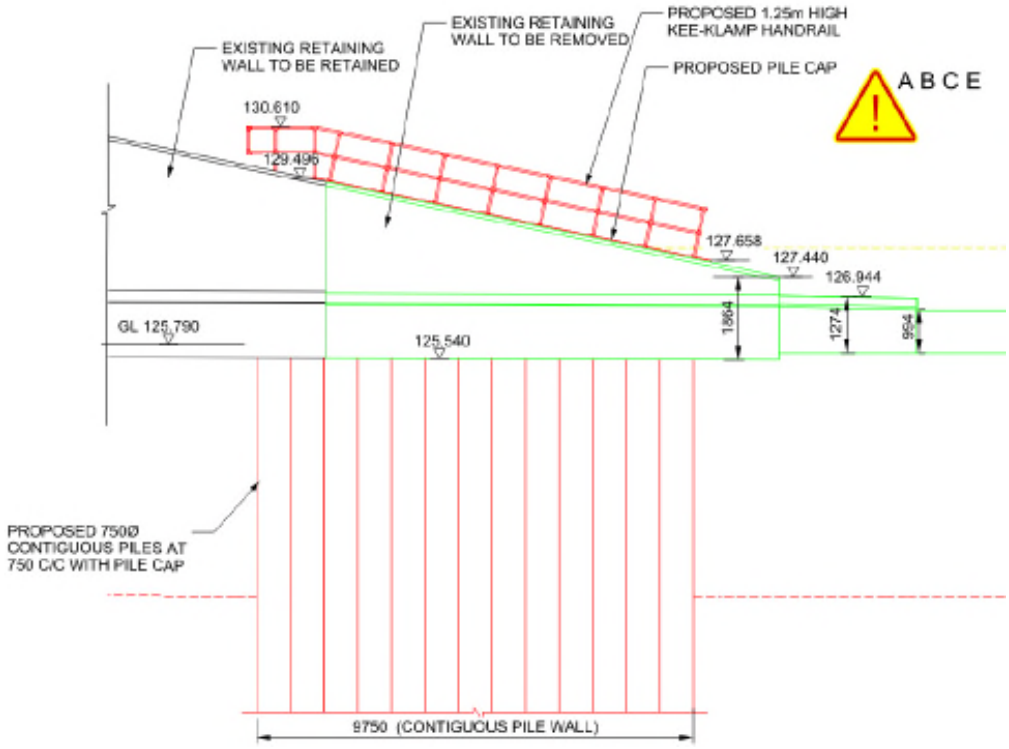


Figure *112: Image of proposed retaining wall taken from (152270-25067-MLN1-DRG-ECV-400042 P01)*

9.4.2.19 It may be possible to optmise the design during detailed design to minimise pile lengths and protruding height above the ground level. At the time of writing detailed design of the pile completed, so this assessment is based on the current information available from AiP stage, and some assumptions namely, pile below ground 2/3 and 1/3 above ground.

Therefore, assume average pile length is approx. 9m.

- Pile area = (0.750*π^2/4) = 1.850m^2
- Pile volume = (1.850*9) = 16.65m^3
- Total pile concrete = 16.65*13no.=216.45m^3
- Assume concrete batched and delivered in 6m^3 wagons which travel from compound along reception line to embankment access = (217m^3 volume)/ (6m^3 wagons) =37 deliveries estimated during piling works.
- A concrete pump will be needed to pump concrete to the piling rig.
- Once piles installed and concrete suitably cured, piles are to be broken down to design levels and prepared for casting of pile cap. This will require minor excavation around the piles for formwork placement. A temporary works design may be required.
- Once formwork for piling cap is constructed and reinforcement placed, concrete can be placed.

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- Concrete volume for pile cap (based on 152270-25067-MLN1-DRG-ECV-400042 P01) = 1.0m high x 0.9m wide x 10.5m long. 1x0.9x10.5=9.45m^3.
- Again, concrete will need to be pumped.
- The effective area of existing masonry wall in front of the structure is to be carefully taken down and removed. This includes the 44m length of 2.2m retained height wall and 10m length of varying height retained wall. This will require NBS possessions of the Reliefs and RRV's to take the material away to Acton Yard for possessing or via the access path. Concrete may be used instead of masonry to aid in abiding by tight construction timelines. If this opportunity taken forward it could use either a modular precast block system or a pumped in situ design. If pumped allocation of time to fabricate would be required.
- The lower hight section of wall will require controlled excavation of the proposed regraded embankment. Excess material is to be taken off site via the access path.
- In order to construct the propose blockwork infill between the existing masonry wall and new piled wall (see *Figure* 113 below), temporary works will be required to erect a scaffold access. A blockwork infill could either be masonry or precast concrete blocks will then be constructed between the retained masonry and contiguous piles and made good.

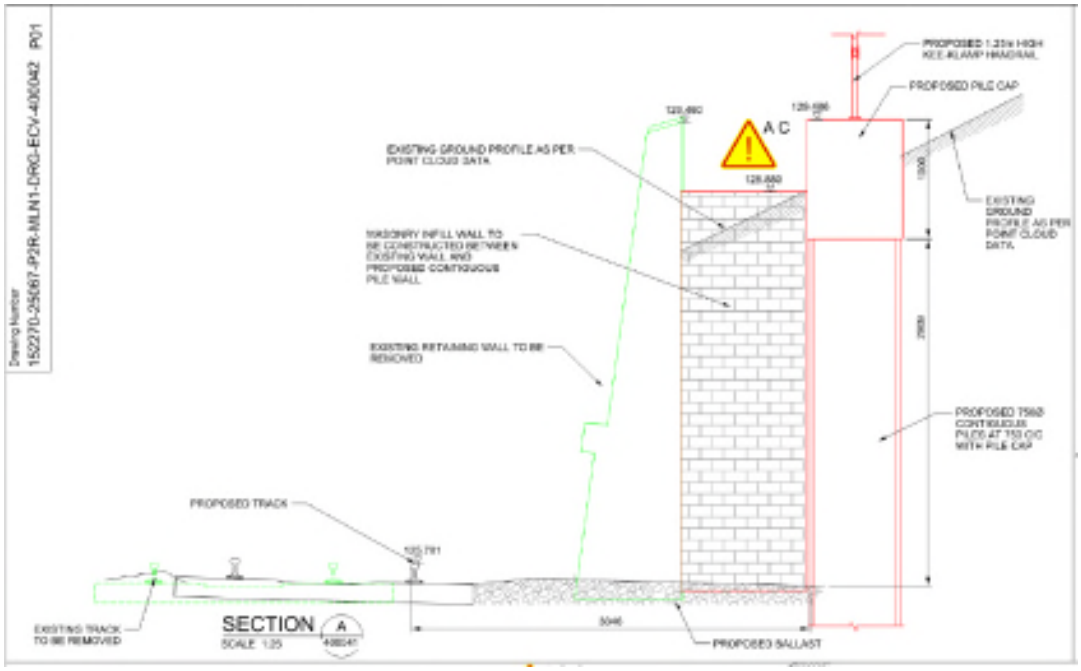


Figure *113: Proposed masonry infill between the existing masonry wall and new piled wall*

- Once new and existing walls are connected, backfill behind with 6N (reference Highway Works Specification).
- On completion of this contiguous pile section, a 50mm shotcrete rendering will be applied to the trackside face of the structure for aesthetical reasons. This will require a mesh panel to be attached to the pile face. Shotcrete operations will require a possession of the Relief lines.
- Protection of track will be required during shotcrete operations.
- Installation of a 1.25m high 'Kee Klamp®' handrail upon pile cap.
- Working out of the site, regrading embankment in accordance with the design.
- Works substantially complete.

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9.4.3 REBs

9.4.3.1 There are currently 5 no. REB's proposed for the signalling systems associated with this project, however, REB R2/140 is proposed to be installed prior to this project commencing as part of another project, so has not been including in this constructability report. Of the 4 no. new REB bases to be constructed and installed as part of this project, all are specified as concrete slab, with the expectation they will be cast in-situ. The site location of the REBs is set out below.

9.4.3.2 REB's foundations will need to be constructed in a sequence that aligns with the commissioning strategy.

9.4.3.3 See below for an example of a construction methodology for REB bases at grade.

9.4.3.4 Preparation works.

- If deemed necessary temporary access will be created.
- Any S&T and services within the site boundaries will be established.
- Any services which will need protecting or temporarily diverted from construction work will be completed prior.

Base Construction

- The REB foundations are proposed to be constructed in "High Street" environment by segregating the construction works from railway operations in such a way that safety risks cannot be transferred from the worksite to the operational railway and vice versa, in this context the construction works are deemed to be outside Network Rail managed infrastructure and will not require possessions and isolations to enable works.
- Excavation of the foundations shall be in accordance with the AFC Design.
- Excavations will be carried out with the use of a machine.
- Any oversized cobbles, boulders and organic materials shall be removed from the formation level and any voids will be filled with suitable fill material.
- The reduced levels will then be built up to the required design level using well compacted suitable fill materials and compacted in accordance with agreed AFC design.
- Formwork / steel pans will then be constructed and braced accordingly.
- Pre-bent reinforcement or reinforcing mesh will then be placed
- Dependant on location the concrete will be placed by pump, chute, skip or conveyor.
- A pre-determined wash out pit or constructed wash out pit will used to enable concrete lorries or remixer to be washed.
- Once the concrete has reached sufficient strength shuttering / formwork will be stripped.
- Once suitable curing has taken place the REB unit can be landed.
- REB's will be delivered to site using a Hiab Lorry.
- Hiab lorry or small mobile crane will lift the REB onto the base. Once in place Signalling will commence cabling in readiness for commissioning.

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9.4.3.5 It is proposed R3/13 base be constructed during Stage 7A prior to the P-Way being installed to the East of the station. This will make logistics easier.

9.4.3.6 REB R3/13 can be landed between during Stage 7C. It is envisaged the REB will be bought to site on a trailer and lifted off on to the newly constructed base by a Hiab or small mobile crane sited in the near vicinity. In this case the REB and lifting plant will need to access site from Wells House road and travel through the station site. It is a good idea to minimise the number of lifts for a REB because they are fragile equipment. If the P-Way works at the East of the station are completed faster than expected the delivery or a path through the stations site is not possible the REB will need to be via RRV.

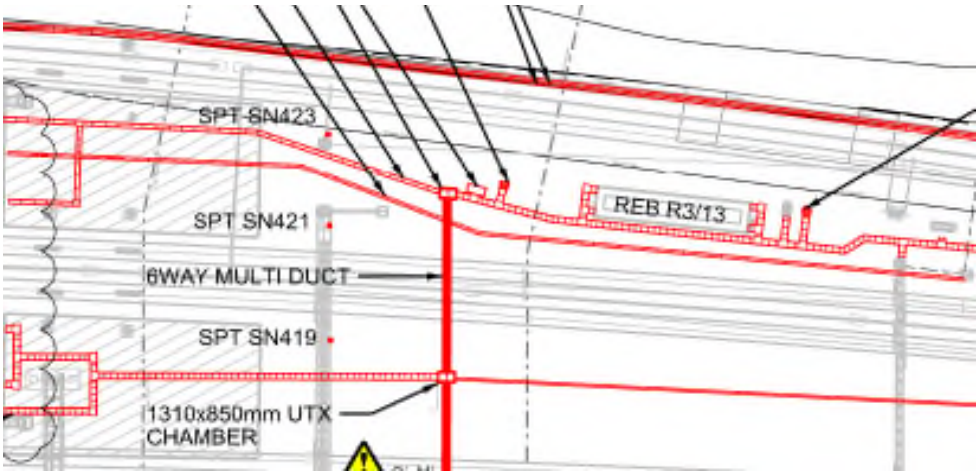


Figure *114: REB R3/13 located at chainage – 4890.000*

9.4.3.7 It is proposed that REB M3/13 base is constructed during Stage 7A prior to the P-Way being installed to the East of the station.

9.4.3.8 It is proposed that REB M3/13 can be landed between Stage 7C. It is envisaged the REB will be bought to on a trailer and lifted off on to the newly constructed base by a Hiab or small mobile crane sited in the near vicinity, in this case the REB and lifting plant will need to access site from Wells House road and travel through the station site. It is a good idea to minimise the number of lifts for a REB because they are fragile equipment. If the P-Way works at the East of the station are completed faster than expected the delivery or a path through the stations site is not possible the REB will need to be via RRV.

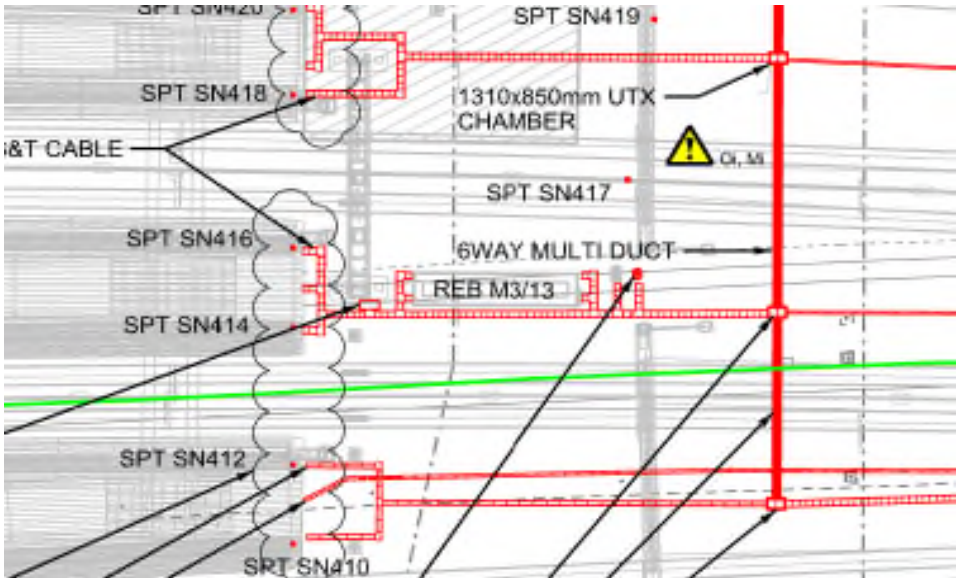


Figure *115: REB M3/13 located at chainage – 4990.000*

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9.4.3.9 It is proposed that R3/45 base is constructed during Stage 5A prior to the P-Way being installed to the West of the station. This is the same timeframe that the OHLE foundations are being installed.

9.4.3.10 It is proposed that REB R3/45 is landed in Stage 5C. It is envisaged the REB will be bought to on a trailer and lifted off on to the newly constructed base by a mobile crane sited in the near vicinity. It is a good idea to minimise the number of lifts for a REB because they are fragile equipment. But again, if delivery by RRV is needed then it is possible from Action Yard.

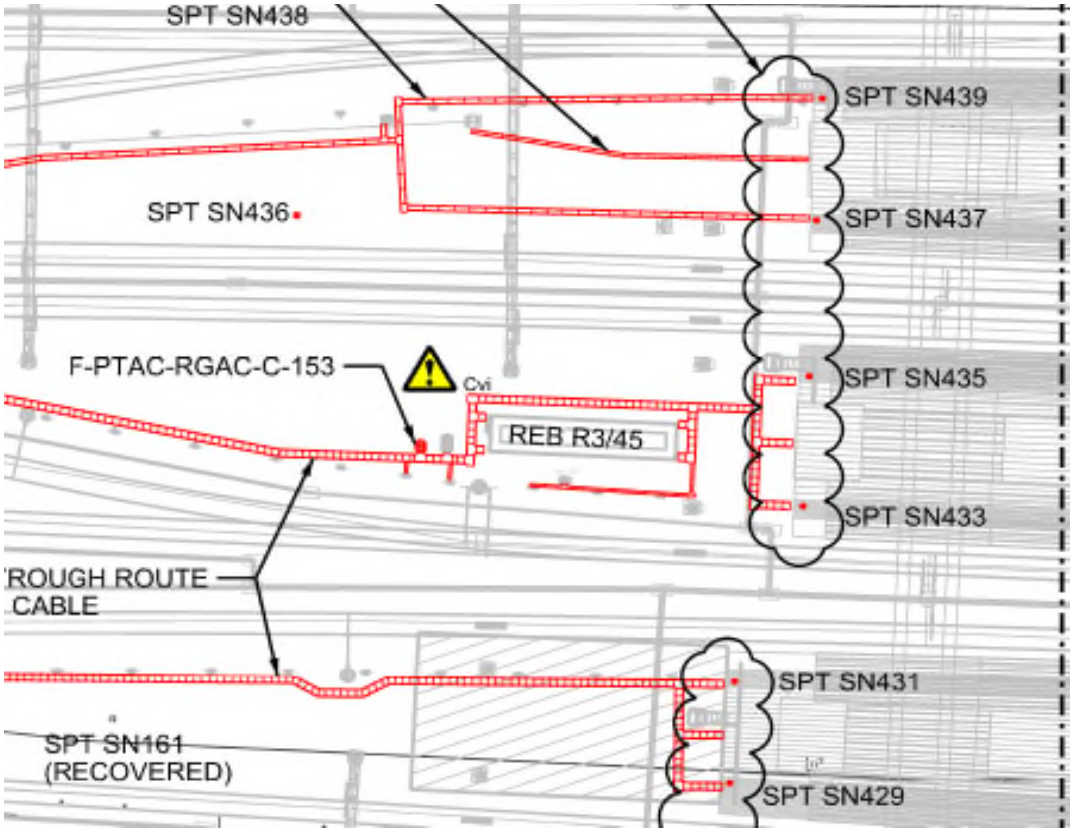


Figure *116: REB R3/45 located at chainage – 5295.000*

9.4.3.11 It is proposed that M3/45 base is constructed during Stage 13A once the Platform 1 & 2 has been substantially completed. This REB will control the Mains which will not be taken into use until Stage 15.

9.4.3.12 It is proposed that REB M3/45 is landed during Stage 14 at least 6 months prior to the temporary alignment of the Mains. Due to be commissioned at stage 14. It is envisaged the REB will be delivered on a trailer delivered by road and lifted off on to the newly constructed base by a mobile crane sited in the near vicinity. Access could be achieved through Old Oak Common Lane into North Pole Depot to the South West RRAP location. It is likely lifting operations will require a possession of the diverted Mains.

9.4.3.13 In general, it is a good idea to minimise the number of lifts for a REB because they are fragile equipment. If delivery by RRV is needed, then it should be possible from the new proposed South West RRAP as outlined in section 4.1.3. however, this will require additional planned lifts.

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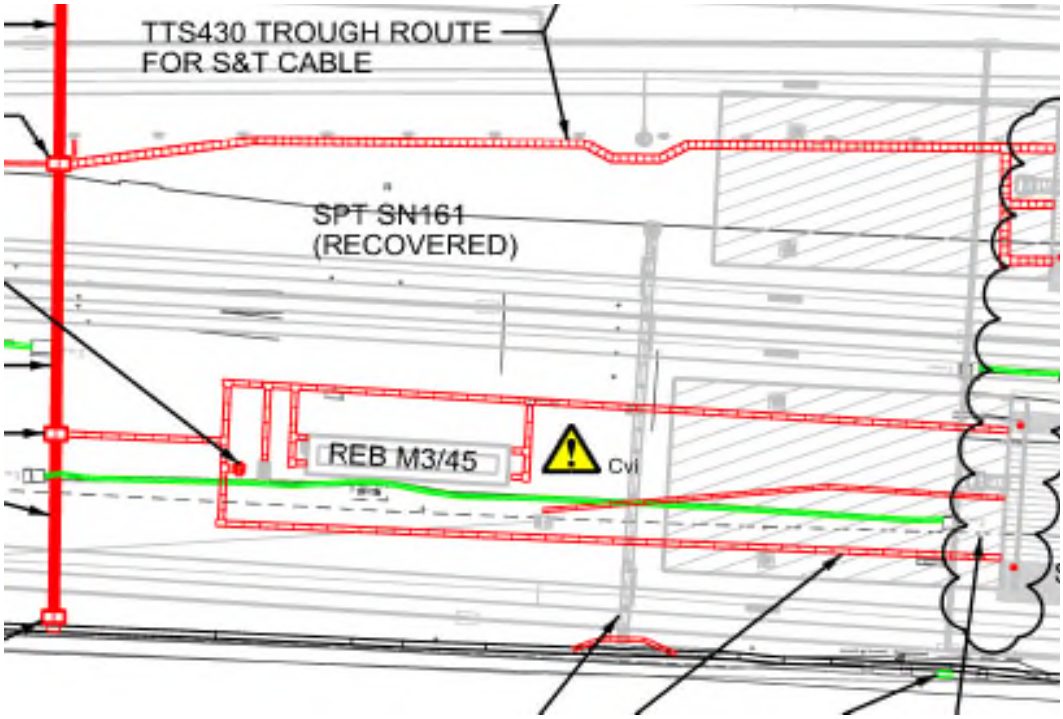


Figure *117:* REB M3/45 located at chainage – 5325.000

9.4.3.14 REB M3/45 has been relocated to the Country end of Platforms 3 & 4, with the view to enable construction and installation earlier, than would have been possible with the previous location.

9.4.4 PSPs

9.4.4.1 There is currently 1 no. new PSP proposed at approx. chainage 4740. The PSP base design is a concrete slab, with the expectation of cast in-situ. The construction methodology will mirror the REB base methodology outlined above with a few additionally requirements. Namely, the compound is proposed to be fenced with a gate large enough for a lorry to deliver a temporary generator, and an access road is required suitable for turning of a lorry. Lighting of the compound is also required. Duct routes for lineside cabling to access the PSP are shown in drawing 152270-25067-P2R-MLN1-DRG-EDS-400135.

9.4.4.2 The PSP can be delivered via the access road that is to be constructed and lifted on the base via a small mobile crane. If delivery by road is an issue due to the construction works being undertaken at OOC Station and the Box Station, then then all materials could be delivered by RRV and or Train from Acton Yard on the Up Relief during NBS possessions. This method is not desirable but possible if no other option.

9.4.4.3 For PSP installation and commissioning please refer to section 9.5.3.9

9.4.5 LOC & FSP Suites

9.4.5.1 In addition to this section, please refer to Signalling section 9.3

9.4.5.2 Location siting forms have been created as part of the project, please refer to 152270-ARC-PLN-ESG-000004 for details.

9.4.5.3 Location suites are to be positioned such that access to them is as safe as practicable, and on level and flat ground. The locations will also need to consider future changes or aspirations of rail infrastructure so not to drive relocation costs at a later stage.

9.4.5.4 Typically, location suite construction will consist of a retained hard standing of compacted graded fill material, with concrete trough route, location precast stool, handrail, and

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potentially step access, see example below in Figure 118. To avoid having to bond handrail, it is recommended all handrail used is GRP this will save time and cost associated with earthing and bonding activities.

9.4.5.5 Locations cabinets are connected to precast concrete stools, which are embedded in the hard standing.

9.4.5.6 Earthing matts are installed under the hard standing and backfilled with conductive aggregate and connected to earthing pots and the location cabinet.

9.4.5.7 Construction of a non-complex location suite, to the point of ready for landing a LOC case, can be completed by hand if needed, but a small excavator will reduce construction time.

9.4.5.8 For remote sites, materials for location suite construction can be strapped to pallets and delivered by RRV's during NBS possessions.

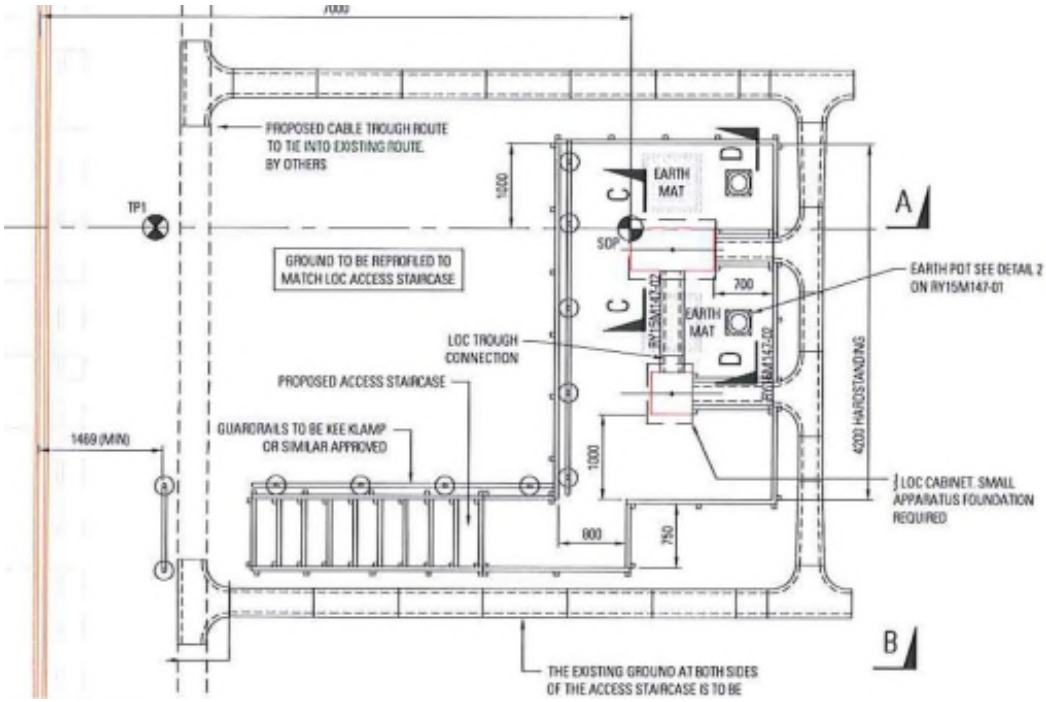


Figure *118:* Typical location suites

9.4.5.9 Where topography is not flat, a location suite may need to be constructed on a platform. This will require concrete pad foundations or if ground conditions are unfavorable, piles.

9.4.5.10 The staging can be either steel or glass reinforced plastic. Ladder access is sometime needed to access the staging platform. Ideally this type of solution can be avoided if locations suites are sighted with constructability in mind. An example of this type of construction is detailed below in Figure 119.

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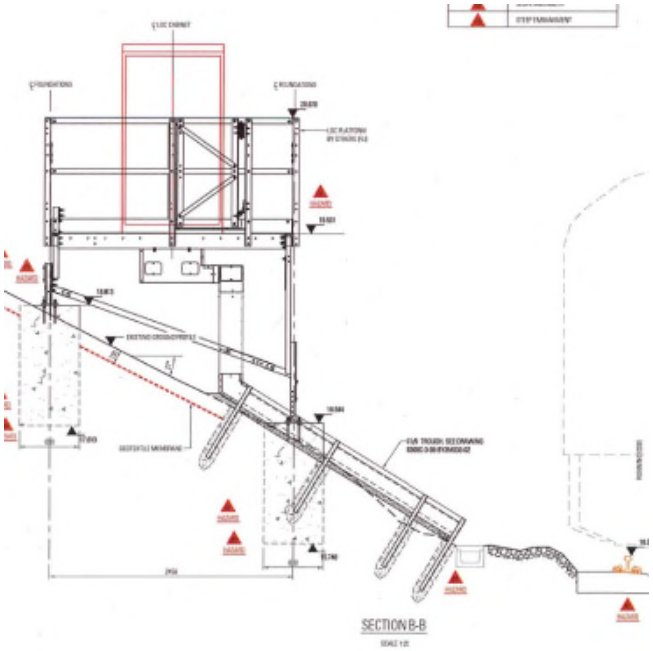


Figure *119:* Location suite with ladder access

9.4.6 Signal Structures

Straight Post Signals

9.4.6.1 There are 41 straight post signals, of which 10 are existing and proposed to be modified. Of the 10 propose to be modified the structures are a mixture of climbable and non-climbable and it is approximated they are around 10 years old.

9.4.6.2 Modified signals mean the signals heads currently installed on the structure will be changed. Changing out the signal heads for the 10 signal posts can be undertaken in normal NBS possessions. Blacking off unused signal aspects and or not wiring up until commissioning is proposed.

9.4.6.3 The 31 new straight post signals shall be position as per signal sighting forms to facilitate the newly remodeled layout. New straight posts signals are proposed to be of the lightweight type and non-climbable, which do not require ladder access to the signal head, instead they collapse under guide of a winch mechanism for maintenance.

9.4.6.4 To facilitate works the new signals shall be sited where practicable behind signals and in positions where sighting of existing infrastructure is not restricted.

9.4.6.5 Signal bases will be assessed through design based on ground conditions, to identify the suitability for piles or concrete pad foundations. Buried service investigations should be completed prior to any foundation construction works.

9.4.6.6 It is anticipated signal post foundations with be installed in a sequence that aligns with the commissioning strategy. Broadly speaking this means installing signals at the Eastern extent, then Western extent and completing the station area last.

9.4.6.7 Signal foundations and signal structure erection can be completed in either short weekend possessions, or when locations are adjacent to non-operational new track, works can be completed during daytime in a “High Street” environment.

9.4.6.8 A screw pile, pin pile, or prefabricated or cast insitu concrete pad foundation can be installed in short possessions, circa 5 hrs, and the prefabricated light weight straight post can be lifted on and bolted in 30 minutes.

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9.4.6.9 Materials and plant for signal construction can come from Acton Yard, or other nearby RRAP points. Delivery is also potentially possible by road through OOC station site compound.

Cantilever Signal Structures

9.4.6.10 Currently there is two cantilever signal structure being proposed, SN171 adjacent to North London Line bridge at chainage 5955, and SN416 at chainage 5010 at the London end of OOC Platforms 4.

SN171

9.4.6.11 Cantilever SN171 is adjacent to North London Line bridge at chainage 5955. The structure is founded in the 6ft between the Up Relief and the Down Relief and cantilevers over the Down Relief. The Form 001 design details concrete pile foundation with pile cap.

9.4.6.12 The Cantilever is proposed to be installed during a series of possessions during holidays in Stage 5B.

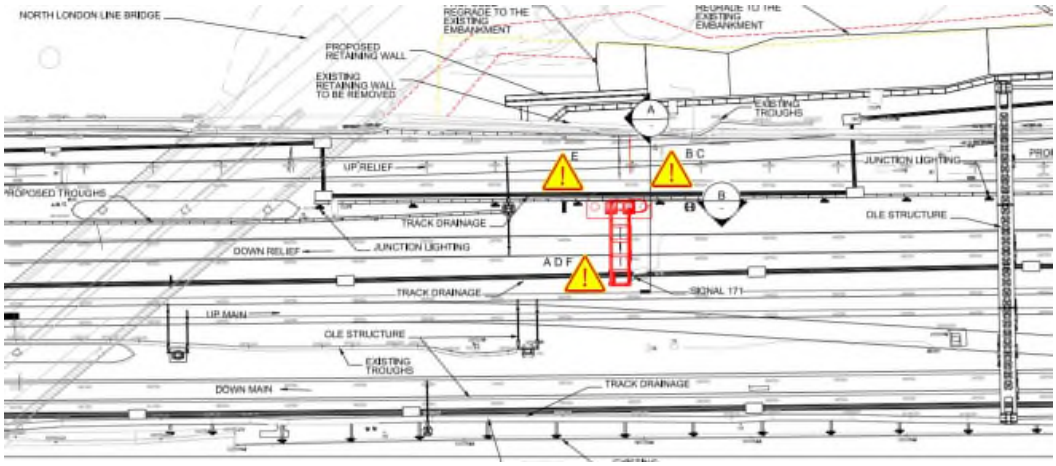


Figure *120:* Cantilever Signal SN171

9.4.6.13 All construction materials and plant will travel from Acton yard during possession.

9.4.6.14 The foundation can be installed from a RRV piling rig positioned on the Up Relief. Concrete can be delivered to site on a RRV trailer and pumped using a small trailer mounted pump.

9.4.6.15 Suitable protection measures will be required to protect the track and ballast during foundation construction. There are no envisaged requirements for any TSR following works.

9.4.6.16 The column, boom, and dropper can be lifted into place using a RRV Crane positioned locally on track. A RRV MEWP or scaffold tower will be required to enable access to bolt the steel work together.

9.4.6.17 Anticipated possession time frame for delivery of cantilever solution based on Form 001 AIP:

- Piling and concrete 16hrs possession of the up and down reliefs, construction works to be completed without main line possessions. An RRV piling head is to auger piles and place concrete from the Up Relief – requires 24hrs curing before pile cap works.
- Pile cap and concrete 16hrs possession or the up and down relief with an RRV with manipulator head aiding in the placement of rebar and partially prefabricated form work. Starter bars are to be set prior to concrete pour which will come from a trailer mounted pump. Polythene sheets used in curing are to be suitably secured to not foul lines during cure – requires 90hrs curing before steel erection

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- Steel erecting will require 16hrs ALB possession and isolation. An RRV will access via the up relief and install steelwork using a manipulator head such as that shown in Figure 121. Steelwork will be tracked to site on a trailer and will include; the column, which is to be bolted to the pile cap, galvanised ladder, boom arm which will be affixed to the column and signal cages to be clamped to the boom. Structure will require bonding. Any steelwork unable to be installed within the shift is to be tracked off site.



Figure 121 RRV Manipulator Head

- Recommend contingency possession of ALB and isolation is required due to the heavy workload in steelwork erecting which could result in overrun.

As noted in 9.4.6.11, it is proposed this work is completed during Easter and May Bank Holiday weekends, to make use of the possible possession lengths required for the required piling, concrete, and crane operations.

9.4.6.18 There may be opportunities to enhance the foundation design to improve the constructability during the detailed design stage. For example, the foundations potentially could be changed to a CHS driven pile. However, this assessment is based on the current design at AiP stage.

SN416

9.4.6.19 The cantilever SN416 is located at chainage 5010 at the London end of OOC Platforms 4 (see Figure 122 below).

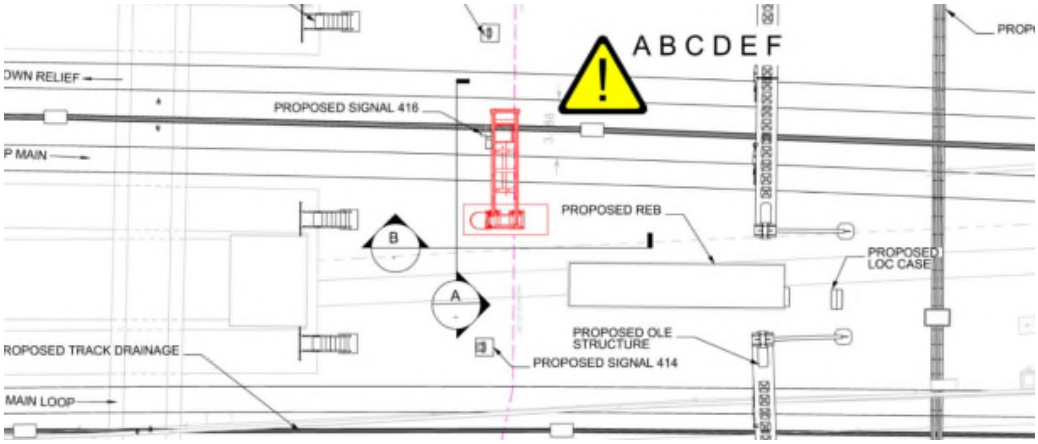


Figure *122:* SN416 location

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9.4.6.20 The propose methodology is based on the current Form 001 design proposal for SN416 cantilever.

9.4.6.21 The Form 001 details concrete piles with pile cap.

9.4.6.22 It is proposed the foundation be constructed prior to the adjacent track being installed. A small piling platform will need to be constructed for a piling plant.

9.4.6.23 The Station Contractor will be busy constructing the platform in close proximity, so activities will need to be integrated to ensure works can take place safely with adjacent constructions works on going on the station.

9.4.6.24 A local laydown area will need to be created for materials associated with the cantilever.

9.4.6.25 All plant can be delivered by road or potentially RRV, but road is preferred. A mini piling rig like a SM-12 detailed in Figure 124, should be sufficient of the type of piling required and could be delivered on a flatbed truck.

9.4.6.26 To minimise the amount of deliveries through the station compound, pile cages and reinforcement along with formwork can be transported by RRV from Acton yard or other suitable RRAP point and off loaded from the Up-Relief line close to the proposed gantry chainage. Alternatively, materials can be delivered through the station site subject to agreement.

9.4.6.27 A concrete pump will need to be sited nearby to pump concrete into the pile. Concrete can be supplied from the onsite batching plant, subject to negotiation or delivered if required from a nearby batching plant.

9.4.6.28 It is proposed the steelwork for the Cantilever be erected once the P-Way has been installed to the East of the station and access is possible for a RRV crane to lift steelwork from the Up Main. Steelwork is be delivered to site from Acton yard via RRV trailer, on the existing Up Relief to minimise bringing materials through the station site.

9.4.6.29 A scaffold tower will need to be erected to enable access to bolt the gantry boom, column, and dropper cage together.

Gantry Signals

9.4.6.30 Currently there is one gantry signal structure being proposed, SN174-SN170-SN168 adjacent to North London Line bridge countryside.

SN174-SN170-SN168

9.4.6.31 The gantry is currently proposed to be installed during Stage 6 during a series of possessions that include the Mains, the Reliefs, as well as North London Line and the Poplars.

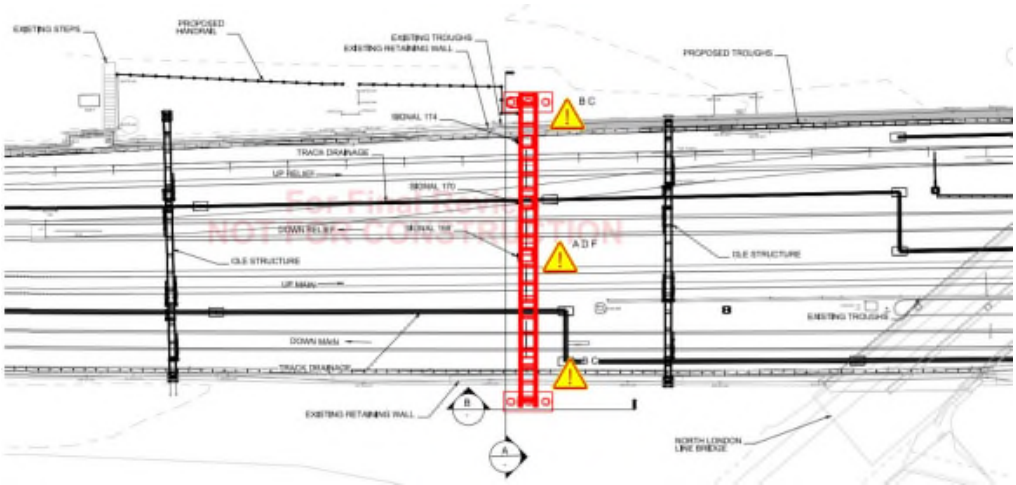


Figure *123:* SN174-SN170-SN168 location

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9.4.6.32 The gantry is located in the Acton cutting at chainage 6040 and the foundations are currently proposed to be concrete piles with pile cap located behind the existing retaining wall that runs along the cutting. The space is the cess on both sides is very limited, so the foundations have been located behind the cutting retaining wall. It is anticipated that the retaining wall on the Down Main and Up Relief cess is too high to allow a RRV Piling Rig to pile behind from track, so piling from the track has not been considered.

9.4.6.33 There may be opportunities to improve the buildability of the foundation design during the detailed design stage.

9.4.6.34 The proposed methodology is based on the current AiP Form 001 design proposal.

9.4.6.35 The current AiP design proposes CFA piles which cause minimal vibration, unlike CHS driven piles, which could provide programme efficiencies, but provide significant vibrations, and may be problematic due to concerns with vibrations disturbing the retaining wall.

9.4.6.36 For the foundation methodology it is recommended the smallest possible plant in the market capable of piling the designed piles is selected. A SM-12 Mini Piling rig weighs in the region of 14tons and can drill a CFA, up to 600mm, which should be sufficient (see Figure 124 below).

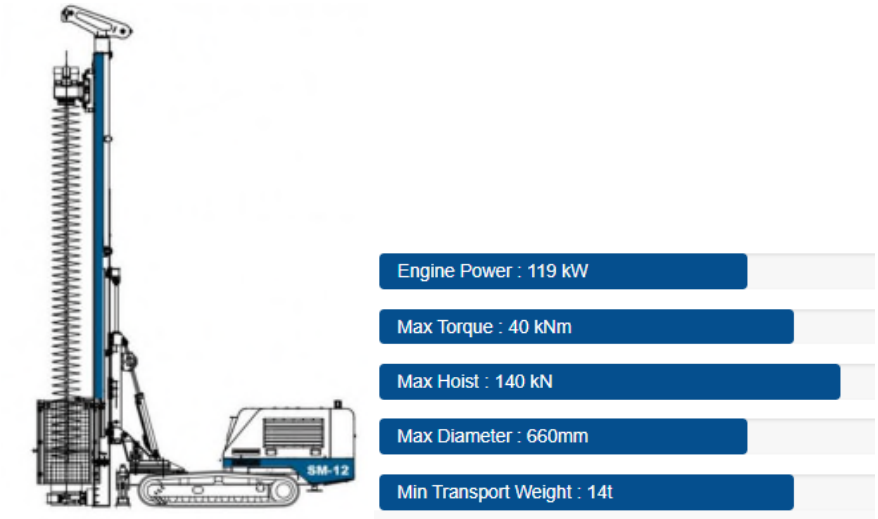


Figure *124:* SM-12 Mini Piling Rig

9.4.6.37 At 14 tons a SM-12 could be loaded on to a RRV trailer which is load rated for 20tons. A metal ramp could be used to allow the piling rig to travel on to the trailer (as detailed below). It should be noted, at this stage the pile(s) have not been designed in detailed to determine the exact requirements. Additionally, the designed pile will need to be presented to a piling contractor to determine the required plant.



Figure *125:* RRV trailer with loading ramp

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Down Main Foundation

9.4.6.38 To construct the Down Main cess foundation the retaining wall adjacent to the proposed foundation will require a detailed assessment (Form AA/BA). The assessment will potentially require the retaining wall to be propped to mitigate risk of damage and failure requiring a temporary works design. Vegetation clearance will be required, and some minor regrading works to prepare access for the piling platform. The piling platform may need to have material imported which can be delivered the same way as the proposed piling rig. A survey of the services in the area will need to be undertaken to determine what needs to be protected. Additionally, protection measures will be needed to ensure the risk of falling from height is eliminated which is estimated to be greater than 2.0m.

9.4.6.39 It is proposed that plant requiring access to the Down Main cess foundation access from a nearby RRAP. One possible RRAP is located to the North East of Old Common Lane, near where Old Oak Common lane passes over the NLL. The RRAP here has access to both Up and Down lines and could be used for this access. Another option is to access from Acton Yard RRAP travelling along the Poplars and on to the NLL. However, this would require a larger possession which may be problematic.

9.4.6.40 A RRV could bring a mini piling rig on a 20t rated trailer from a RRAP during a possession of the NLL. The piling rig could drive off the trailer, while the RRV has secured the brakes, on metal ramps that are suitable for this plant. The route the piling rig takes will need to be prepared, with protection measures in place to prevent any damage to track, cable routes, and signalling equipment. The preparation will likely need a small, tracked excavator, compaction plant, and team that will need to be delivered the same way as the piling rig.

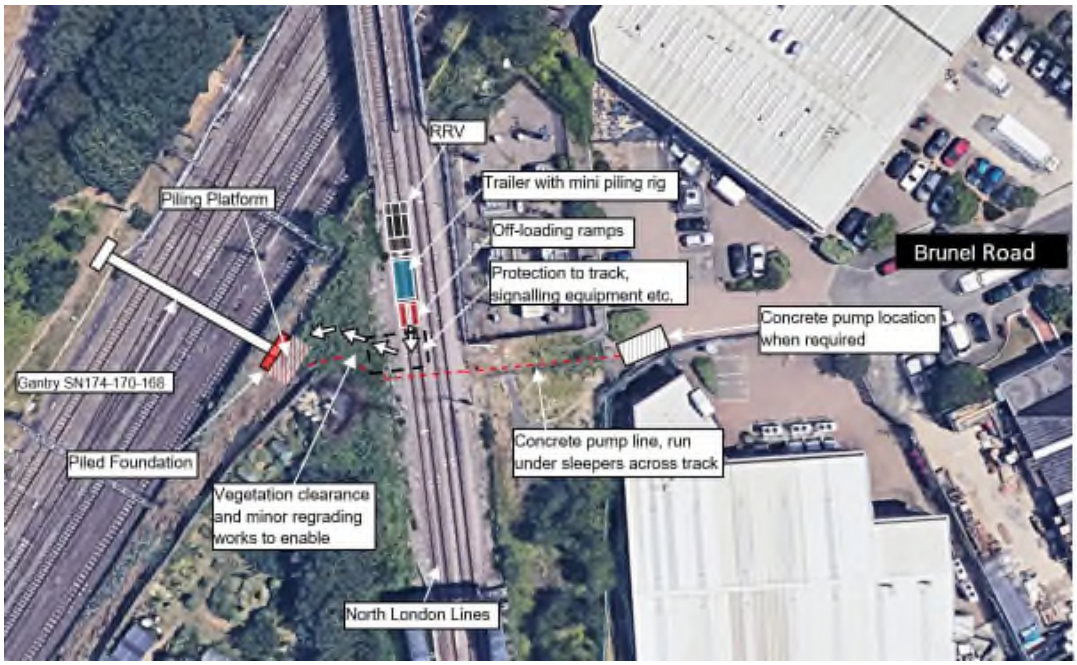


Figure *126:* Proposed access route to SN174-SN170-SN168

9.4.6.41 An alternative to delivering the piling rig by RRV could be to access all plant from West Way Estate Brunel Road. This would require a temporary RRAP to be constructed over the NLL, dealing with a small retaining wall adjacent to the proposed access from Brunel road car park, and agreement from local land/lease owners. There is also a newly installed DNO in the location of the access, which will prevent a direct access path. If access was possible, by agreement with the local land/lease owners, and avoiding the DNO or even relocating it in this area, larger piling rigs, not restricted to an RRV trailer, could be used.

9.4.6.42 Another option could be to crane in the piling rig from Brunel Road/West Way estate car park. This would limit the size of the piling rig to the capabilities of the crane, as an example

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a 200ton crane could lift a 14ton rig around 30m radius with 100t ballast. This would be easy to lift a piling rig over the DNO location on to the grass area as outlined in the Figure 127 below.

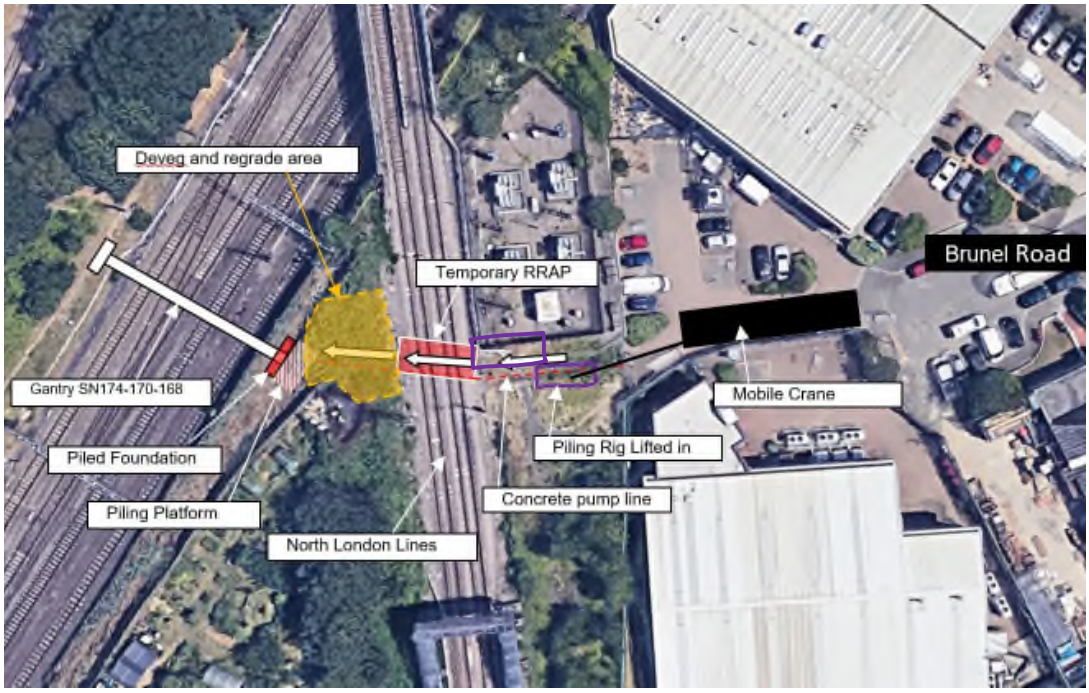


Figure *127:* Alternative access route to SN174-SN170-SN168

9.4.6.43 To supply concrete to the piling rig during piling operations, a concrete pump line will be required. It is proposed the pump line be installed under the track from Brunel Road to the piling rig. This will eliminate the requirement to have North London Line under possession for concrete pouring. Concrete wagons will supply a concrete pump located near the access to the rail corridor on Brunel Road. It is noted the area is private parking, so agreement with the parking space holder will be required.

Up Relief Foundation

9.4.6.44 To construct the Up-Relief Cess foundation (see Figure 128), it is proposed that an agreement to access through the Victoria Industrial Estate is reached. A temporary secure access gate will be needed.

9.4.6.45 The proposed access route for a piling rig and later crane is detailed below. A piling platform which can also be used for a mobile crane can be installed adjacent to the foundation.

9.4.6.46 The access route along the Cess of the Up & Down Poplar will require a temporary RRAP to track plant across along with a concrete pump line. Vegetation clearance and protection of rail services must be carried out. A small, tracked excavator should be able to create the access path with a small team to help with the vegetation clearance. Local regrading will need to be done.

9.4.6.47 A temporary works design is needed to ensure the stability of the retaining wall adjacent to the Up-Relief gantry foundation is not compromised by the plant during the works.

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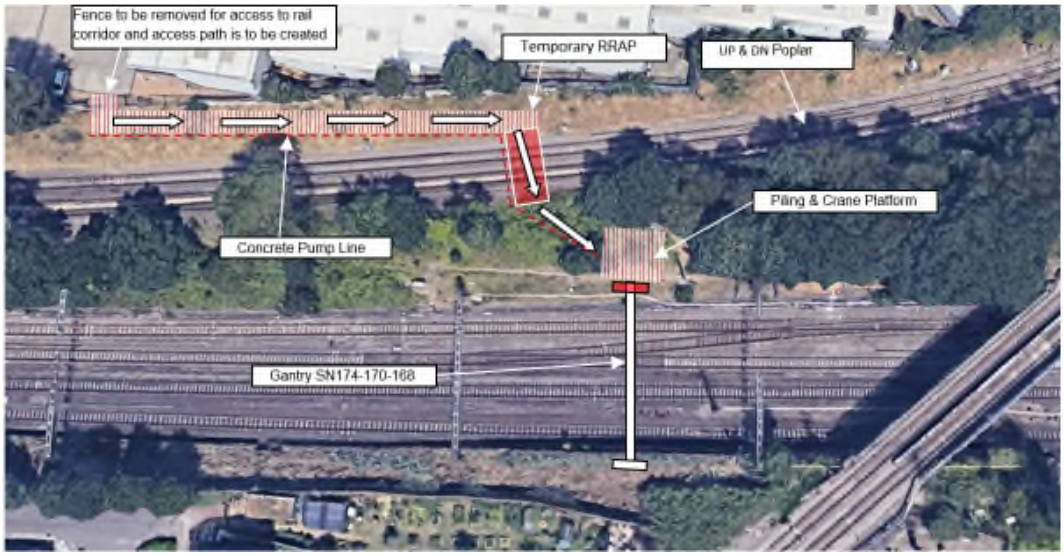


Figure *128:* Proposed access route for piling

9.4.6.48 Once the foundations are installed and suitably cured. The gantry steel work will need to be bought to site. Steel work will need to be sized according to transportation restrictions. The gantry columns are likely to be delivered as complete units, but the boom will need to come in sectioned and spliced.

9.4.6.49 There are multiple options for getting the steel work to site. RRV's can deliver the steel work on RRV trailers on the Up & Down Relief lines travelling from Action Yard. Once the steel work is on site, at the Gantry location, it can be lifted into place from a crane. The crane used to lift the gantry boom in place is proposed to be located on the crane platform constructed adjacent to the Up Relief foundation. If the access route to the Up-Relief foundation is still available, it makes sense to bring a mobile crane to site and use the previously installed piling/crane platform. This will give the best lifting opportunity and avoid the risk of a tandem lift. If this is not possible RRV cranes will be needed, and these can be positioned on the Down Relief and or Up Main. Careful consideration will be needed lifting the boom between the overhead lines.

9.4.6.50 The Down Main cess Stanchion is best lifted in from the Down Main cess. Access could be provided from the South West RRAP, if available at the time, or from Acton Yard in an all-line block, at the same time at the boom is installed.

9.4.6.51 The Up Main Cess Stanchion could be installed at the same time as the boom from the crane lifting the boom.

9.4.6.52 The boom sections can be delivered on RRV trailers on the Down Relief. Once in place they can be off loaded and supported on timber sleepers, using a crane or RRV arm. Then once spliced on track in the 10ft they can be bolted together. The boom is best spliced parallel to track, in the 10ft and then lifted between the OHLE wires in the 10 foot. The space available between the wires is around 4m and the boom width between 1.2-1.5m. The boom can be slung 90 degrees once above the wires and landed on the recently installed columns.

9.4.6.53 During the all line block, RRV MEWP's will be needed to provide access to the top of columns for bolting the boom to the column. Alternatively, scaffold towers can be used. Access will be required to the top of both columns to land the boom.

9.4.6.54 Dropper cages can be installed at a later date or if time permitted in the same all line block possession. The delivery of these can be via Acton Yard on RRV's, or from the South West RRAP proposed near the Hitachi Rail Depot. Dropper cages will need to be lifted to the underside of the boom and then bolted. Therefore, personnel access is required to the boom. This can be via RRV MWEP or scaffold towers.

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9.4.6.55 Signal cabling for the signals is located in the Up-Relief cess and so cabling for the proposed gantry will require a cable route to be run up the existing retaining wall on the Up-Relief side to access the leg. This can be installed during a weekend possession lasting around 5hrs.

9.4.7 UTX's

9.4.7.1 Working from Country to London, i.e., high chainage to low. All UTX's are proposed to be cut and cover and are based on NR standard designs unless noted otherwise.

9.4.7.2 For the specifics of each UTX please refer to the UTX design drawings:

- 152270-25067-P2R-MLN1-DRG-ECV-400061 & 400064

UTX at 5870 chainage

9.4.7.3 This UTX has been recently installed as part of another project and is to be used as part of the OOC rail systems project. A new chamber is proposed to be sighted as shown below in Figure 129. The construction method will require a full survey of the cables currently run in the UTX. Normally, there will be a number of ducts free, the Contractor should identify which ducts are free of cables and which are not. It is expected there will be power cables running through this UTX along with Telecoms, and Signalling.

9.4.7.4 The new chamber location will be excavated, a window will be cut in the top of each duct to see what cables are in the duct. The ducts will be carefully cut by hand to reduce risk or damaging cables. Once all the ducts are cut, a multi stack chamber is proposed to be constructed around the ducts and cables. Rings for this stacker chamber will be modified accordingly to fit around the ducts and cables. The works associated with this modification is proposed to take place during Stage 5A.

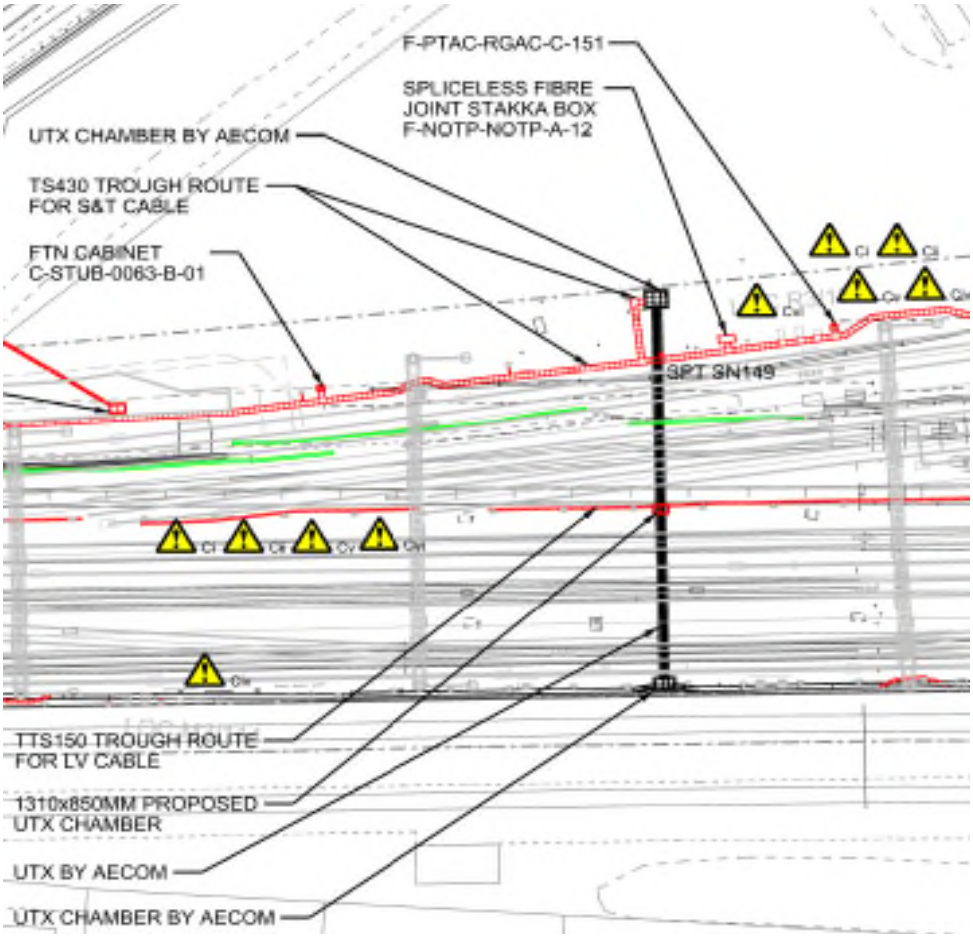


Figure 129: UTX @ 5870 chainage

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UTX at 5353 – also known as UTX 6

9.4.7.5 It is proposed the UTX @ 5353 chainage, shown below in Figure 130, is constructed in two halves to maximise construction efficiency. The first half is proposed to be constructed in Stage 5A when there are no operational P-way to trench under making construction easier and faster. It is anticipated that plant and material, for construction of phase 1, will not be an issue, and can either be delivered via RRV on the Rail Head West from Acton Yard or via road from site access off Wells House road.

9.4.7.6 The second phase is proposed to be constructed between 13A prior to the final P-way alignment is in place, so again there will be no P-way to trench under. For the 2nd phase plant and materials are proposed to be delivered to site via RRV on the Temp Up Main from West from Acton Yard.

9.4.7.7 Protection of Phase 1 UTX cable assets when Phase 2 is constructed will be required. This can be achieved a number of different ways depending on the exact situation. Preventing an excavator digging right up to the existing chamber for connecting to with Phase 2 ducting. The last section of excavation can be hand dug should there be a risk of damaging cable assets already in place. Alternatively, it could be agreed the selected chamber will provide suitable shield/protection to the cables. Excavation works around the chamber will be overseen by a machine controller and operations will slow to ensure accuracy.

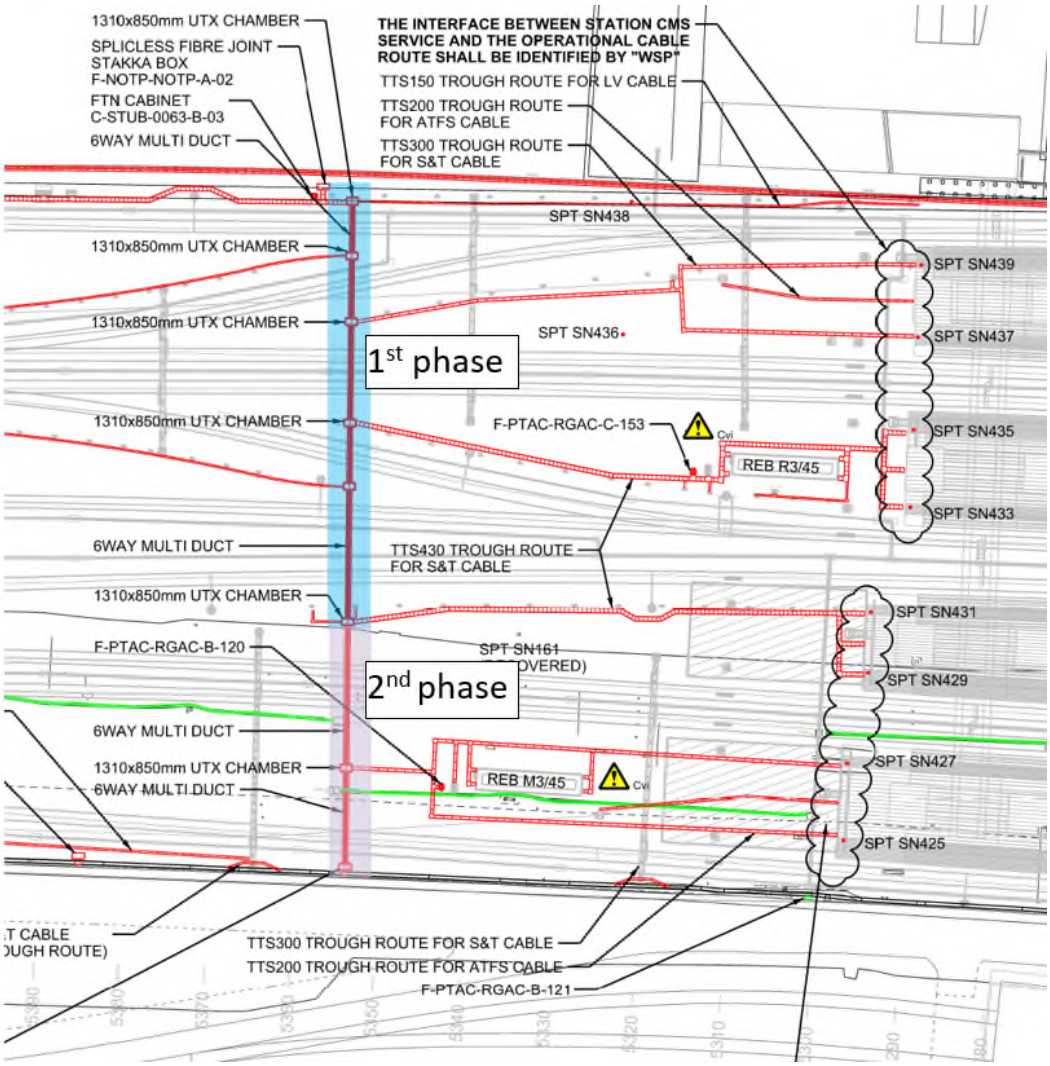


Figure 130: UTX @ 5353 chainage also known as UTX 6

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UTX at 4980 chainage – also known as UTX 4 & 5

9.4.7.8 It is proposed the UTX @ 4980 chainage is constructed in two halves to maximise construction efficiency. The first half is proposed to be constructed when there are no operational P-way to trench under making construction easier and faster, possibly stage 7A. It is anticipated that plant and material, for construction of phase 1, will not be an issue, and can either be delivered via RRV on the Up Relief from Acton Yard or via road from site access off Wells House road.

9.4.7.9 The second phase is proposed to be constructed in stage 13A prior to the final P-way alignment is in place, so again there will be no P-way to trench under.

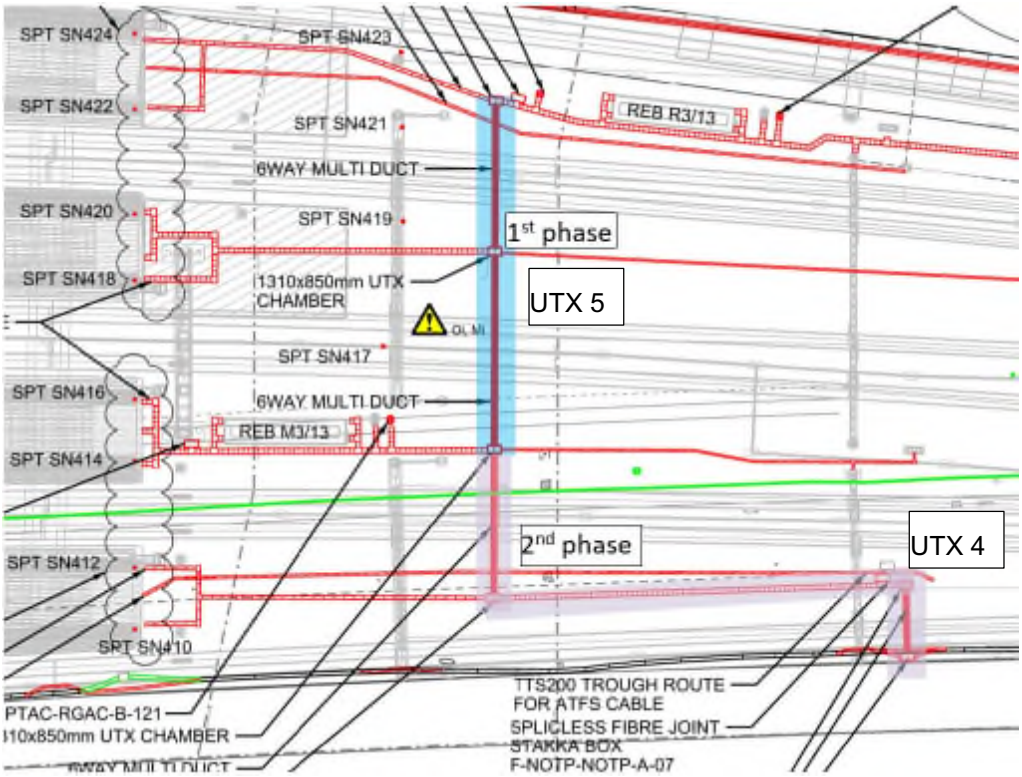


Figure 131: UTX @ 4980 chainage also known as UTX 4 & 5.

Other UTX's (also reference as UTX 1, 2, & 3)

9.4.7.10 In addition to the major UTX's noted above, there are a number a single track UTX's to be installed using cut and cover methods. These signal track UTX's can be installed in standard NBS possessions.

9.4.7.11 UTX @ chainage 4700 crossing the line to the cross-rail depot is to be installed in 7B to allow the powering supply for the new OOC PSP.

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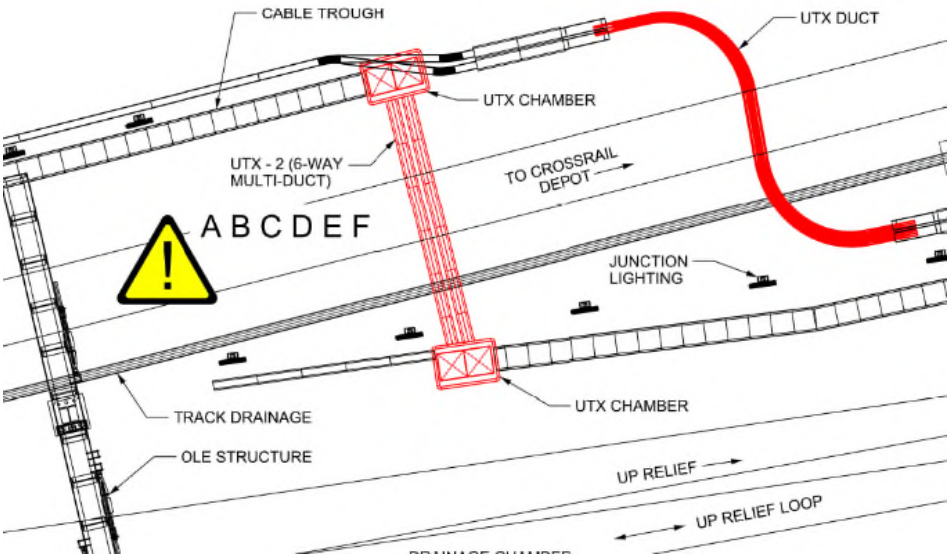


Figure 132: UTX @ 4700 chainage – also known as UTX 2

9.4.7.12 UTX at chainage 4800 crossing the line to the cross-rail depot is to be installed in stage 7B to allow the powering supply for the new OOC PSP

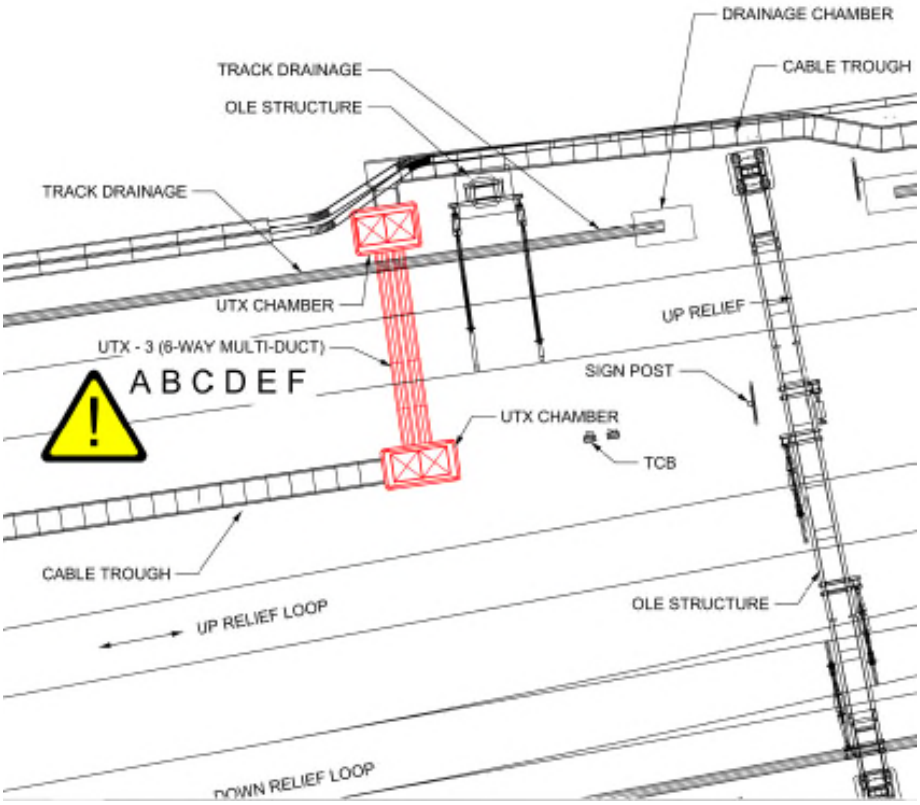


Figure 133: UTX @ 4800 chainage – also known as UTX 3

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9.4.7.13 UTX at 4590 is to be installed along with UTX at 4575 in Stage 6 to allow the powering supply for the new OOC PSP. The design utilizes a recently installed UTX and proposes to add a new chamber and additional ducts.

9.4.7.14 All plant and materials for the Relief side can be delivered from the NE compound or from Acton Yard sidings.

9.4.7.15 It is likely given the length of the NBS possessions, it will take 2 shifts to complete UTX 1.

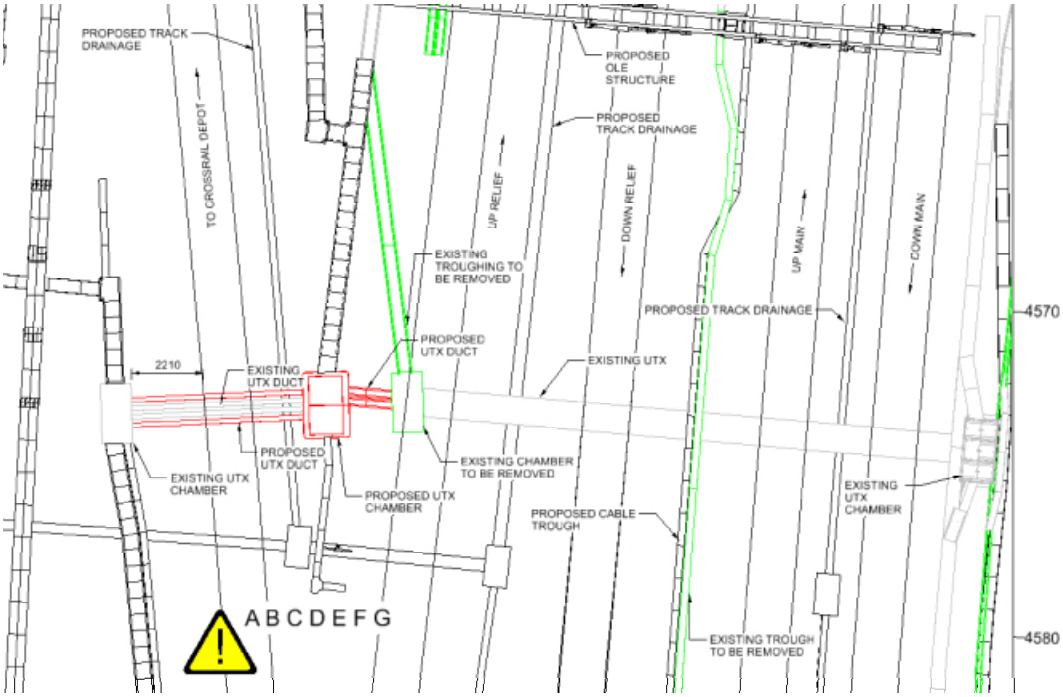


Figure 134: UTX @ 4575 chainage

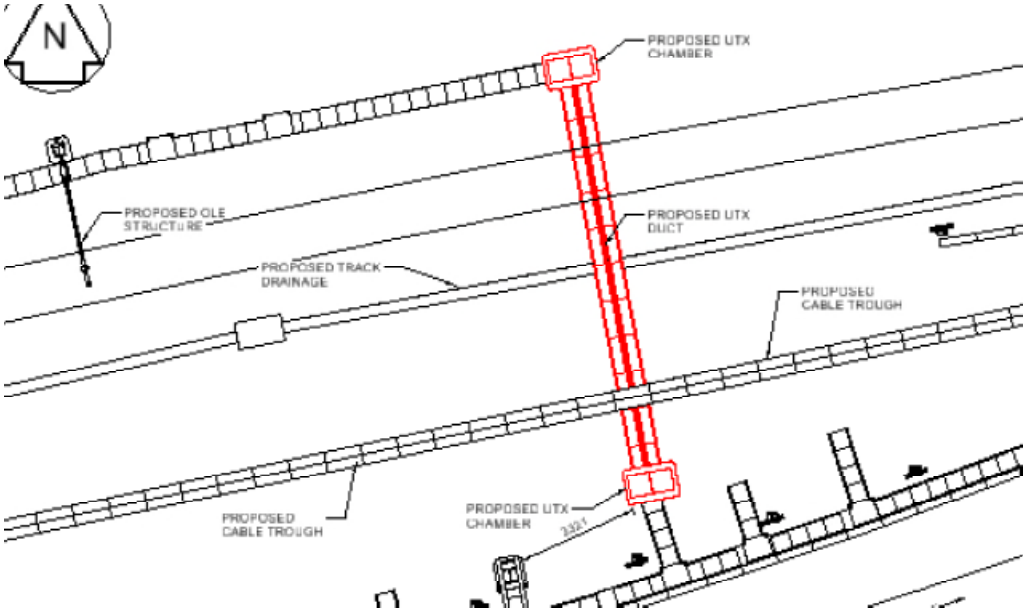


Figure 135: UTX @ 4590 chainage

9.4.8 New Cable Route

9.4.8.1 The strategy for the installation of new cable route, broadly, should target the East of the station site first, then progressively working West. But there will be nuisances to this in certain circumstances.

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9.4.8.2 New route proposed alongside, within 2.5m of the new rail track, should be installed after the track has been installed to prevent damage during track installation. Route can be installed prior to the track installation if that route is further than 2.5m from the running edge, a distance considered further enough to be protected from the works.

9.4.8.3 As part of the OOC Rail Systems project GRIP 4 design, there is approximately the following new trough route required.

- 1700m – C/1/9
- 380m – C/1/29
- 450m – C/1/43

9.4.8.4 Productivity estimates will be impacted by safe system of work, use of plant, site conditions, existing cables, size of trough route, but on average it is expected 35m per team per day.

9.4.8.5 Cable route can be installed where possession access is required over a series of NBS possessions.

9.4.8.6 Where fenced worksites can be established, cable route can be installed during normal working hours.

9.4.8.7 Materials (i.e., trough route) are proposed to be delivered, by lorry, to Acton Yard for storage. Trough route is then proposed to be delivered on pallets to pre-planned drop points in areas where new cable route is required. This will take place during NBS possessions using RRV's and Trailers. Materials will need to be stored at least 2m away from track, secured, and on level ground.

9.4.8.8 All new cable trough proposed should be of the lightweight type where possible to mitigate risk of injury from manual lifting. Where possible machinery should be used for installation. Opportunities for integrating walkways with troughing route should be maximised where possible.

9.5 E&P

9.5.1.1 The E&P construction will coordinate with the phased delivery of the track and signalling infrastructure, and installation of the lineside civils in terms of the core cable routes, UTXs and troughing.

9.5.2 HV - ATS

9.5.2.1 The following are the core items of equipment associated with the ATS construction.

- Installation of an Auto Transformer Site consisting of 1x Auto transformer weighting around 3 tons
- Installation of 25kV traction power cables from Kensal Green Auto Transformer Feeder station (ATFS) to the proposed Auto Transformer Site. There will be 2x single core 400mm^2 armoured copper cables from Kensal Green ATFS to the new OOC ATS.

9.5.2.2 The location of the ATS, has recently been finalised, and is proposed to be located East of the proposed Old Oak Common Station. The chainage of the location is MLN1 at Ch 4705 to Ch 4740, see Figure 126: ATS Compound below.

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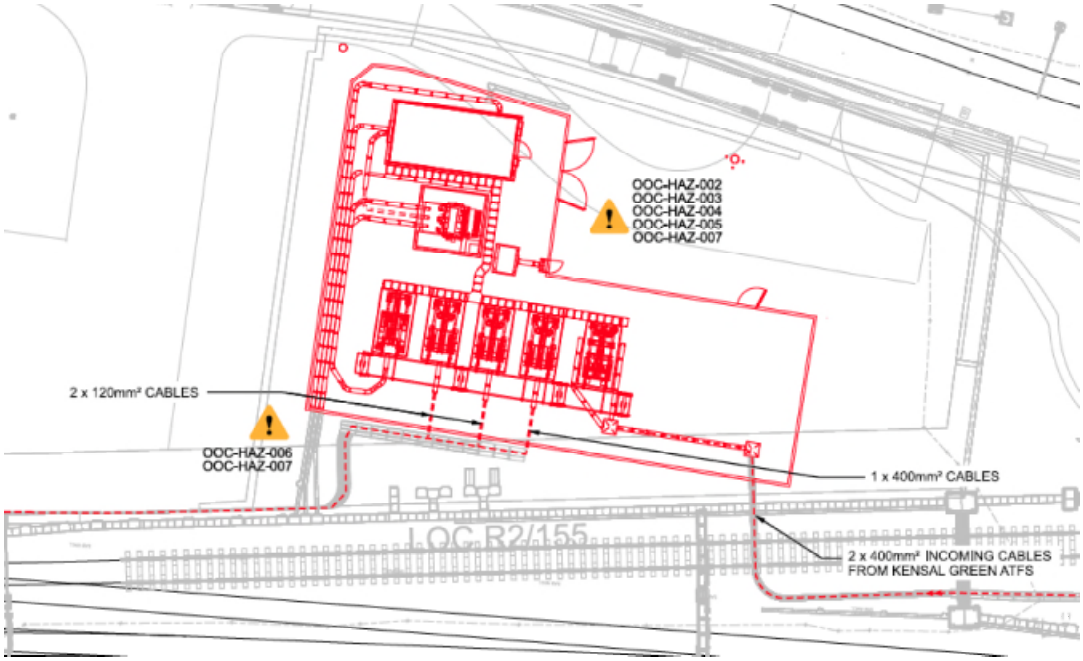


Figure 136: ATS Compound

9.5.2.3 There is an opportunity to construct the ATS compound in Stage 11. It is envisaged at access will be possible through the OOC Station site and all equipment and plant will be delivered by road through the designed and permanent access. This will need to be integrated with the HS2 box tunneling works which will limit site access for a period of time, details of this constrain t are to be fully confirmed in BBVS workshops.

9.5.2.4 Civils works will take place first installing concrete slab foundations, car parking, provisions for cables routes, lighting, land scaping and surfacing works.

9.5.2.5 ATS equipment will be delivered by lorry and off loaded by crane or Hiab and landed on site at the intended location. Careful planning will be needed due to proximity of OHLE on the adjacent lines, but with slew restrictions and careful siting of the crane or Hiab, lifting operations should be possible without isolation or possession.

9.5.2.6 Once all equipment is landed the remaining Civil works, including fencing lines and security aspects will be completed. Followed by the running of the cables and commissioning of the equipment.

9.5.2.7 It is critical all security aspects of the compound are installed as per the design prior to any commissioning of the HV.

9.5.3 LV – Signalling Power

OOC PSP

9.5.3.1 As part of this scheme a new PSP is to be introduced at the North East RRAP (accessed from the HS2 station off Old Oak Common Lane). The new PSP has been sited for vehicular access, to enable delivery of large items, such as mobile generator, fuel for mobile generator, UPS batteries. The PSP Compound is to be gated off separately from the rest of the RRAP area and the gates shall be signed to prevent these from being blocked and preventing emergency maintenance. For construction, permanent fencing shall be installed following installation on major electrical infrastructure, such as, the new PSP.

9.5.3.2 A mobile generator connection is included where both the traction power and DNO supply are unavailable. This arrangement allows for the Signalling Supply to be maintained for the majority of works and general maintenance within the PSP.

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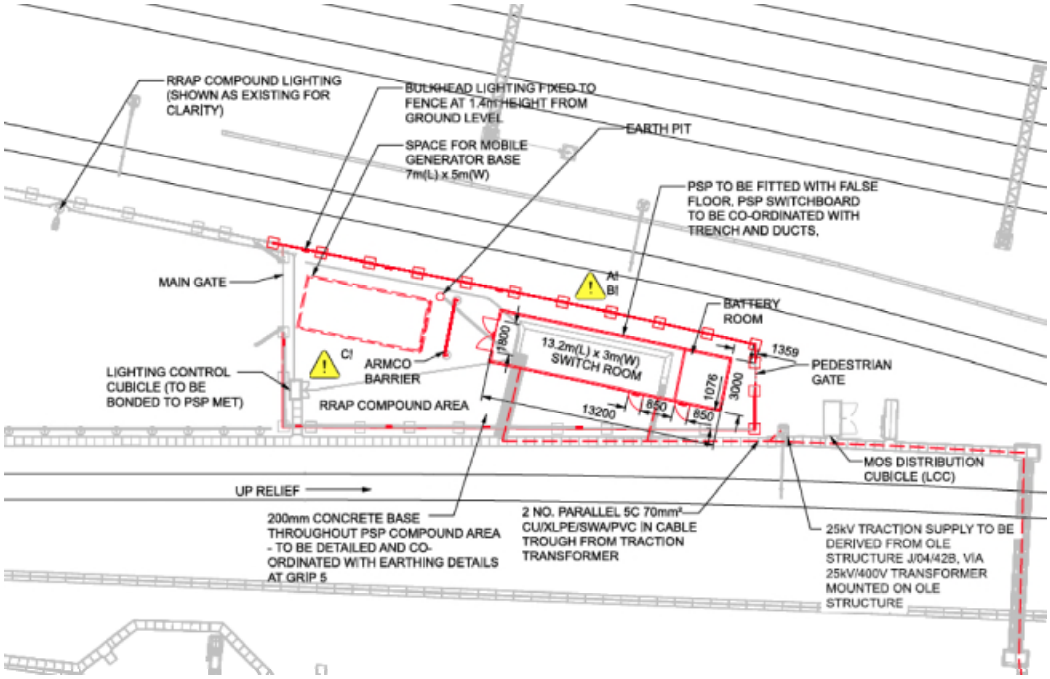


Figure 137: PSP Layout

9.5.3.3 The PSP systems marshal a number of alarm and remote condition outputs (this is inclusive of the signalling power feeders via the Camlin ARS/PMS and the Bender Insulation Monitoring device as well as the UPS and PSP Building itself, refer to 152270-ARC-REP-EPT-000013) these are transmitted via the intelligent infrastructure system and are monitored by the control center technicians. Note: if Intelligent Infrastructure is unavailable, alternative remote monitoring shall be provided. Testing & Commissioning of these systems shall be included within the Testing & Commissioning Strategy to be developed at later GRIP Stage in conjunction with Staging.

PSP Operation - Normal Mode

9.5.3.4 The PSP's normal mode of operation is proposed to be traction supply via the UPS. A 400V single phase supply is obtained from structure J/04/44B (adjacent to the PSP compound) and trickle charges the UPS batteries via the traction rectifier which supplies the 650V busbar supplying the proposed feeders and the maintained distribution boards.

9.5.3.5 There are multiple other modes of supply available (including internal operating modes) these are to be discussed further in the operation and maintenance manual, at a later GRIP Stage.

PSP Operation - Traction not available

9.5.3.6 Where the traction supply is not available during construction, the LV DNO Supply via the new Distribution Cubicle supplied from Substation S is available as secondary supply. The traction supply to the UPS can be removed (open switch K) and the DNO supply can temporarily be made the main supply to the UPS via W1(Main Supply DNO) this enables.

Where the UPS is not available

9.5.3.7 X1 UPS Bypass Supply (S-Leg) shall provide the source of supply from the Non-Maintained Busbar (and the DNO).

Transformer 1 Not Available

9.5.3.8 Where this transformer is not available or other components such as the changeover panel are not available then the full T-Leg bypass can be put into place via switch H on the Non-Maintained Busbar). This will require Castell Key replacement.

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Existing Ladbroke PSP

9.5.3.9 Ladbroke PSP is of a similar arrangement to the proposed PSP at OOC. There will be no load increase to Ladbroke PSP due to the introduction of OOC PSP, therefore no requirement to make material changes to the Ladbroke PSP. The Bender Unit (Insulation Monitoring Unit) and Protective Device Settings will need to be verified for each feeder arrangement.

9.5.3.10 Staging: The existing Camlin VCB settings are to be verified to ensure that the existing LAD-ACT Main Feeder can be used to supply the additional FSPs as proposed.

Existing Acton PSP

9.5.3.11 Acton PSP is of a similar arrangement to the proposed PSP at Old Oak Common. There will be no load increase to the existing PSP due to the introduction of the additional PSP (refer to load flow calculations Appendix B) therefore no requirement to make material changes to the PSP. The Bender Unit (Insulation Monitoring Unit) and Protective Device Settings will need to be verified for each feeder arrangement.

9.5.3.12 Staging: The existing Camlin VCB settings are to be verified to ensure that the existing LAD-ACT Main Feeder can be used to supply the additional FSPs as proposed

PSP Staging

9.5.3.13 As OLE is not due to be commissioned until the same stage as the signalling, power supplies will be primary supply DNO (Substation S), back-up supply mobile generator until this is in place and will remain available where outages are required for installation purposes at later stages. Stages for the PSP install are listed below:

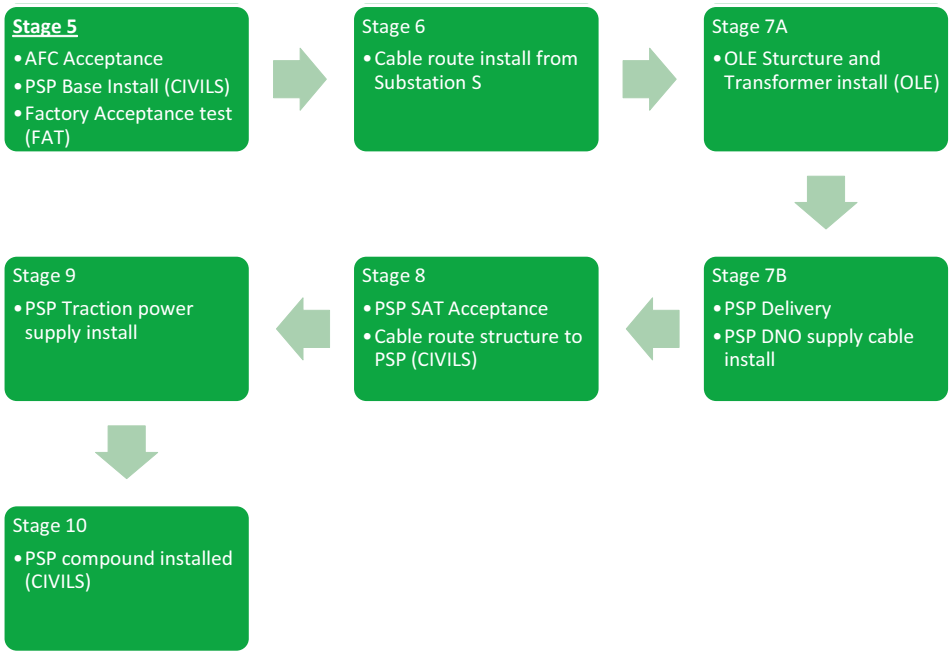


Figure 138 PSP Staging

Signalling Power works are to be phased as part of the wider OOC GWML Systems works and the wider HS2 works. These are both in outline stages therefore information is not all available as required.

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Key Requirements are set out below;

- **Stage 6** minor signalling changes including plain lining 9017, renewal of 8077 and renewal of SN6080 and SN6083
- Commissioning of Relief Lines **Stage 9** where the transfer of train running from the existing Up and Down Reliefs to the new Up Relief (through Platform 8) and the new Down Relief Loop (through Platform 6).
- **Stage 12** sees the current Mains being decommissioned and trains running through the newly built platforms 4 and 5 of what will become the Old Oak Common GWML station. The Up and Down Main signalling equipment will be replicated on Temporary Up Main and Temporary Down Main. The Temporary Down Main will become, at a later stage, the Up Main through Platform 4. REBs M3/13 & M3/45 will be installed at around this time but will not be operational. Temporary signalling "test" supplies may be required to the Main feeders prior to Stage 16 and in conjunction with the existing Main signalling load, if required, this shall be verified as part of the detailed testing and commissioning strategy to be provided at the next GRIP Stage.
- **Stage 15** sees train running through platforms 1, 2 and 3 of the new OOC station, respectively on Down Main Loop, Down Main and Up Main Loop. The Up Main is not fully installed at the time of commissioning although it, and its associated signals will be in data.
- **Stage 16** sees the Up Main and Down Relief brought into use in their final configuration.
- **Stage 17 -** sees the installation of the three Turnback Lines (A, B and C) and completion of the crossovers 9040/9036, 9039/9037, 9032/9030 and 9033/9031 all to the west of the station between the Relief Lines. To the east of the station the crossover 9026A/B is installed and brought in to use. FSPs for these shall be brought in for Commissioning at Stage 9 & 16
- **Stage 18** – Final Commissioning

9.5.3.14 Key Stages

E&P LV Stages are shown in **bold** for Stage number references. Stages given below are based on the methodology within this strategy and are assumed to be the first available stage these works can take place (please note these are key stages only and do not include each activity).

Description of works required are broken down into the new PSP and the new Feeders.

Note: It may be possible to work on two feeders at a time, however, it is assumed that if this is the case work will be split such that activities follow the workflow laid out below. This is to be agreed and detailed at the next design stage as this requires significant contractor input to determine their resource availability at these stages.

9.5.3.15 PSP (refer to Figure 138 PSP Staging)

As OLE is not due to be commissioned until the same stage as the signalling, power supplies will be primary supply DNO (Substation S), back-up supply mobile generator until this is in place and will remain available where outages are required for installation purposes at later stages.

AFC Acceptance Stage 5

PSP Base Stage 5

Factory Acceptance Test (FAT) Stage 5

PSP Delivery Stage 7B

PSP DNO Power Supply Stage 7B

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Cable Route from Substation S to PSP 6

Cable installed 7B

PSP Traction Power Supply Stage 9

OLE Structure & Transformer in place Stage 7A

Cable Route Structure to PSP Stage 8

Cable from OLE Structure to PSP Stage 8

OLE Live on Reliefs Stage 9

PSP Compound Complete Stage 10

PSP SAT Acceptance Stage 8

9.5.3.16 Relief Feeders

FSP Bases Installed Reliefs Stage 8

Cable Route Installed Reliefs Stage 8

New FSP LAD-ACT Installed Reliefs for addition of R2/137C (only) from R2/137A (Stage 8 - 8EP1 LAD-OOC / OOC-LAD Relief Feeder)

FSP R2/137C

FSP to be installed onto the existing Relief Feeder and tested, R2/137C has no fibre / ARS element and can then be installed without alterations to the ARS system architecture.

New FSPs LAD-ACT Installed Reliefs for addition of R3/168B (only) from R3/168A (Stage 8 – 8EP1 ACT-OOC /OOC – ACT Relief Feeder)

FSP R3/168B

FSP to be installed onto the existing Relief Feeder and tested, R3/168B has no fibre / ARS element and can then be installed without alterations to the ARS system architecture.

Test LAD-ACT Stage 8EP1 (Please note R2/137C and R3/168B are on soak at this stage and will be transferred onto the final configuration at the next stage)

Lay Cable from OOC PSP to R2/137A prior to connection 8EP2 (Cable to be bagged and protected from water ingress until next stage)

Isolate cable at R2/172 to R2/137A Stage 9EP3

Disconnect cable from R2/172 to R2/137A (and mark for removal) Stage 9EP3

Connect Ladbroke-OOC Relief feeder to OOC PSP at R2/137A Stage 9EP3

Test LAD-OOC Stage 9EP3

Test ARS Stage 9EP3

Commission from OOC PSP Stage 9EP3

9.5.3.17 New FSPs to be installed and cabling from OOC PSP to R3/107 8EP1

- FSP R3/107*
- FSP R3/74A&B
- FSP R3/45A&B
- FSP R3/13A&B
- FSP R2/155

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**Additional staging may be required for this FSP to be considered at the next GRIP Stage. FSPs to be installed on radial feeder from OOC PSP (refer to drawings 152270-25067-P2R-MLN1-DRG-EDS-400131 and 400132). FSPs are on soak at this stage and will be transferred onto the final configuration at the next stage.*

Lay Cable from R3/107 PSP to R3/128 (Cable to be bagged and protected from water ingress until next stage) **Stage 8EP2**

Isolate cable at R3/107 to R3/128 Stage 9EP3

Disconnect cable from R3/128 to R3/107 (and mark for removal) Stage 9EP3

Connect ACT-OOC feeder to OOC PSP at R3/128 Stage 9EP3

Test ACT-OOC Stage 9EP3

Test ARS ACT-OOC Relief Stage 9EP3

Commission from OOC PSP Stage 9EP3

Existing FSPs to be removed prior to Stage 10

- FSP R3/107*
- FSP R3/85
- FSP R3/64A
- FSP R3/64B
- FSP R3/39A
- FSP R3/39B
- FSP R3/21
- FSP R2/172

**Additional staging may be required for this FSP to be considered at the next GRIP Stage.*

9.5.3.18 The detailed staging strategy shall confirm that signalling test loads can be supplied in conjunction with the existing signalling loads, if required as part of the signalling testing plan. This shall also confirm that where new FSPs are to be tested from the existing feeders that these feeders can supply the existing signalling power supply and the new "test" supply.

Main Feeders

9.5.3.19 The Main Feeders are to be constructed in the area where the existing Relief Feeders are positioned therefore installation works shall follow removal of all equipment associated with the existing Relief Feeders.

FSP Bases Installed Mains Stage 14EP1

Cable Route Installed Mains Stage 14EP1

New FSPs ACT-OOC Installed Mains post Stage 14 - 14EP1 ACT-OOC / OOC-ACT Mains Feeder

9.5.3.20 New FSPs to be installed and cabling from OOC PSP to M3/114

- FSP M3/114 Stage 15
- FSP M3/87 Stage 15
- FSP M3/45 Stage 15
- FSP M3/13 Stage 15
- FSP M2/164 Stage 15

9.5.3.21 FSPs to be installed on radial Feeder from OOC PSP (refer to drawings). FSPs are on soak at this stage and will be transferred onto the final configuration at the next stage.

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Lay Cable from M3/114 to M3/144 14EP1 (Cable to be bagged and protected from water ingress until next stage)

LAD-ACT (OOC Main) Stage 14 – 14EP1 LAD-OOC / OOC-LAD Mains Feeder (14EP1)

Lay Cable from M2/85 to M2/135 prior to connection (14EP1) (Cable to be bagged and protected from water ingress until next stage)

Lay Cable from OOC PSP to M2/135 prior to connection (14EP1) (Cable to be bagged and protected from water ingress until next stage)

Isolate cable M2/85 to M2/110 (and M2/110 to M2/135) (15EP2)

Disconnect cables from M2/85 to M2/110 and M2/110 to M2/135 (and mark for removal) **(15EP2)**

Disconnect M2/135 (Class I FSP Equipment) (and mark for removal) **(15 EP2)**

Isolate cable M2/164 to M2/135 (15EP3)

Disconnect cable from M2/164 to M2/135 at the M2/135 end to ACT-OOC (15EP3)

Connect cable from to M2/85 to M2/135 (15EP3)

Connect LAD-OOC feeder to OOC PSP Stage 15EP3 to OOC PSP at M2/135

Test LAD-OOC 15EP3

Test ARS LAD-OOC Stage 15EP3

Commission LAD-OOC Stage 15EP3

Remove FSPs LAD-OOC Mains Stage 16

- M2/85 (Class I FSP Equipment)
- FSP M2/110
- M2/110 (Class I FSP Equipment)
- M2/135 (Class I FSP Equipment)

Isolate cable M3/114 to M3/144 (15EP3)

Disconnect cables from M3/144 (and mark for removal) (15EP3)

Connect OOC-ACT feeder to OOC PSP Stage 15EP3 to OOC PSP at M3/144

Test OOC-ACT 15EP3

Test ARS from Stage 15EP3

Commission OOC-ACT feeder 15EP3

Remove FSPs ACT-OOC Mains Stage 16

- FSP M3/114
- FSP M3/87
- FSP M3/72
- FSP M3/48
- FSP M3/48
- FSP M3/07
- FSP M2/164
- M2/164 (Class I FSP Equipment)

9.5.3.22 The detailed staging strategy shall confirm that signalling test loads can be supplied in conjunction with the existing signalling loads, if required as part of the signalling testing plan. This shall also confirm that where new FSPs are to be tested from the existing feeders that these feeders can supply the existing signalling power supply and the new “test” supply.

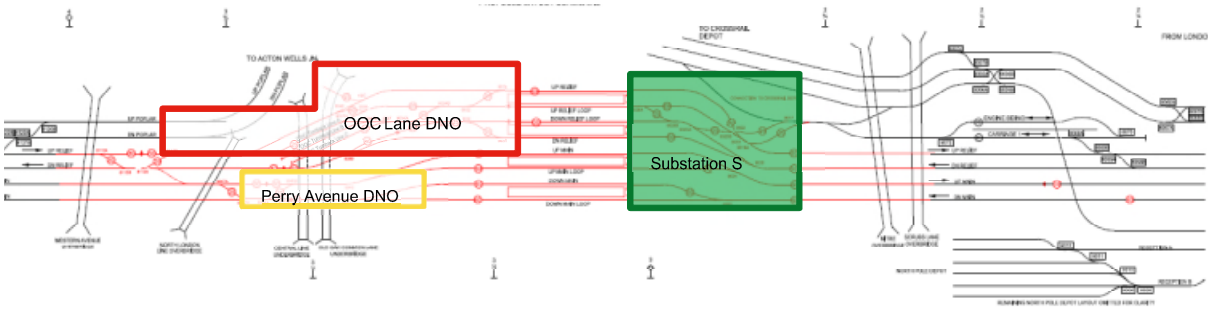
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9.5.4 DNO

9.5.4.1 Installation of 2x Double Sided GRP DNO/Distribution Cubicles and connection to existing HV Ring via LV connection at Substation S (for further details including preliminary DNO supply design details, interfacing activities such as supplies to fed from each DNO, testing requirements and for proposed access points refer to 152270-ARC-REP-EPT-000002)

9.5.4.2 DNOs can be accessed from the road, these both require civils staging due to their positions. The Old oak Common Lane DNO requires the North West compound to be installed and bridgeworks to be completed. The staging of this work will be subject to integration with BBVS programming. OOC Lane DNO is in BBVS handover area Key Date 5 area 2 and will not be available until later on in the programme. Temporary supply will be required to support the Relief line layout for a period of time. RAM has rejected generator. Please include an option to use Brunel Road DNO. Please add text to highlight this.. The Perry Avenue DNO requires lineside access to be constructed.

9.5.4.3 LV power distribution is split into 3 areas.



9.5.4.4 Supported by 2 No. new DNOs (OOC Lane and Perry Avenue). DNOs are to be double sided GRP type and are to be positioned in the NR fence-lines for access by the DNO / meter reader as these are to be on an embankment safe access is to be proposed to the road and to the track (refer to NR/TW/InfraInv/ENG/EP6248683) as well as from track. Old Oak Common DNO track access shall be via the proposed North West RRAP. It is noted that DNO equipment / cables must be accessible by the DNO company. Liaison with the DNO, metering company and NR Utilities will be required in order to provide a supply. DNO Cubicle to be installed prior to DNO supply installation. Construction of cable route and ancillary civils base to be co-ordinated with installation of DNO.

9.5.4.5 Substation S is an existing HV asset which provides an LV supply to the existing systems in the area. Substation S & SAIF distribution cubicle are located in the wide way between Up-Relief & Carriage Line. There is no authorised walking route to the substation, however access can be gained through IEP North Pole Depot.

9.5.4.6 The existing transformer is rated at 500 kVA; however the proposed solution is a transformer upgrade to 800 kVA which shall provide enough capacity to serve the additional infrastructure. The transformer will be connected to the S3 circuit breaker in the adjacent building via new HV cables. On the LV side, a closed coupled LV feeder pillar with two outgoing LV ways, protected by ACBs, will be provided to serve the existing SAIF feeder pillar and the new Distribution Cubicle. It is noted that OLE MOS Supplies, REB Domestic Supplies (including the supply to REB R2/140 for Axle Counter Supplies) and Points Heating Control Cubicles are supplied from the existing transformer via the existing SAIF cubicle and will need to be carefully managed through the construction period.

9.5.4.7 In addition to the 2 No. New DNOs and New Distribution Cubicle, the existing Horn Lane DNO which serves Acton PSP shall also serve the RRAP Lighting adjacent to Jewson's Yard.

9.5.5 Points Heating

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9.5.5.1 Installation of 7x Points Heating Control Cubicles, with each weighting around 250kg (for further details including TCBs and cables required, interfacing activities such as DNO requirements, cable route requirements, removals and testing requirements and for proposed access points refer to 152270-ARC-REP-EPT-000009).

9.5.5.2 Points Heating distribution circuitry shall be new and supplied from the new proposed Points Heating control cubicles.

9.5.5.3 All new transformers shall be of the dual wound secondary type and shall be manufactured in accordance with BS EN 61558 Parts 1 and 4. Where transformers are located less than 3.5m from the running rail, protective handrails shall be installed between the transformer and the rail.

9.5.5.4 It is recommended the switch heater cables shall not exceed 30m. Switch Heater Cables less than 30m shall connected directly into the Points Heating Transformer. Where the distance to the Switch Heating will exceed 30m, the use of Trackside connection boxes shall be implemented.

9.5.5.5 It is recommended that access to terminations of the TCB shall be facing away from the track for maintenance purposes. All TCB shall be a minimum distance of 1.469m from the nearest running rail in a position that is in line with the point heating transformer and as close as possible to the heater strips.

9.5.5.6 Hot and Cold probes shall be located and installed as detailed in NAT/REP/MPI/ENG/EP3736860 Issue 4:2011 with reference to NR/GN/ELP/45002 section 10 & NR/SP/ELP/40045 section 18. The hot and cold probes shall be located on the common rail with the hot probe installed at least 1.5 metres into the heated area, and the cold probe installed at least 3 metres away from the heated area.

9.5.5.7 Acton Cutting Mains (9047A, 9047B, 9046A, 9043, 9044, 9046B) are to be supplied from PHCC1 which is supplied from Perry Avenue DNO. This PHCC is proposed to be located on the Mains Cess side at approx. 5760m.

9.5.5.8 Acton Cutting Reliefs (8113A, 8113B, 8112A, 8112B) are to be supplied from PHCC2 which is supplied from OOC DNO. This is proposed to be located on staging/ platform area (accessed by steps) adjacent to JLCC1 on the Reliefs Cess embankment/cess area at approx. 6260m. This area has significant space constraints and transformers shall also be positioned on the same staging area with TCBs fixed to the cutting wall (it is not expected that the TCBs themselves will require regular access).

9.5.5.9 Old Oak Common Lane Station West Relief Junction 1 (9039, 9036, 9034A, 9037, 9041A, 9041B, 9040) are supplied from PHCC3 which is supplied from OOC DNO. This is proposed to be located on the Reliefs Cess area to the West of the Station at approx. 5540m.

9.5.5.10 Old Oak Common Lane Station West Relief Junction 2 (9035, 9034B, 9033, 9032, 9030, 9031) are supplied from PHCC4 which is supplied from OOC DNO. This is proposed to be located in the Wideway between the Up Relief and Up Relief Loop, close to the proposed OOC Station at approx. 5390m. (Arrangement of circuits between 1 & 2 areas to be confirmed at detailed design – these are currently split to the East and West of the Junction).

9.5.5.11 Mitre Bridge (Station East) Reliefs (9026A, 9026B, 9025A, 9022, 9025B) are supplied from PHCC 5 which is supplied from new Substation S Distribution Cubicle. The PHCC is located in the Relief Cess to the East of the proposed Station at approx. MLN1 4820m.

9.5.5.12 Mitre Bridge (Station East) Mains (9023, 9024) are supplied from PHCC 6 which is supplied from new Substation S Distribution Cubicle. The PHCC is located in the Wideway close to the North East RRAP and also adjacent to PHCC 7 at approx. MLN1 4590m.

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9.5.5.13 Mitre Bridge Mains (9019, 9018, 9020, 9017, 9016) are supplied from PHCC 7 which is supplied from new Substation S Distribution Cubicle. The PHCC is located in the Wideway close to the North East RRAP and also adjacent to PHCC 6 at approx. MLN1 4590m.

9.5.5.14 Remote condition monitoring (RCM) is implemented at points heating control cabinets, this should be included in Testing & Commissioning Strategy to be developed at later GRIP Stage.

9.5.6 Junction Lighting

9.5.6.1 Installation of Junction Lighting Control Cubicles, with each cubicle weighing approximately 250kg and installation of approx. 700 units of 1.5m high Junction lighting Columns together with associated LED luminaires (for further details including cables required, interfacing activities such as DNO requirements, cable route requirements and testing requirements and for proposed access points refer to 152270-ARC-REP-EPT-000006)

9.5.6.2 In accordance with guidance, a clearance of 2.5m was the objective for the Junction Lighting. However, in a number of areas this was not possible. Task Areas for 9026B, 9025A, 9020, 9023 do not achieve this.

9.5.6.3 Junction lighting is provided for Permanent Way track inspection only and will be controlled so that it will be normally off. It provides uniform lighting of an average of 30 LUX, that is sufficient to allow people to move about safety. Note that the provision of this equipment does not preclude additional task lighting being used. However, it has been agreed by the project that further permanent lighting is not only additional expense & E&P maintenance requirement but could unnecessarily cause glare & light pollution.

9.5.6.4 It has been agreed through DRN comments that provision is to be made for hand lamp charging at the next design stage (in co-ordination with the RAM).

9.5.6.5 Junction Lighting design utilises low-level LED luminaire. This is an energy-efficient and high reliability solution. The luminaire is positioned approximately 1.5m above Formed Ground Level, which mitigates working from height. A GRP column is used in most instances, however, for some areas fixing to walls and fences is required.

9.5.6.6 Junction lighting distribution circuitry shall be new and supplied from the new proposed Junction Lighting Control Cubicles (JLCCs).

9.5.6.7 Acton Cutting West: (JLCC-1) – This cubicle shall be positioned adjacent to the newly installed PHCC-2 on the staging area provided (to be accessed from the track via steps) close to the A40 Western Avenue Bridge. This is to be located at approx. MLN1 6270m. This is to be supplied from OOC Lane DNO.

9.5.6.8 Acton Cutting East Mains: (JLCC-2) – This cubicle shall be positioned in the Main cess to the West of OOC Lane Bridge at approx. MLN1 5760m. This is to be supplied from Perry Avenue DNO.

9.5.6.9 OOC Lane Mains (JLCC3): – This cubicle shall be positioned on the Main cess to the West of the Station, close to Old Oak Common Road Bridge at approx. MLN1 5615m. This is to be supplied from Perry Avenue DNO

9.5.6.10 OOC Lane Reliefs (JLCC4): - This cubicle shall be positioned on the Relief cess to the West of the Station, close to Old Oak Common Road Bridge at approx. MLN1 5530m. This is to be supplied from OOC Lane DNO.

9.5.6.11 OOC Lane Reliefs (JLCC5): - This cubicle shall be positioned in the cess area of the Relief Lines to the West of the Station, at approx. MLN1 5380m. This is to be supplied from OOC Lane DNO.

9.5.6.12 Mitre Bridge Mains (JLCC6): This cubicle shall be positioned on void area between Up Relief & Up Relief Loop to the East of the Station, at approx. MLN1 4900m. This shall be supplied from the new Substation S Distribution Cubicle.

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9.5.6.13 Mitre Bridge Mains (JLCC7): This cubicle shall be positioned in the Wideway close to the North East RRAP and PHCC 6&7. This shall be supplied from the new Substation S Distribution Cubicle.

9.5.7 MOS LV Supply

9.5.7.1 Installation of 7 No. MOS LCC (Lineside Control Cubicles) with each weighing approximately 800kg (for further details including cables required, interfacing activities such as switch and structure references and DNO requirements, cable route requirements and testing requirements and for proposed access points refer to 152270-ARC-REP-EPT-000007). For switch installation and SCADA installation refer to OLE and Telecoms installations sections, respectively.

9.5.7.2 Motorised Switches for Isolation Points (see section 9.2) shall be new and supplied from the new MOS DB Cubicles. These are located in cess / wide ways. Motorised switches are provided to remove the requirement to physically go to track and switch – this can be done remotely from the ECR Room (see SCADA – Telecoms).

9.5.7.3 The LV supplies to these are to be provided from 7 No. MOS DCs (LCCs) which incorporate a battery backup. The batteries introduce an additional maintenance requirement; however, this project has replicated the existing system used by a previous project for this area so that requirement types are not increased.

9.5.7.4 MOS DC (LCC)1 – A new MOS Distribution cubicle shall be positioned in the Relief Cess Side (approx. MLN1 5510m) supplied from OOC Lane DNO

9.5.7.5 MOS DC (LCC)2 – A new MOS Distribution cubicle shall be positioned on the Main Cess (approx. MLN1 5490m) supplied from Perry Avenue DNO

9.5.7.6 MOS DC (LCC)3 &5 – For the Relief Lines, 2 No. new MOS Distribution cubicles are proposed in the wide way created off the end of the platforms between the Up Relief and Up Relief Loop (at approx. MLN1 4940m) supplied from the new Substation S Distribution Cubicle

9.5.7.7 MOS DC (LCC)4 &6 – For the Main Lines, 2 No. new MOS Distribution cubicles are proposed in the Wideway created off the end of the platforms between the Up Main and Up Main Loop (at approx. MLN1 4940m) supplied from the new Substation S Distribution Cubicle

9.5.7.8 MOS DC (LCC)7 – For the Relief Lines and PSP, 1 no. new MOS Distribution Cubicle is proposed adjacent to the PSP compound at the North East RRAP (at approx. MLN1 4600m).

9.5.8 REB LV Supply

9.5.8.1 There are 4 No. new REBs 2 No. to the West of the Station and 2 No. to the East. Those to the East shall be supplied from Substation S. Those to the West shall be supplied from Old Oak Common DNO. REBs are located off the Station Platforms. New FSPs for REBs are included in section 9.5.3. (Refer to 152270-ARC-REP-EPT-000011 for further details of domestic supply requirements, including cable requirements, DNO supply and testing requirements). REBs are a signalling asset, staging of installation can be found within Section 9.3.

9.5.9 Buffer Stop Lighting

9.5.9.1 3 No. Buffer Stops are to be installed as part of the track requirements. For each bufferstop, a bufferstop Lighting installation shall be installed, this shall consist of 2 No. luminaires fixed to the bufferstop Lighting Support and associated bufferstop Lighting Transformer (refer to 152270-ARC-REP-EPT-000008). bufferstops are to be installed prior to installation of lighting. Bufferstop lighting transformers are located close to the turnbacks to the West of Old Oak Common Station on the Reliefs Side and are to be supplied from

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Old Oak Common DNO. These are supplied from the domestic supply, and do not require signalling supply for commissioning.

9.5.10 RRAP Lighting

9.5.10.1 3 No. new RRAPs have been developed with associated lighting schemes. This has been provided to a level of 30lux and 0.4 uniformity for the access route within the compound.

9.5.10.2 A mixture of 6m and 4m (raise and lower) columns have been proposed for this fitted with LEDs. Vehicle protection barriers are required to protect columns. These are to be co-ordinated to ensure lowering.

9.5.10.3 A RRAP Lighting Control Cubicle is also required for each RRAP area. For the North West RRAP this is located next to Old Oak Common DNO which is proposed as the supply for this RRAP (this is external to the RRAP itself and a pedestrian gate is to be provided). The North East RRAP Lighting Control Cubicle is located within the PSP compound, this is to be supplied from the new Substation S Distribution Cubicle. As discussed within the DNO Section, the existing Horn Lane DNO is to supply the Lighting Control Cubicle for the RRAP located next to Jewson's Yard. This cubicle shall be located within the RRAP and protected by armco barrier.

9.5.11 Testing & Commissioning

9.5.11.1 All E&P installations must be tested and commissioned in line with all relevant standards, regulations and best practice (for LV BS7671) and (for HV to BS EN 50121-2).

9.6 Telecoms

9.6.1.1 This section of the report is to be read in conjunction with section 9.4.7 for UTX and 9.4.8 for Cable routes and 9.7.2 Rail Systems Cable Route interface with new Station.

9.6.1.2 The Telecoms construction will coordinate with the phased delivery of the Track, Signalling E&P, HV, OLE and new Station infrastructure, and installation of the lineside civils in terms of the core cable routes, UTXs, URXs and troughing and also installation of the new cable routes in the new Station.

9.6.1.3 The following are the core items associated with the Telecoms construction.

- Installation/modification of Cable routes (inclusive of UTXs and URXs) in Relief Lines (non-possession works)
- Installation/modification of Cable routes (inclusive of UTXs and URXs) in Main Lines (possession works)
- Installation/modification of copper cable infrastructure (C-STUB-0063-B, C-STUB-OLCA-D and associated Link cables)
- Installation/modification of lineside telephony infrastructure
- Installation/modification of fibre cable infrastructure (F-ACTC-PTAC-A, F-PTAC-RGAC-A, F-PTAC-RGAC-B, F-PTAC-RGAC-C and associated Spur cables), and passive provision for;
    - 2 fibre joints on either side of the OOC station Platform 5&6 (F-ACTC-PTAC-A2 and F-ACTC-PTAC-A3) that can be utilised to connect to FTNx node in the future. – This is dependent on the outcome of a coverage review.
- Installation of new GSM-R Repeater RRH1 site on the East side of the Station (MLN1 2 ¾ MP +129m) – This is dependent on the outcome of a coverage review.
- Installation/modification of OLE SCADA infrastructure

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- Installation of DOO CCTV infrastructure

9.6.2 Key Staged Works

9.6.2.1 All works must comply with NR/L3/TEL/0092 and require suitable approvals with NR.

Telecoms Enabling Works and Early Stages

9.6.2.2 Installation of new copper cable infrastructure C-STUB-0063-B, for existing lineside telephony cable/circuits from old copper cable infrastructure C-STUB-0063-B to new can be undertaken from Stage 6 through to Stage 8, or up to around 4 months prior to the commissioning at Stage 9. The diverted copper cable is planned to run through Platform 5&6 (see Figure *138), so can on*ly be diverted when the platform is substantially completed and the major UTX's part 1, either side of the OOC Station are constructed (see UTX 5 & 6 – sections 9.4.7.7 & 9.4.7.8). Integration with the Station Contractor is required to confirm the earliest possible opportunity the cable can be run through the Platform ducting. Co-ordination has taken place with the Station Designer to make allowances for suitable ducting for routing Rail Systems cables. C-STUB-0063-B diversion must take place prior to the commencement of Platform 1 & 2 construction, otherwise delays maybe be caused to the Station Contractor. Once the diverted C-STUB-0063-B is installed and commissioned, the old Copper infrastructure for C-STUB-0063 -B can be recovered. In order to commission the new proposed C-STUB-0063-B, and associated lineside telephony cable/circuits, a telecoms disconnection notice will be required, subject to NR approval, as per NR/L3/TEL/0092.

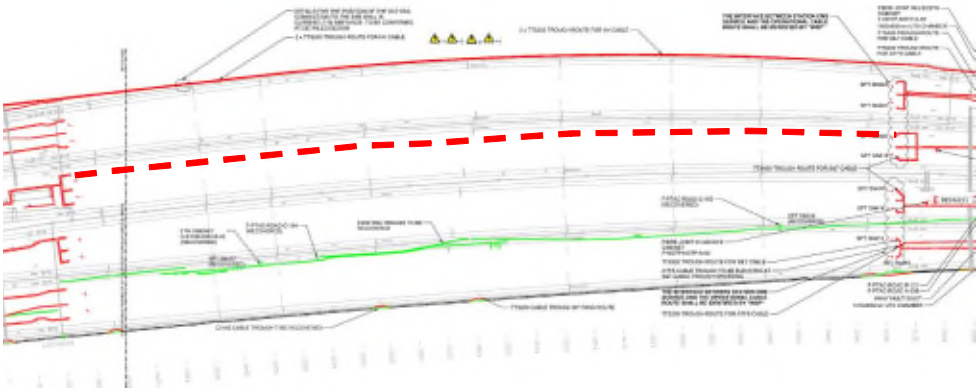


Figure 139: C-STUB-0063-B cable routing through OOC Station Platform 5 & 6.

9.6.2.3 There is a risk the station construction will cause a black spot for the GSMR coverage East of the station (see Figure 139), especially when the station canopy is constructed.

9.6.2.4 As part of Arcadis design, passive provision has been considered in the design, and a new GSM-R repeater has been designed and placed on the East side of the new OCC Station. The 24 core F-ACTC-PTAC-A will provide services to the new GSM-R repeater via the 24-core spare fibre from the F-ACTC-PTAC-A-01 fibre joint.

9.6.2.5 Ongoing testing works will be required by NR-T radio specialist to consider any further radio black spots whilst the station super structure is being built. If the radio performance level in the station boundary area is sufficiently degraded a new RRH will be considered at a later GRIP 5-6 stage, however the 152270-NWR-REP-ETL-000001 GSM-R Coverage Analysis report details this to be unlikely based on the amount of GSM-R radio coverage in the area.

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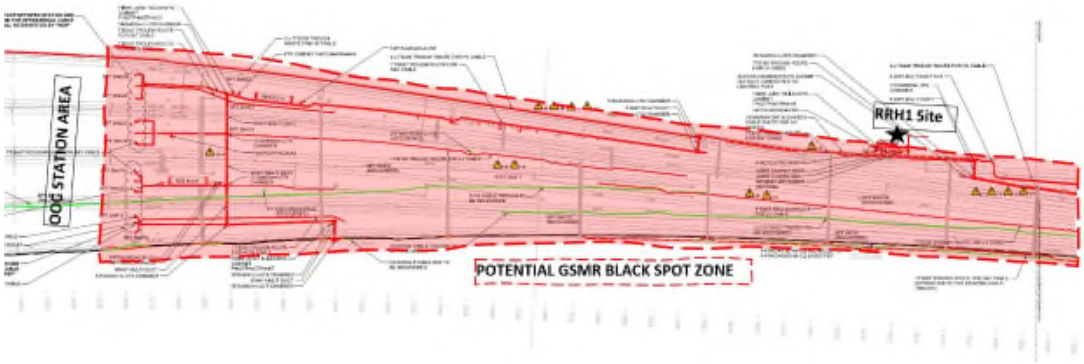


Figure 140: GSMR Potential GSMR Black Spot Zone

9.6.2.6 Decommissioning of old heritage copper cable infrastructure (WE numbers) coordinated with the phased delivery of Signalling.

9.6.2.7 Installation/modification of Cable routes (inclusive of UTXs and URXs) in Main Cess (possession works) - See section 9.4.7 for UTX and 9.4.8 for Cable routes and 9.7.2 Rail Systems Cable Route interface with new Station.

9.6.2.8 GSMR cable Installation/modification of fibre cable infrastructure F-ACTC-PTAC-A. Works undertaken at Stage 8. This is being routed through Platform 5 & 6.

9.6.2.9 Installation of new copper cable infrastructure and spur fibre cable to Old Oak Common ATS OOCA shall be coordinated with the phased delivery of OOCA ATS REB.

9.6.2.10 Installation of new copper cable infrastructure C-LINK-0063-A, B, C and D coordinated with the phased delivery of Signalling REBs M3/45, R2/45, M3/13, R3/13. For REB's signalling the Reliefs all works to be completed by Stage 8. For the Mains all works to be completed by Stage 11.

9.6.2.11 Installation of new copper cable infrastructure C-LINK-0063-F coordinated with the phased delivery of OOC PSP.

9.6.2.12 Installation/modification of ARS (Auto Reconfigurable Supply) fibre cable infrastructure F-PTAC-RGAC-B, to be routed through Platform 3 & 4, & F-PTAC-RGAC-C, to be routed through platform 5 & 6, and associated Spur cables to relocated/new FSP's and terminations to new OOC PSP coordinated with the phased delivery of E&P and Signalling. This work is proposed to be completed prior to Stage 9.

9.6.2.13 Installation of Spur fibre cables infrastructure from F-PTAC-RGAC-B & F-PTAC-RGAC-C to 7 new LCCs (provided by E&P) and to new OOC ATS coordinated with the phased delivery of E&P and OOC ATS.

9.6.2.14 Installation of fibre cable infrastructure F-PTAC-RGAC-A via platform 3 & 4 is planned to be installed prior to Stage 9.

9.6.2.15 Installation of Spur fibre cables infrastructure from F-PTAC-RGAC-A to new OOCA ATS REB coordinated with the phased delivery of OOCA ATS REB

9.6.2.16 Installation of Spur fibre cables infrastructure from F-PTAC-RGAC-A to new Station`s CER coordinated with the phased delivery of the new station.

9.6.2.17 Installation/modification of SCADA infrastructure coordinated with the phased delivery of the OLE and new OOC ATS REB.

9.6.2.18 Installation of DOO CCTV infrastructure coordinated with the phased delivery of the new station. The new fibre joints F-ACTC-PTAC-A-A2 and F-ACTC-PTAC-A-A3 will be installed at high and low mileage end of the new OOC station (Platform 5&6) in Illecsy Fibre Distribution Cabinet

9.6.3 Testing & Commissioning

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9.6.3.1 All Telecoms installations must be tested and commissioned in line with all relevant standards.

9.6.4 Third Party Fibre

9.6.4.1 Third party fibre assets will be impacted by the proposed works to Old Oak Common Lane and Central Line Under bridges. We assume all third-party cables will be diverted and is outside this projects remit.

9.6.4.2 At the time of writing, it is unclear who is responsible for the diversions of the third-party fibre cables to enable the underbridge construction. These are potentially proposed to be carried out by the South Rail Systems Alliance project.

9.6.4.3 The area of most concern is in and around the proposed new underbridges at OOC Lane and Central Line which is detailed on *Figure* 140. In order to construct the bridges, diversions of the existing third-party fibre cables will be required. To install diversions a number of fibre joints to be installed. We assume all third-party cables diversion will be completed prior to commencement of the main work as described further below.

9.6.4.4 In the first instance fibre cables running in the Up Relief Cess will need to be diverted to the Down Main Cess enabling part 1 construction of the new underbridges. Newly installed UTX's in the area, both East and West of the new underbridge works, will be utilised to enable this diversion and convergence back to the original route.

9.6.4.5 The bridge works are planned to work from North to South in three parts. Towards the end of the programme, the final Southernmost part of the bridge construction will take place. This will require the third-party fibre, run in the Down Main Cess, to be diverted protected. Once bridge works are completed, if required the fibre can be reinstated in the Cess.

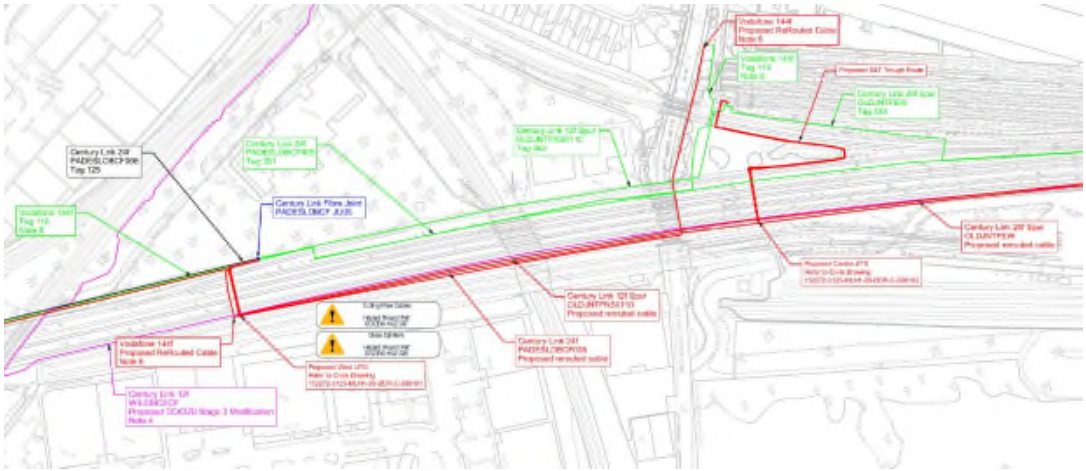


Figure 141: Third Party Fibre in area of Underbridges

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10 Station Interface

10.1.1 Introduction

10.1.1.1 There is a complex interface between the new OOC station and rail systems construction. At the time writing there remains some unknowns around the exact programme of construction for the platforms and the availability of access to undertake rail systems installation. Where unknowns have been identified, assumptions have been made based on previous similar project experiences and best practice examples. Consequently, these assumptions will need to be reviewed once more information is available.

10.1.1.2 Prior to installing any rail systems in the station area, the platforms and concourse overbridge will have been completed or substantially completed.

10.1.1.3 It is assumed all the external works for relevant station structures will be completed prior, and giving suitable time to enable the construction, and commissioning of the rail systems that enable an operational railway through the new platforms.

10.1.1.4 Following the commissioning over Stage 9, the new OOC station and worksite will become an operational rail environment. Accordingly, it is recommended the Principal Contractor become the Rail Systems contractor given the changing nature of the site and the main hazard generation from the introduction of an operational railway.

10.1.1.5 Discussions to date with the Station Contractor have centered around a 25m boundary, offset from the platforms, to demark the worksite boundaries between the Rail Systems and Station works, and any works within the 25m boundary, i.e., close to the platform will need to be co-ordinated with the Station Contractor.

10.1.1.6 Table 27 provides an overview of the Rail Systems equipment which is required to be installed within the 25m boundary on the Station Platforms, along with some estimates of how long access would be needed prior to the commissioning of that equipment.

Table 27: Overview of Rail Systems Equipment on or near OOC Station Platforms

Rail System Equipment on Platforms			
Equipment	**Min. Time Installed before commissioning of equipment**	**Installation commencing**	**Estimated Installation Time (based on one team)**
Banner Repeater on Platform 6, & 4.	T-2 Months	Requires the canopy to be installed. T-3 months	1 shift per Repeater
Off Indicators on all platforms (except Platform 1)	T-2 Months	Requires the canopy to be installed. T-3 months	1 shift per Off Indicator
Train Dispatch Units – TDU (all platforms, TBC number per platform) TDU's can always be fitted at a later stage.	T-2 Months	T-3 months	1 shift per TDU

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SPT's - mounted on public side of end platform fence - all platforms.	T-2 Months	T-3 months	1 shift per SPT
Running of cables to Platform equipment	T-2 Months	T-3 months	10 shifts per platform
OLE SPS	T-4 Months	T-6 Months	3 SPS per shift
ATF cables through platform	T-4 Months	T-6 Months	
Rail Systems Equipment off Platforms (within 25m boundary)			
Equipment	**Min. Time Installed before commissioning of equipment**	**Installation commencing**	**Estimated Installation Time (based on one team)**
REB's - located West - Platform 1/2 & 5/6 East - Platform 3/4 & 7/8	T-4 Months	T-9 Months	REB Base - 4 weeks Landing - 1 shift Straight Post – 1 per shift (precast base) Wiring - 4 weeks Testing - 4 weeks
Signals Foundations and Landing Signals	T-6 Months – Gantry Foundation T-3 Months for Landing Gantry. T-3 Months – Foundation & Landing Straight Post Signals	T-8 Months – Gantry T-5 Months Signals	Straight Post - 1 week per signal Gantry - 6 weeks including steel erection Testing - 1 week
TPWS/AWS/Axle Counters/ATP/ POE	T-4 months	T-6 Months	1 per shift 4 weeks testing
Speed Boards	T-1 months	T-2 months	2 per shift
Track, S&C, & Drainage	T-6 Months		Varies
OLE foundations, MPS and SPS	T-3 Months		Varies

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10.1.2 Rail Systems Cable Route

10.1.2.1 Following construction of Platforms 3-8, the Up-Relief line cess cable route is installed in 2025 when the new Up Relief track is installed (prior to the commissioning of the new Up Relief over Christmas 2025).

10.1.2.2 The new platform construction design has provision to run cables through all platforms. According to the WSP constructability report, a minimum of 1100mm (w) x 1800mm (h) access zone has been included within the inverts to allow for a Safe working zone. Additionally, there are 900mm x 1200mm access hatches located at 15m centres for each platform invert compartment, and 350mm x 350mm ventilation openings located at five metre centres within the outer and inner invert walls for air circulation. Based on this there should not be any issues with space to run rail systems cabling.

10.1.2.3 Rail systems cabling routes are proposed to enter each platform, as per the below detail, with route running up to the platform ends. The exact interface detail is to be determined by the Station Designer. It is possible a chamber will need to be constructed for routing cables from troughing into ducts for interface with the platform.

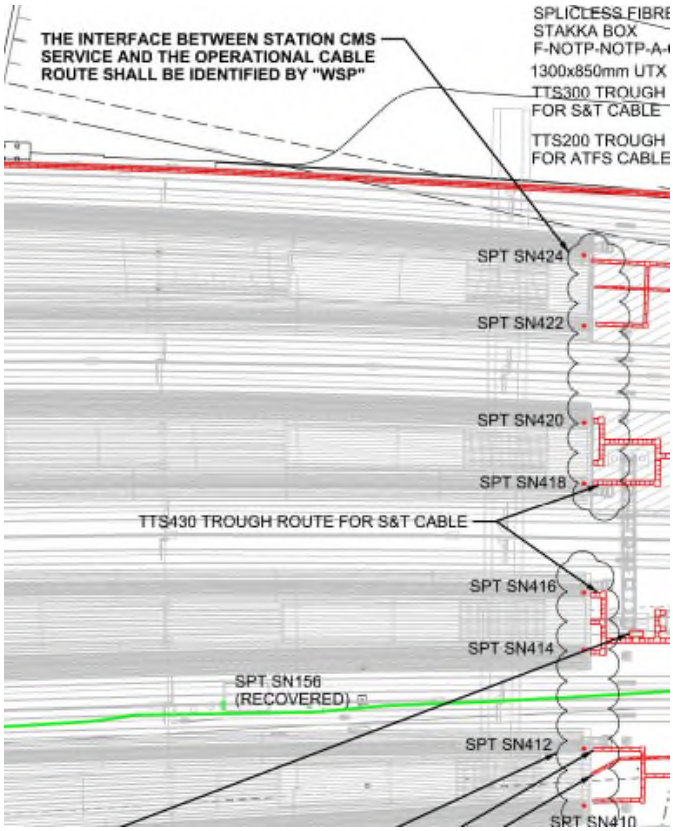


Figure 142: Rail systems cable route

10.1.3 Signal Bracket Supports

10.1.3.1 There are two Banner Repeater bracket support signal structures proposed, one on platform 2, the other is located on platform 6. Signal brackets will be suspended on the platform canopy and installed once access is permitted on the platforms by the station Contractor. The station canopy has been designed to allow for suspended rail systems equipment. The exact location of these structures will require further integration with the station Designer along with sighting acceptance.

10.1.3.2 Similarly, to the Banner Repeaters there are several Off Indicators to be positioned along all platforms. Again, these are proposed to be suspended off the platform canopy. A MEWP

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will be needed to lift the brackets into position and allow access to bolt to the canopy. Cable management will be via the canopy void which has been designed for cable runs.

10.1.4 Rail Systems Signalling Equipment

Signal Post Telephones

10.1.4.1 Signal Post Telephones (SPTs) will be required at the ends of the platforms. The locations of these have not yet been finalised and will need further integration with the station design during GRIP 5. Typically, SPT's are installed on dedicated posts, however it is understood the station designer has a preference to integrate the SPTs in a dedicated recess on the platform. The exact location of these is not yet known.

10.1.4.2 SPTs can be installed with handheld tools. Once SPTs have been installed hoardings can be erected to protect the newly installed equipment from any remaining works on the platform.

Disconnection Boxes

10.1.4.3 Disconnection boxes will be required to run tail cables to signalling equipment. The exact number of these boxes is not yet known, but it is likely there will be a significant number in the station area. Disconnection boxes sighting forms are to be developed at GRIP 5 and integrated with the station designer. Disconnection boxes can be mounted on the platform face or on the platform and installed with handheld tools.

10.1.4.4 From discussions held in GRIP 4 on their inclusion, relative positions and quantity estimation have been provided and details for install shared with station design. Their install will have cables entering the cable management systems through the platform front walls so continuing integration require to stage these wire runs.

10.1.5 OLE

10.1.5.1 New registration assemblies are required through the station on all 8 platforms. It is proposed to used standard SIC registration assemblies with a reduced system height which are to be attached to the station structure.

10.1.5.2 Portal and TTC type supports have been incorporated into the station canopy design to which the 120SHS drop tubes and registration assemblies will be attached. The location of these supports has been provided by the station designer but will require further integration as the design develops.

10.1.5.3 An SSA anchor off from Platform 8 is to be cast offsite and integrated with the SAB wall designed by WSP and part of the station design package. The connection is likely to be bolted in a similar manner to supports at Reading Station viaduct. This will permit better accessibility on northern edge of site.

10.1.5.4 The spacing of the station supports and the width of the main concourse overbridge requires additional registration attachments. These registrations are to be attached to the underside of the main concourse over bridge and both east and west platform end bridges via 120SHS drop tubes with base plates. The proposed support positions, bolt spacings, lengths and loadings will be provided to the station designer so that they can be incorporated into the bridge deck design.

10.1.5.5 As part of the GRIP4 works the inclusion of Chiltern Line platforms within the works remit was reviewed to understand if the provision of a connects would be fundamentally viable. Following this there could be future design of the connection which would require further OLE works to the western end of the GWML station to incorporate.

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10.1.6 Track Platform Interface

10.1.6.1 In the station environment the track platform interface is a difficult relationship to manage during construction activities. Both station and track works will have a construction tolerance available for installation at this key interface.

10.1.6.2 The normal process for track installation is to install the track low to final design during the installation shift. Over successive tamping follow up shifts the track will be lifted to final positioning. This staged installation of the track alignment is industry norm but can present a problem for any ongoing platform coping work during this stage.

10.1.6.3 In order to obtain the optimum design platform track interface and compliant offsets it is recommended that the final coping position is not set until the final track tamp has been complete. This would also then allow for the coping to be set based on intervals to final track position.

10.1.6.4 Temporary track and platform interfaces should be avoided wherever possible to avoid unsafe steeping and clearances. Currently no stage opening of the station is planned therefore this situation is not expected.

11 Health, Safety, & Security

11.1 Health and Safety

11.1.1.1 During the construction of the Rail Systems for OOC station, there are a vast number of site hazards and risks a Contractor will have to deal with. This section provides an overview of the most significant items which will require particular attention during the construction programme.

- Over congested worksites; there are a number of construction programmes being delivered at the same time. This is creating multiple Contractors working in the same site and presents a challenge specifically around who is the principal Contractor.
- Overlapping demolition and construction; causing confusion over removal and introduction of operational assets.
- Personnel and machinery coming into contact with high voltage electrical cables.
- Personnel and machinery coming into contact with live operational assets (trains, plant, and equipment)
- Personnel coming into contact with machinery, road / rail, and rail vehicles within congested worksites
- Introduction of defective works onto Network Rail operational network
- Change in denotation of lines throughout the construction programme causing confusion and unfamiliarity with which line is named what.
- Platform station curve impacting line of sights for train and plant movements.
- Derailment from non-operational points
- Confusion between non-operational and operation points which leads to unexpected moving parts, leading to risk of derailment, and injury.
- Quality of safety systems of work for remote locations given less attention than worksites around the main station construction, resulting in increased risk of harm and damage.

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- Criminal behaviour against personnel particularly at remote locations and during night working.
- Plant and personnel falling into open excavations.
- Damage to partially installed equipment which is not realised to much later e.g. in some cases partially installed equipment remains for a number of years.
- Air pollution from exhaust fumes
- Dust from ballast, as well as site works, and access roads with high volumes of traffic movements
- Contaminated material
- Noise from construction activities will need to be considered at all times, especially when working during night-time and in close proximity to residential buildings.
- Risk to trains from trespass and vandalism activities causing loose materials in site compounds to be put onto operational lines
- Significant changes to operational lines and unfamiliar infrastructure for drivers

11.2 Security

11.2.1.1 To ensure the site is secure there will be a requirement for CCTV, security check points, as well as 24/7 presence on site. A project of this scale has the potential to attract theft of materials, particularly of copper cable, so it is recommended for high-value items to be delivered to site on a just in time basis. These include, but are not limited to;

- HV cables - copper power cable
- Earth matts
- Copper made equipment e.g. Contact Wire, Copper buzz bars
- ATP equipment (legacy system so hard to source and therefore valuable)
- Plant & Machinery – particularly plant and machinery that can be towed or driven on road.

11.2.1.2Additionally, scrap cable should be removed from site as soon as possible for recycling as this also attracts theft or presents a risk from vandalism.

11.3 Any Line Open (ALO) Working

11.3.1.1 Any Line Open working refers to activities undertaken on the rail infrastructure where plant or loads/attachments associated with it could foreseeably foul lines open to traffic. The works to deliver the Old Oak Common Rail systems will require extensive ALO working.

11.3.1.2 Due to the nature of the proposed works and the congested setting of existing and proposed infrastructure at Old Oak Common, the assessment of ALO conditions will be a fundamental part of the safe planning of works.

11.3.1.3 Construction activities will require the nomination of an ALO champion within the organisation leading the works and should be planned in accordance with the Code of Practice for Plant Any Line Open (ALO) Working (COP0032), and NR/L2/RMVP10200, the Infrastructure Plant Manual.

11.3.1.4 The construction activities for the rail systems works involve large scale but typically routine and well-developed methods of working, which are able to be planned in a safe and effective manner. Detailed ALO Assessments will be required for all activities, with appropriate risk mitigation measures put in place.

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11.3.1.5 Examples of the types of risk mitigations available to eliminate or reduce the risk from ALO working include the placement of physical barriers capable of blocking unplanned plant movements and slew limiters for cranes and On-Track Plant to prevent them from moving into positions which can foul open lines.

11.3.1.6 It should be noted that ALO working guidelines do not cover working above rail infrastructure. This specific risk is relevant to plant and vehicle movements over the Central Line bridge to the West of the site. Liaison with London Underground as Infrastructure Manager at this location will be necessary to during the planning and approval of such works.

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12 Opportunities and Risks

12.1 Opportunity

12.1.1 Combining stage 9&12

12.1.1.1 One potential opportunity is combining Stages 9 & 12. *Figure* 142 and *Figure* 143 below display the schematic layout during stages 9B and 12B, respectively. Full versions of these figures can be found in the Staging Schematics in Appendix A.

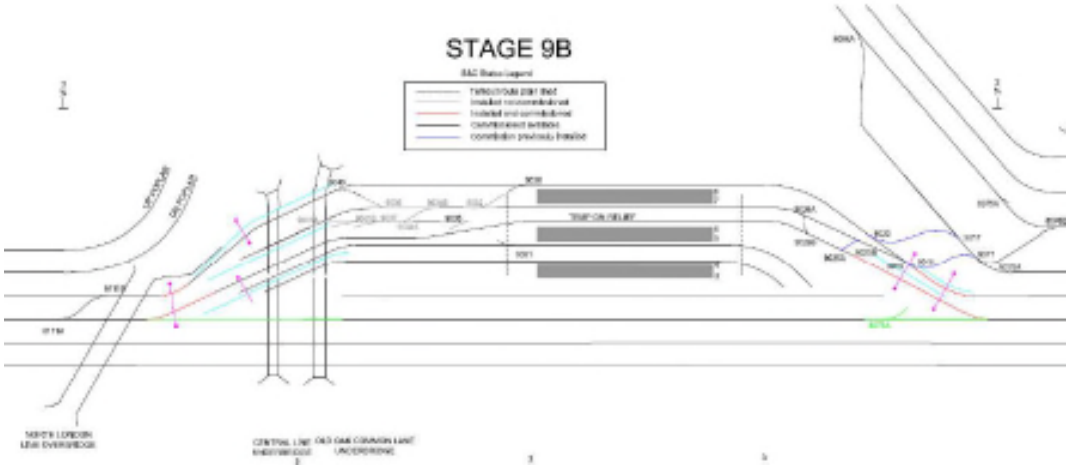


Figure 143: Staging schematic of 9B

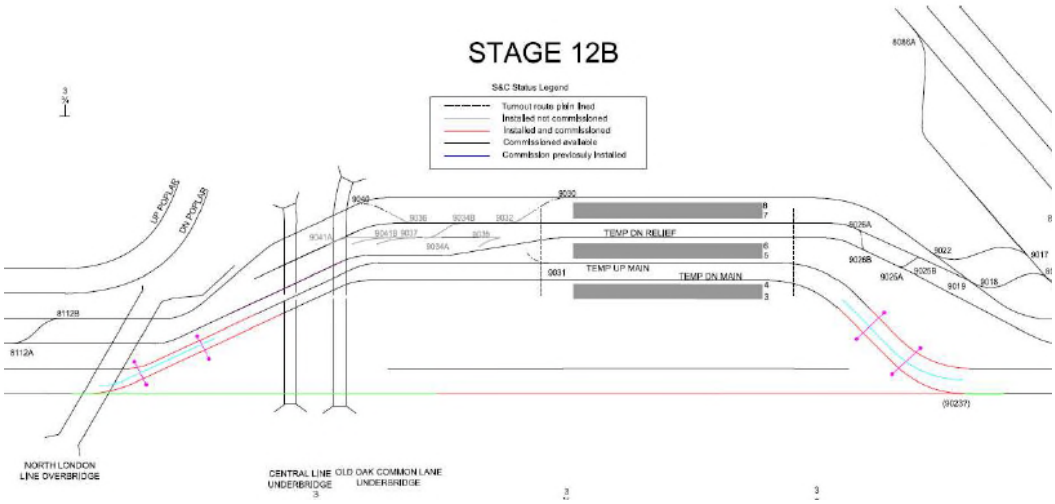


Figure 144: Staging schematic of 12B

12.1.1.2 During Stage 9 the temporary relief lines are installed and commissioned, with the connections to the existing relief lines being recovered. The entire Stage 9 works are proposed during Christmas 2024. Stage 12 follows a similar pattern with the installation and commission of the temporary mains alignments, as well as the recovery of the existing mains connections.

12.1.1.3 Stage 12 is proposed during Christmas 2025. There is opportunity for the works carried out in Stage 12 to be brought forward into Stage 9, where both the temporary Relief and Main lines would be installed and commissioned in one Christmas period, doing so would bring the construction programme forward by a year. With this said, there are several complexities associated with this opportunity.

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12.1.1.4 PWay:

- In order to combine the two stages, the Pway work would require a minimum of 8 days ALB for installation and tamping. To supply the required volume of trains (circa 30 trains), including strategic plants such as Kirows and Tilting Wagons there would ned to be a large commitment not just from the route but national fleet allocation.
- In addition to this, the associated plain line towards the east on both the Mains and Reliefs includes significant track lowers leading to Mitre and Scrubs Lane over bridge. This adds to the planned volume of work that would be required during stage 12 and 9.
- Additional Pway complexity around combining these stages comes from the deviation in existing to temporary alignments. Therefore, the existing adjacent line that would normally accommodate the renewals trains to relay from is disconnected during the renewal if west and east is undertaking in isolation. Ultimately this means both the east and west tie in for both Mains and Reliefs has to be undertaking together allowing a through route for engineering trains. The outcome of this is two concurrent renewals sites in close proximity for each line renewed, adding to complexity and limitations on moving trains.

12.1.1.5 OLE:

- Both proposed stages 9 and 12 will require a minimum of 2 days ALB and a minimum of 4 teams per shift for installation and transfer of the existing OHLE to the temporary alignments. In order to combine the stages, either a minimum of 4 days ALB using a minimum of 4 teams per shift or keeping to the minimum 2 days ALB and a minimum of 8 teams per shift would be required.

12.1.1.6 Signalling:

- 4 days + testing (the statement relates to the requirements for a 4-day possession plus testing time which could be up to another 2 days but needs confirmation from a Signalling Contractor.

12.1.1.7 Summary:

- Based on the detail above, a significant ALB period of 12 days would likely be required to complete the Stage 9 & 12 works. There would also be a significant requirement for resources that may be beyond the available national resources. This extra requirement would have a significant impact to passenger services over the period of the blockade and likely require other works to be deferred to release resources.
- If the possession access and resources could be secured it is possible that the stages could be combined. This would need a great deal of scrutiny and would highly likely be a risky strategy to accelerate the programme.

12.1.2 Splitting the bridge deck with WSP

12.1.2.1 Initially, WSP had proposed that Old Oak Common Lane and Central Line Underbridges would be split into three parts and constructed in three phases, as shown in Figure 144 below taken from the HS2 Construction and Methodology Report (1SN02-WSP-CL-REP-SS07-000001 C03). Following integration with the Station Bridges team, the opportunity arose that if the proposed rail systems track layout was pushed further North above a

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defined break line, the two underbridges could be constructed in two phases, rather than three.



Figure 145: Three phase construction of OOCL and Central Line Underbridge

12.1.2.2 This opportunity is potentially beneficial for all parties. Figure 145 below, shows the underbridges constructed in two phases.

12.1.2.3 This allows for enhancements to the underbridge construction programme, as well as providing a large enough space for the Rail Systems team to run the Up Relief, Down Relief, Up Main, Down Main over part 1 of the underbridge construction, resulting in a more efficient programme for the over-arching project works.

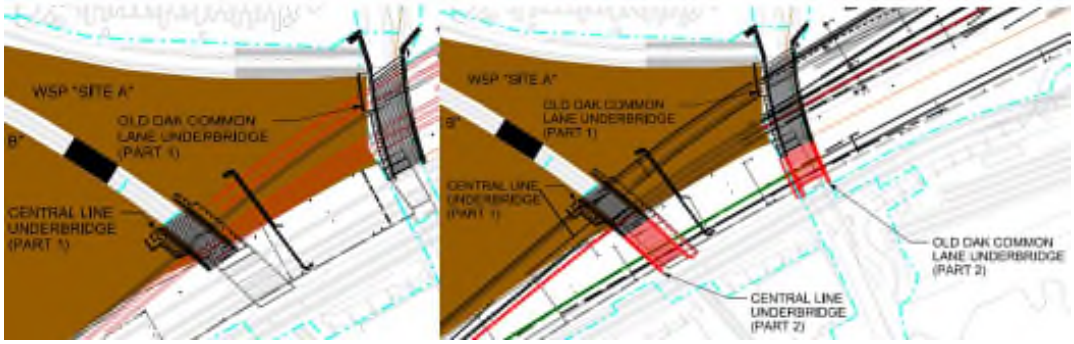


Figure 146: Two phase construction of OOCL and Central Line Underbridge

12.1.3 Eastern Rail Head

12.1.3.1 A rail head connection has been explored in order to feed material into the site by rail to the east of the proposed station. This connection would serve the construction area just north of the existing Up Relief alignment but stopping short of the proposed platforms.

12.1.3.2 Connectivity of this rail head has been considered from both 8077 pts and 8101B pts in their existing position as shown in Figure 146 and Figure 147. Further details around the operational viability of the rail head can be found in the Operational Management Report (152270-ARC-REP-EMG-000003).

12.1.3.3 The eastern rail head would have a limited useable length, in comparison to the western rail head, and would be a terminal siding line with no run-round facility due to space constraints. In addition, 8077 and 8101B points would have to be retained for the length of the rail head usage. The eastern rail head is a viable option, and a potential opportunity should the current methodology of material delivery off the Up Relief in ROTR possessions not suffice.

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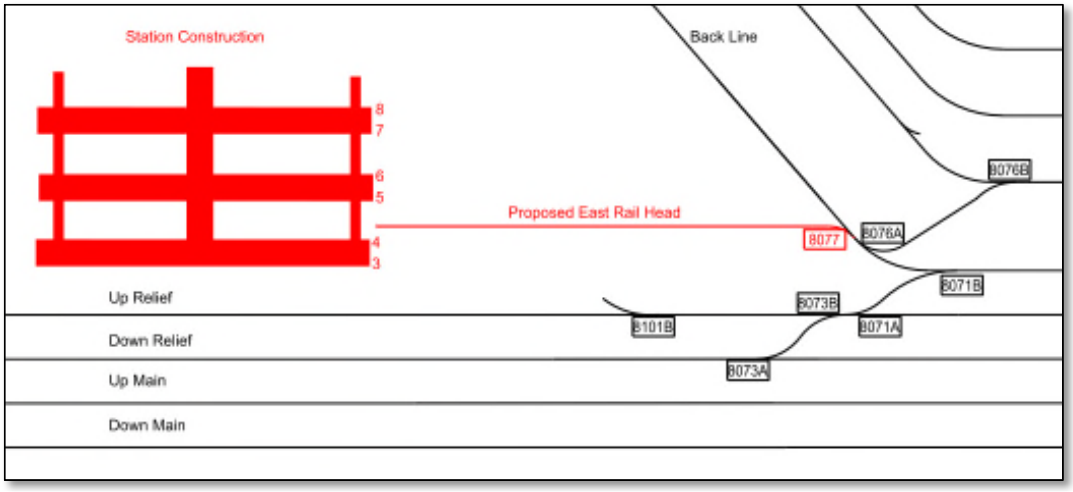


Figure 147: Rail head from 8077 points

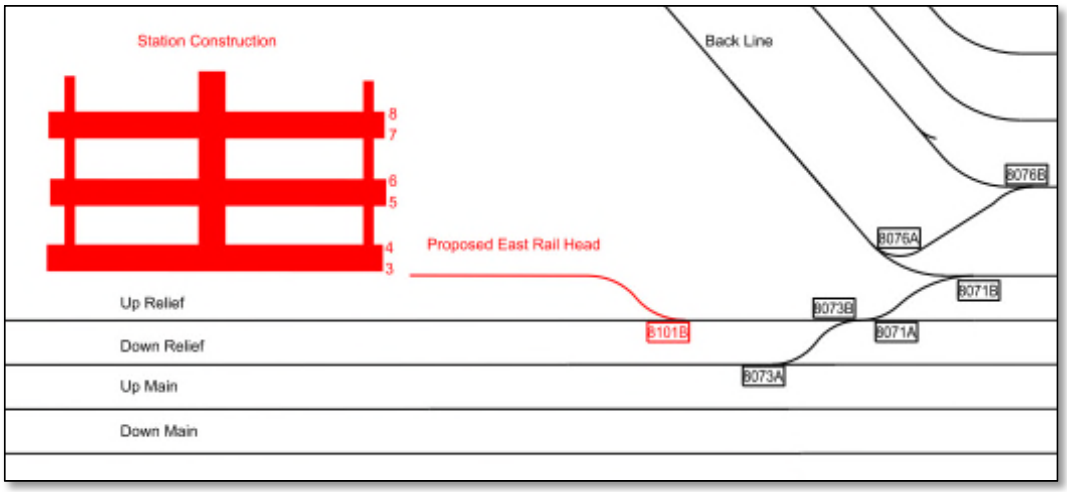


Figure 148: Rail Head from 8101B points

12.1.4 To NOT commission the Up Relief Loop (P7) until final Stage 18.

12.1.4.1 The Up Relief through platform 7 is currently installed along with track drainage in Stage 7 (2024). If this was to not be brought into service until Stage 17 it could be used as an additional Rail Head to deliver materials for the remaining PWay sections in area between the Up and Dn Reliefs. The construction methodology could then utilise Kirows and Trains working from the Up Relief Loop and Dn Relief Loop to install the remaining PWay elements and reduce the requirements of offloading and double handling loose materials.

12.1.4.2 Works carried out at a later date may also allow for some flexibility in the access to the station area which currently BBVS has indicated will have haulage routes and crane pads.

12.1.5 To Carry Out Stage 11 Acton Cutting Crossover Works in Christmas 2025

12.1.5.1 Moving these works to an earlier stage in the project is driven by Stage 9 moving to Christmas 2026 due to give get requirements from Integration with BBVS. This leaves Christmas 2025 having no commission works occurring.

12.1.5.2 If the cross over installation was brought forward as a substage of Stage 7 it would fill this gap to create a more ambitious programme for construction but there would be issues in this rearrangement.

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12.1.5.3 As Points 8111A/B lie to the west of North London Line over bridge as part of their removal in Stage 11 had been linked to the installation of crossovers 8112AB and 8113AB at the same time. This would mean that the track in the area would need to be lowered to final level to permit tolerable clearances below the bridge at the same time as 8111A/B removed. The current time allocated would not be sufficient to carry out the series of works to make this viable and currently the detailed design information to provide this change in programme is not available. It is then proposed to be reviewed once available.

Another issue with stage 11 moving into 2025 would be that the planned data change is currently set in Stage 9 (Christmas 2026) which would mean the introduction of S&C to the area would be clipped and locked for a prolonged period. This would exceed tolerable time and as such the signalling commissioning staging may need to be adjusted to facilitate the change.

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12.1.6 Environmental

12.1.6.1 HS2 EMR's and NR Environment and Social minimum requirements should create opportunities to guide sustainable development during construction.

12.1.6.2 An engagement plan for working with lineside neighbours and surrounding communities ahead of the railway works will be produced. The engagement plan should identify appropriate methods of communication through various mediums (e.g., leaflets, community meetings, social media etc.). Through this engagement there will be opportunities to improve the relationships with the local community.

12.1.6.3 As set out in the SWMP (Site Waste Management Plan), report number 152270-ARC-PLN-EGE-000001, Network Rail has given consideration to the potential impacts that construction, demolition and excavation waste arisings may have on the environment and where possible minimise waste and where not possible, to have in place systems which maximise the beneficial use and recycles of materials. This will reduce the construction material resources and therefore the transport of these material resources to site and the waste off-site. The SWMP also indicates that the Contractor would follow the Waste Hierarchy when managing waste. This would reduce the construction material resources and waste and therefore the transport of these materials to site. During the next stage of works, there are lots of opportunities to explore the reuse and recycling of materials; For example, ballast removed from site could first be reused where possible for Track and Drainage features.

12.2 Risks

12.2.1.1 Throughout the development of the constructability deliverables, a RAID log has been utilised to capture project Risks, Assumptions, Issues, and Dependencies. This register can be found in Appendix E and has been a driver to extract the pertinent details below.

12.2.2 ETCS integration with P2R Design timeframes especially Signalling

12.2.2.1 As discussed in Section 9.3, Arcadis have drawn upon their ETCS experience in Europe to provide ongoing assistance to Network Rail as they develop their own plans for the implementation of ETCS. The initial implementation of ETCS does happen in advance of any significant works for the Old Oak Common Scheme but only by 12 months, which in terms of signalling changes, it is a short gap in time.

12.2.2.2 Not only does the railway in this area undertake the biggest change in signalling methodology for 100 years, the scale and complexity of the remodeling of an already ETCS configured railway has not happened in the UK before. For that reason, it has been highlighted as a key project risk that could have a dramatic effect on the construction programme.

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12.2.3 Road and rail access to the South

12.2.3.1 Section 4.1.3, Proposed RRAPs, details the required Western Mains RRAP would be located either out of the Hitachi depot, or off Jewson's yard. The methodology discussed in the track delivery strategy, Section 9.1, highlights the requirement for access to the Down Main in order to deliver materials to site during this complex build.

12.2.3.2 Beyond Stage 12, as shown in schematic of Stage 13B in Figure 148 below, the site is constrained by Hitachi North Pole Depot to the south and the running Mains & Relief Lines to the north. Therefore, without access to the Mains via a RRAP from the Hitachi depot or a compulsory purchase of Jewson's yard, this section of works cannot be built to the proposed programme, presenting a significant risk to the Old Oak Common project.

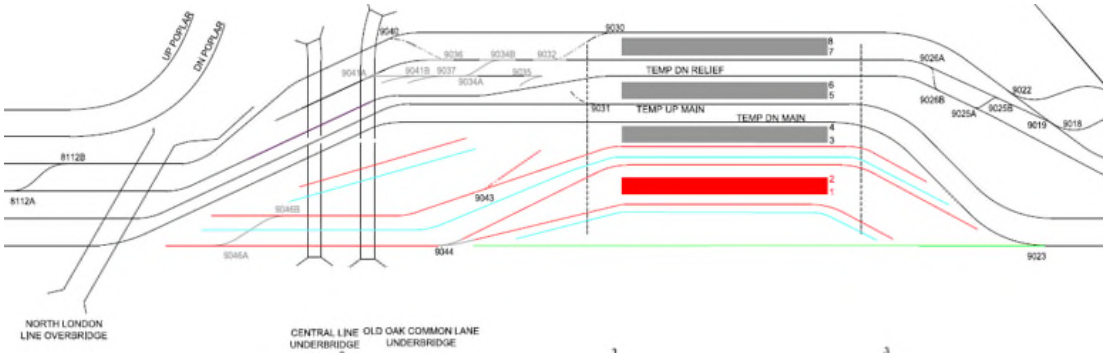


Figure 149: Stage 13B Schematic

12.2.4 Formation proposals scope allocation

12.2.4.1 The following assumption has been agreed between the OOCRS team and the Station Contract Design during various integration meetings.

12.2.4.2 "The station/civil engineering contractor shall provide a cleared site at a nominal 500mm below proposed rail level. The formation shall be prepared to an agreed specification (TBC).

The extents of the prepared formation shall be from a line 30m to the east end of the HS2 station box, through the station and Westwards to a line 30m from the west abutment of the Central Line Underbridge. The northern boundary of this formation preparation shall be 2.8m from the new Up Relief track centreline. The southern boundary shall be an agreed safe working distance from the Reception line 1.

Through the station area the station contractor would provide a prepared formation level through all tracks 8 through to 1.

At each stage of construction for the underbridges the contractor shall provide a prepared formation to a distance of 30m from the east abutment of the OOC Lane underbridge and the west abutment of the CL Underbridge. The contractor shall provide a prepared formation for the full distance between the two under bridges.

The track/rail systems contractor shall carry out all necessary final grading activities for drainage crossfall, followed by geotextile (as required) and ballast prior to track installation.

The track/rail systems contractor shall be responsible for all formation grading activities from a line 30m to the West of the abutment of the CL Underbridge."

12.2.4.3 Altering this assumption would have a significant impact on the quantities of material to be removed by the Rail Systems team, therefore, resulting in a significant impact on the delivery strategy and the proposed construction programme.

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12.2.5 BBVS updated programme to be integrated

12.2.5.1 Following instruction from Network Rail, the construction methodology detailed within this report is based on the HS2 Construction and Methodology Report (1SN02-WSP-CL-REP-SS07-000001 C03), as well as the Network Rail high-level staging strategy schematics (HS2 OOC GWML Staging Schematics – V6 (Option 2C)). Further details of these assumptions are listed in Section 3.6, as well as the RAID Log found in Appendix E

12.2.5.2 During the time that the OOCRS team have been working on the GRIP 4 Constructability deliverables, Balfour Beaty VINCI SYSTRA (BBVS) have been appointed as the Station Contractor. Following several integration meetings with WSP, it has become apparent that BBVS have made significant alterations to the station & bridges construction methodology/programme set out in the HS2 Construction and Methodology Report (1SN02-WSP-CL-REP-SS07-000001 C03).

12.2.5.3 Until recently, the Rail Systems team and BBVS have been developing their methodologies in separate work channels with limited integration, based on the instructions from Network Rail and HS2. Work is ongoing to integrate with BBVS, a series of workshops have been proposed to address the programme integration issues identified. At this stage it is not the staging that is the main problem, but rather the key dates, storage and laydown areas which are contentious.

12.2.6 Use of 8136AB Crossover

12.2.6.1 During both Stages 12 and 15 the renewal of the Down Main is undertaken with Engineering trains positioned on the Up Main, working East to West from Paddington towards Acton. The Up Main is non b-directional, with Engineering train movements during these stages undertaken in a worksite and possession.

12.2.6.2 For Engineering trains to exit the site West back to the LDC; the trains would require conveying through 8136AB crossover from the Up Main to the Down Main. This would have to take place under a worksite and possession due to the Up Main being non bi-directional and with no other means of crossing trains from the Up Main to the Down Main within the existing track and signaling layout.

12.2.6.3 If Ealing Broadway is proposed as a turnback during the ALBs of Stages 12 and 15 this would require 8136AB to be out with the possession limits for these Stages and resultantly impact the programme and methodology. A possible solution would be to increase the Old Oak Common possession limits to include 8136AB for the period of time only required when crossing Engineering trains from the Up Main to the Down Main.

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13 Sustainability

13.1 Summary

13.1.1.1 The OOC Railway Systems Project Team is committed to providing a sustainable design and construction solution and where it has been practicable, eliminating all risks to the environment associated with the works. Therefore, through the GRIP 4 project stage the project has put in place procedures to ensure sustainability risks and opportunities are identified and addressed - both in the design of the Project and as an on-going process during implementation, testing, commissioning and hand back.

13.1.1.2 The key goals of the construction phases and the project are to:

- Deliver a solution which fulfils the need for a transport interchange and railway station at Old Oak Common
- Provide a solution which conforms to the existing environment and the systems already in situ
- Provide value for money and represents the best value through design and option selection
- Minimise the consumption of natural and non-renewable resources

13.1.1.3 The above goals have been targeted by incorporating environmental and social constraints into the project structure through various documents including the Environmental Strategy (doc ref: 152270-ARC-STR-EEN-000001), Carbon and Waste Management Plan (doc ref: 152270-ARC-REP-EEN-000002) and the review of methods to assess the airborne and ground borne noise and vibration generated by the project and eventual operation of the systems.

13.1.1.4 These have been guided by overarching principles and constraints outlined in the HS2 Environmental Minimum Requirements (EMRs) and the Network Rail standard - Contract Requirements – Environment and Social Minimum Requirements for Projects – Design and Construction NR/L2/ENV/015 Issue 8.

13.1.1.5 Potential environmental, social, and economical risks and opportunities have been highlighted in the Environmental and Social Appraisal (ESA) Tool, undertaken by Network Rail and submitted to Arcadis. The risks and opportunities identified in the ESA have been taken forward by the OOC Railway Systems Project Team and included in the Environment and Social Management Plan (ESMP) (document reference: 152270-ARC-PLN-EEN-000002). Additional information on capital carbon, operational carbon, as well as collaboration initiatives in support of PAS2080 will be provided following the completion of the Project Carbon Report (document reference: 152270-ARC-REP-EEN-000004).

13.1.1.6 A Carbon Plan has been developed (152270-ARC-PLN-EEN-000003). This utilises the rail carbon tool and has been used to evaluate the carbon footprint of the project through the construction and maintenance stages.

13.1.1.7 This section of the report demonstrates aspects of our Constructability proposals that positively benefit sustainability. As the project is at the AiP stage of design there is an opportunity to develop upon the opportunities expressed and improve upon the design and construction phases within the detailed design to encompass more of the triple bottom line, see Figure 149. Currently the project has explored the environmental and economic sustainability principles which when incorporated with social sustainability practices in later project stages will provide a well-rounded sustainable solution.

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Figure 150: Sustainability Triple Bottom Line

13.1.1.8 A list of activities completed to date which contribute to sustainable development are listed below in in Table 27. In addition to our proposed solution, further opportunities have also been listed in Table 28.

Table 28: Activities Undertaken to Improve Sustainability

Activities Undertaken to improve sustainability
Use of Synchro to enable information sharing between project stages visually allowing solutions to be reviewed and improved upon with simulations of installations
Planning of construction works in the design stage to drive efficiencies and minimise waste and re-working activities.
Incorporation of LEAN principles at the GRIP 4 design stage to increase the efficiency including: Elimination of activities, steps, designs that do not add value. Optimisation the work schedules, and ensuring work runs smoothly and to plan. Identification of the processes that would allow further value to be added at future stages. Integration with other construction partners to identify efficiencies
Using computer-based design software over manual drafting to reduce the use of paper.
Designing the positioning of equipment to allow easy to access if maintenance, jointing or future upgrade is required to minimise effort required in future.
Replacing conventional systems with newer technology where there is no or marginal cost increase when compared using the whole life costs of all options (e.g. TENSOREX C+ of OLE systems as it is assembled offsite and is supplied ready for installation, maintenance-free and easy replacement of individual parts.)

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Activities Undertaken to improve sustainability
Assessment of the height level of all ground level equipment, as equipment could be more efficient at a different height (e.g. Low Voltage systems)
optimisation material and waste movements to reduce carbon from transportation.

13.1.1.9 Some sustainability items have not yet been implemented into the project but have been either proposed, where the solution has been evaluated against project constraints or have been identified as an opportunity, which needs further review at a later design stage.

13.1.1.10 Table 28 below lists these items. Section 4.2.13 covers compound sustainability.

Table 29: Opportunity to Improve Scheme Sustainability

Proposed or Opportunity	Description
Opportunity	**Use of new compound generator which runs on cleaner fuels, is more efficient and generates less noise**
Environmental: Reduction in emission generation increasing the likelihood of the project being able to offset carbon footprint Social: Reduction in noise pollution and reduced risk fuel theft as if LEAN principles incorporated less quantities required on site at any one time. Reduction in burn rate means less vehicles entering and leaving site. Economic: Less fuel required to run site and less deliveries required	
Opportunity	**Use of renewable power to supply compound energy**
Environmental: Reduction in emission generation increasing the likelihood of the project being able to offset carbon footprint. Less quantities of fuel on site leads to less risk of accidental pollution Social: Reduction in equipment on site for power generation leading to less theft risk and less pollution to the local population Economic: Less fuel required to run site and less deliveries required. Maintenance of renewable energy sources tends to be less than that of conventional generators	
Proposed	**Optimising delivery of material by rail to site to reduce journeys**
Environmental: Less journeys resulting in less emissions Social: Reducing site deliveries decreases negative impacts on the local community and having an optimised schedule allows for quantities on site to be reduced which could improve site tidiness and reduce trespass risk. Economic: trains are able to convey more materials in one journey than HGV with less impact on surrounding roads. Leads to potential saving in fuel costs and traffic management solutions.	
Proposed	**Bike storage on site and enrolment to cycle to work scheme and encouraging car sharing**
Environmental: Reduced emissions from workforce commuting to site by encouraging bicycle use Social: Minimising increase of traffic and related transport emissions around residential area. Improvement to staff wellbeing and safer working environment Economic: reducing car use leads to reduction in space required for car parking for construction works. This decreases overall set up costs and demolition costs.	

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Proposed or Opportunity	Description
Proposed	**Staging of construction works into logical packages which are completed in normal working hours**
Environmental: Less disruption to any roosting animals in the area and less emissions from machines through reduction of cold starts Social: Reduces visual/noise pollution to nearby residents outside of the HS2 defined normal working hours. Also less accidents happen per hour when working in regular hours due to better lighting and potentially less fatigue Economic: Reduction/elimination of non-social hour working decreases staffing costs	
Opportunity	**Locally sourcing workforce**
Environmental: Reduced carbon footprint and emissions due to decreased transportation distance. Social: Provides the local community with jobs and improves project image Economic: Supports the local economy, allowing nearby businesses to thrive	
Opportunity	**Sourcing concrete onsite from temporary batching plant**
Environmental: Reduced carbon footprint and emissions due to decreased requirement for concrete wagons driving to site and increased Social: Reducing site deliveries decreases negative impacts on the local community. Economic: Less overheads for transport and wastage increases the cost efficiency	
Opportunity	**Using hydrogen powered tower lights**
Environmental: No ground spill risk from water produced, as well as zero emissions at source Social: Hydrogen powered lights are silent and eliminate noise pollution for nearby residents. In addition, new lens technology can produce light patterns and to reduce light pollution. Economic: Reduction in fuel costs	
Proposed	**Use BIM technology to create quantity schedules and registers of materials on site**
Environmental: Reduces material on site to decrease likelihood of pollution. Can be used to enforce LEAN principles reducing waste Social: Less materials on site creating reduction in trespass risk and visual impact Economic: Save of waste away services and reduction in CapEx	

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14 Conclusion and Recommendations

14.1 Conclusion

14.1.1.1 The railway systems work required to facilitate the introduction of the largest new Railway Station in the UK for over one-hundred years at Old Oak Common is extensive. It will stretch over a range of approximately 2.5km along a busy railway corridor stretching from East to West.

14.1.1.2 The works will introduce over three thousand new assets to the railway system which will require extensive integration with the works being carried out by HS2, Network Rail, Train Operators and Local Authorities.

14.1.1.3 This report has been developed in parallel with the GRIP 4 design works associated with the Old Oak Common Railway Systems. Consideration for the construction staging has been given by all design disciplines to ensure the phasing proposed, is viable at this stage of design.

14.1.1.4 While this report and the evidence provided demonstrates that the delivery of the Old Oak Common Railway Systems design is achievable in the given timescales and within the site constraints; additional integration will be required to ensure it interfaces with the emerging methodology of the station construction works and other future developments in the Paddington to Reading corridor.

14.1.1.5 Integration with WRLTH programme is not possible currently due to uncertainty with the programme. This will need to be resolved at GRIP 5 stage.

14.1.1.6 Extensive planning has been undertaken to develop a viable Box Plan and Possession strategy for the works, ensuring that the works, as designed, can be delivered in the anticipated timeframe and within the constraints identified within this report.

14.1.1.7 The quantities of materials assumed in this report have been determined based on the assumption that formation level and treatment of the ground provided by the station works contractor is as stated in Section 3.6 of this report. Any volumes of material in excess of those assumed will have a significant impact on the delivery programme and assumed logistics set out in this report. It is understood, at the time of writing, HS2 are reviewing the procurement of who is best placed to undertake the formation works associated with the Rail Systems Track works. Should the formation works be included in the Rail Systems scope, the programme of works and material deliveries contained in this report will need to be updated to take account of this additional scope.

14.1.1.8 Further integration with HS2 is needed to understand the how best to stage the track drainage catchment of the station area while the Attenuation Tanks and drainage system of OOC Station is being constructed. Temporary solutions are likely to need Thames Water approvals and may require complex civil works which have not been assessed for constructability.

14.1.1.9 Opportunities for potential enhancements to the delivery strategy have been identified. Further consideration should be given to these opportunities to provide flexibility within the given programme.

14.1.1.10 The interface with the Station and Bridge development projects is critical to the success of the project and as such extensive integration will be required by the teams delivering the projects.

14.1.1.11 The report identifies the criticality of the delivery of materials by rail – consideration will need to be given to the availability of the rail plant at the various delivery stages.

14.1.1.12 A number of assumptions have been made about the availability of access points to the South of the Great Western Main Lines. The delivery of this project to the presented time frames is predicated on the access to the South being available.

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14.2 Recommendations

14.2.1.1 To ensure the effective delivery of the railway systems works to support the implementation of the Old Oak Common Great Western Main Line station it is recommended that:

- An agreement must be reached for the provision of access through both the Hitachi North Pole depot and Jewson's yard to validate the assumptions made in this report regarding access from the South of the GWML. This is critical to maintain programme from Stage 13B onwards to ensure suitable access to the South.
- Additional Integration with the station and bridges delivery is required to ensure alignment of programmes the delivery of both projects in the given timeframes.
- The ETCS delivery progrf2023amme and methodology is to be fully integrated into this construction methodology at the next delivery stage.
- A Signal Sighting exercise should be considered for every delivery stage where there is a clear impact to the operational railway.
- Ensure signalling design work is commissioned a minimum of two-years out from the anticipated delivery date to allow time for design and sign-off.
- An IDC shall be carried out for each of the delivery stages to ensure the required Engineering Assurance rigour is applied to all works installed in isolation of the full scheme proposal.
- A detailed costing exercise will need to be carried out against the delivery proposals identified within this report to ensure funding can be made available at each of the delivery stages.
- Consideration for more materials to be delivered by road should be made. This is likely to bring cost benefits, as some materials by rail will be expensive.
- A detailed Design Programme to be developed to support each delivery stage, noting lead times for delivery and approvals of all aspects of design
- Suppliers of long-lead items should be consulted at the earliest stage of development to protect the delivery programme
- Agreements on batching of concrete to be reached with HS2 to limit the amount of material being transported by Road.
- A Local Traffic Management Plan should be produced for the railway systems project. It should be integrated into the HS2 Route-Wide Traffic Management Plan to ensure vehicle movements are within the agreed limits.

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APPENDIX A

Staging Schematics

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ARCADIS Design & Consultancy for natural and built assets

OLD OAK COMMON RAIL SYSTEMS STAGING DIAGRAMS

Version 09

AUGUST 2021

Classification: UNCLASSIFIED

Version Control

Revision No.	Date of Change	Date Issued	Description of Revision: Comment	Reviewed by:
V01	March 2020	26/03/2020	Draft Issue	NS
V03	April 2020	09/04/2020	Draft Update for Further discussion	NS
V04	May 2020	13/05/2020	Updates according to feedback V03	NS
V05	June 2020	23/06/2020	Updates to formatting	NS
V06	November 2020	13/11/2020	Updates to address DRN comments	CP
V07	April; 2021	12/04/2021	Updates to address DRN comments and reorder stages 7 and 5	FH
V08	July 2021	05/07/2021	Updates to match unmitigated programme ending 2031	FH
V09	August 2021	30/08/2021	Updates based on DRN	FH

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High Level Staging Strategy

These staging schematics are a high-level representation of proposed methodology staging for the rail systems construction works for the HS2 Old Oak Common GWML Station. These are a work in progress due to ongoing integration with BBVS. Constructability Report and Rail System Designs and are subject to change as integration progresses.

To date the schematics have been developed from the GRIP 3 V6c slides produced by Network Rail and have been developed further in collaboration between Arcadis and Babcock (Early Contractor Involvement) in cooperation with Network Rail, HS2 and WSP.

Further development is needed to finalise the staging through integration workshops with HS2 and BBVS (the recently appointed Station and Civil Contractor). This may result in the number of stages changing.

⚠ Health Warning !

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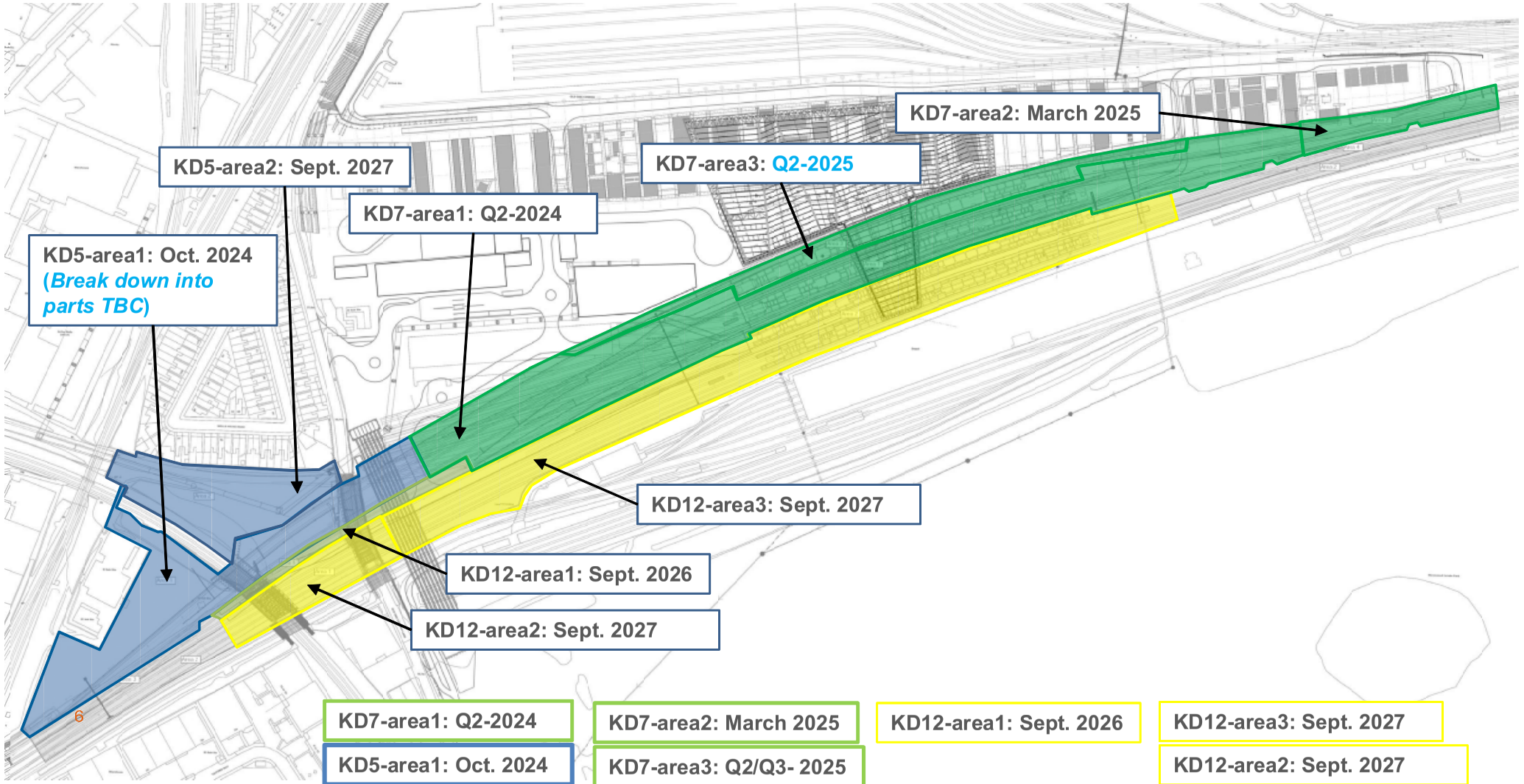
Assumptions and Exclusions

- These staging schematics are based on the HS2 Construction report (1SN02-WSP-CL-REP-SS07-000001 C03) and have not taken account of developments since mobilisation of the Station/Civil contractor BBSV.
- A study into the operational Viability of Rail head is being undertaking and is yet to be complete.
- Road haulage is extremely limited and staging is based on maximising material delivery by rail by either train or RRV.
- A RRAP and road access will be possible from the Hitachi Depot and Down Main cess side
- ~~This set of staging is based on the assumption that Station Construction Partner will have access to HEX Depot 22-Feb-2021.~~
- Key Christmas possessions are included in the Western region CP6 one plan and de-conflicted from other requested access but final Route and train operator approval will not be given until the timescales of the formal planning process of the Engineering Access Statement (EAS) which is circa 18 months prior to event.
- Access beyond the current EAS discussions and One Plan have not been agreed with stakeholders, possession regimes and access beyond are based on current possession regimes.
- IDT approved: NO
- P2R migration plan approved: NO
- **HS2 Work Area** covers the extents from a line 30m to the East end of the HS2 station box, through the station and Westwards to a line 30m from the west abutment of the Central Line Underbridge. The Northern boundary shall be 2.8m from the new Up Relief track centreline. The Southern boundary shall be an agreed safe working distance from the Reception line 1. HS2 Area includes through the station area all tracks 8 through to 1.
- **GWML Works Area** covers all other areas in relation to OOC RS.
- The programme for Rail Systems delivery is currently pending workshop integration with HS2/BBVS and NR/Arcadis. Dates at this stage remain unknown.

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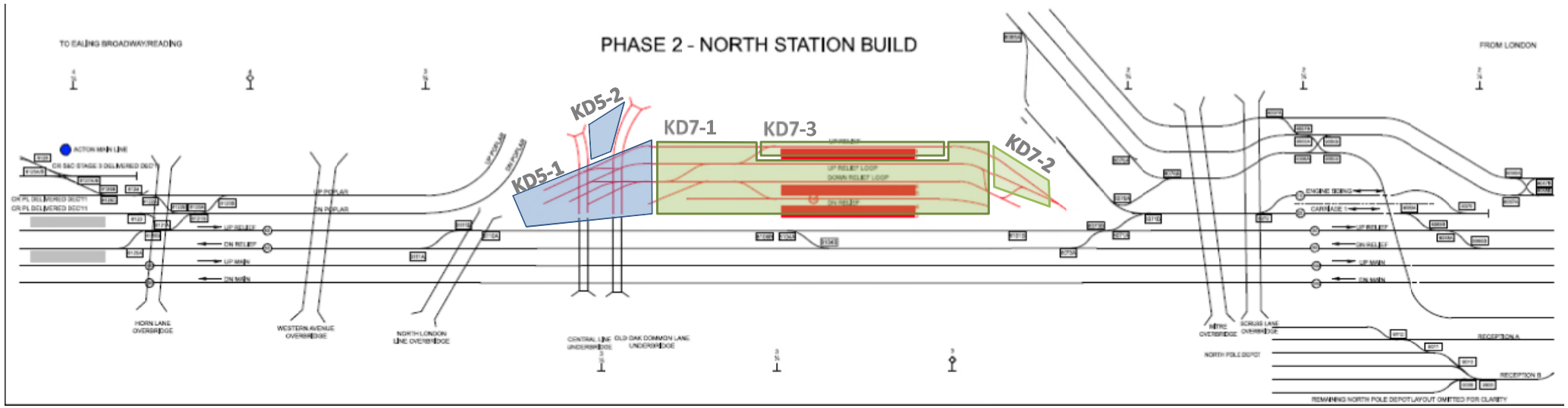
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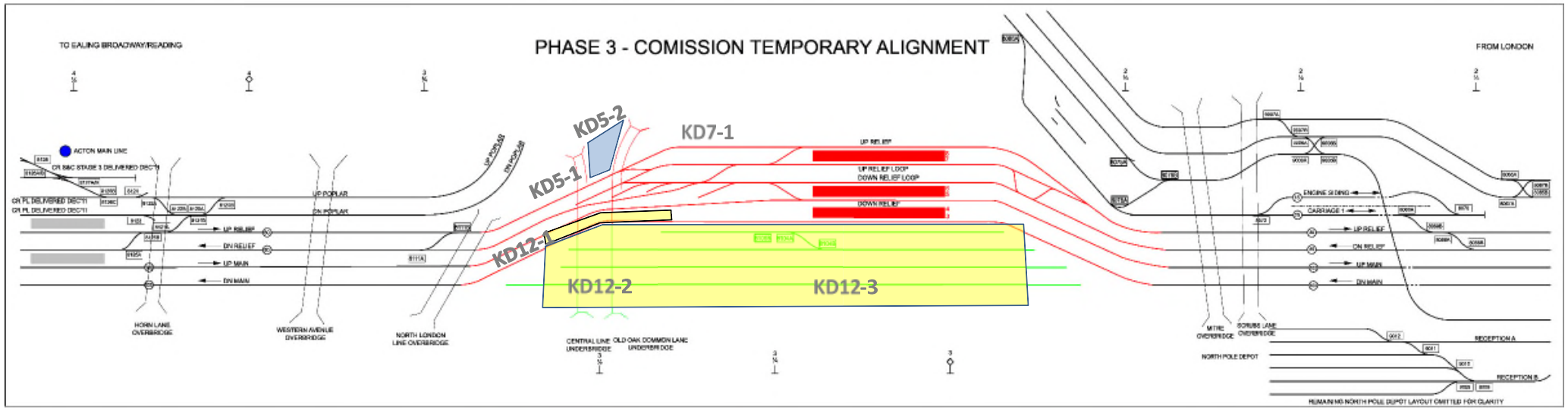
PHASE 2 – Stages 5 - 8

2023 - 2025



PHASE 3 – Stages 9 - 12

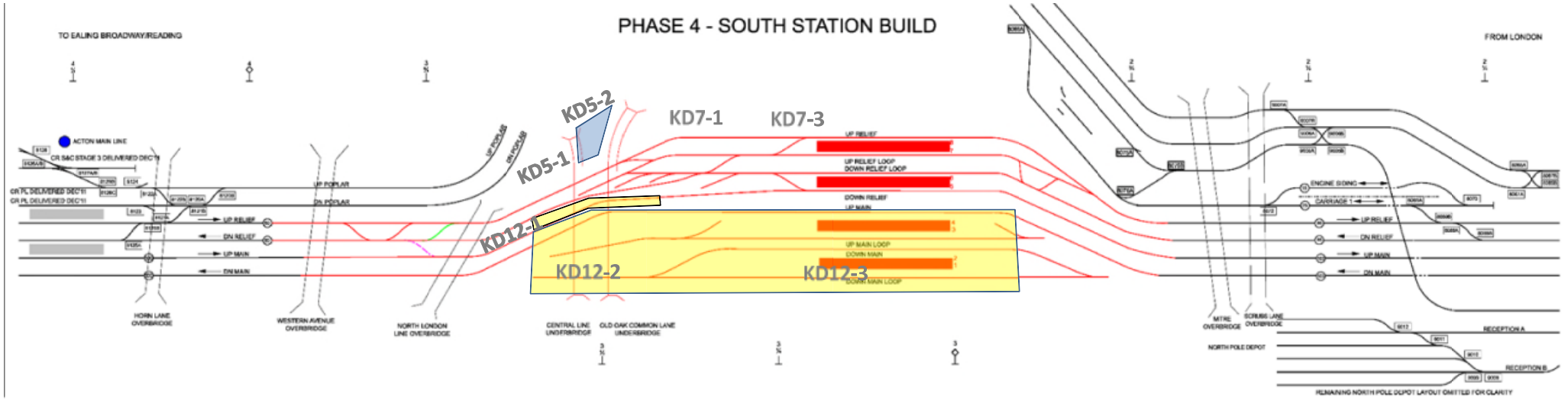
Xmas 2026 – Xmas 2027



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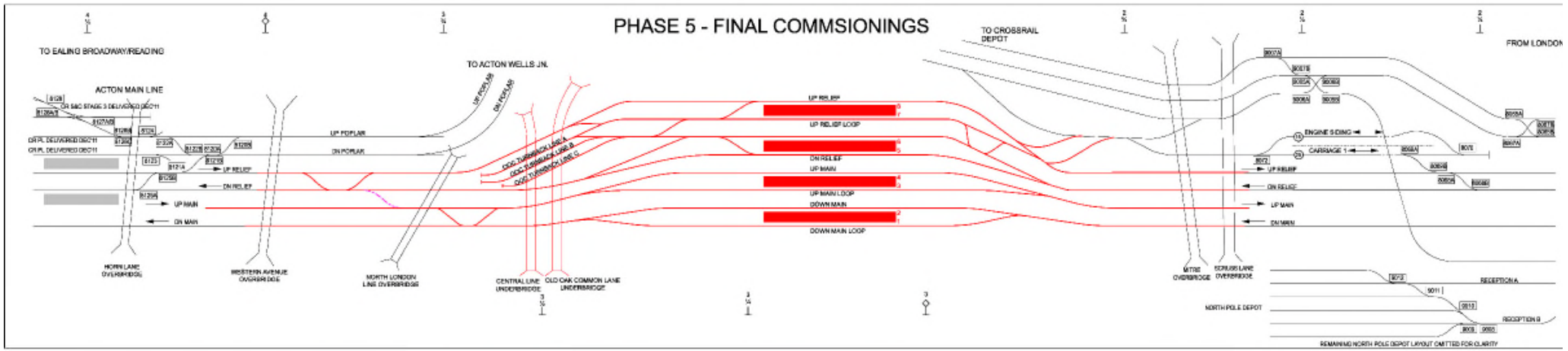
PHASE 4 – Stages 12 - 15

Xmas 2027 – Xmas 2029



PHASE 5 – Stages 16 - 18

January – December 2031

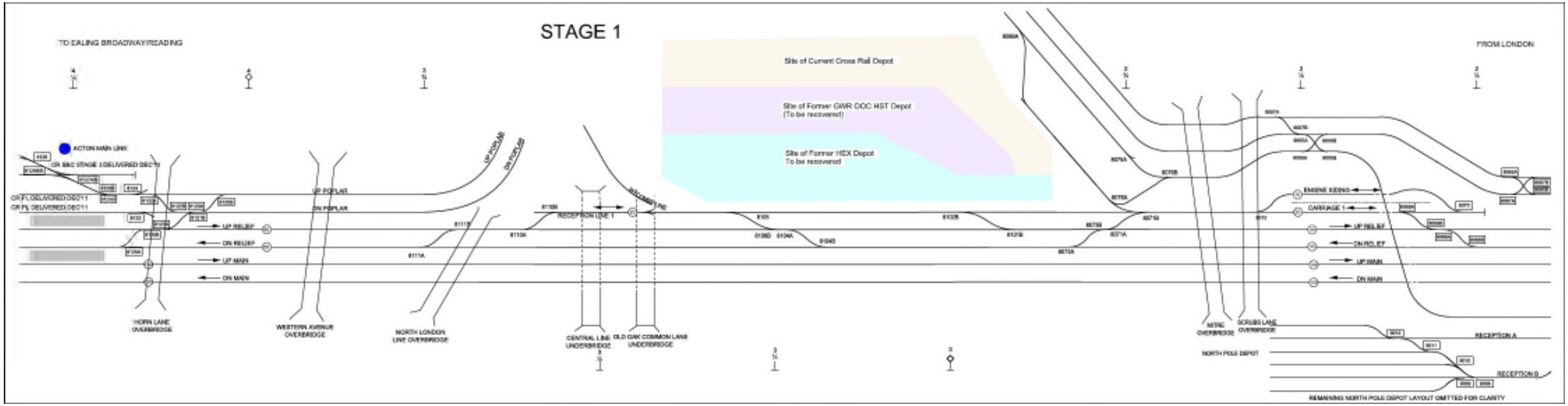


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Stage 1 – Decommission Stages

Phase 1

January – December 2020



Stage	Description
HS2 Works	Depot Decom stage 4works • Enabling Works – OLE • Works that are not reliant on HEx vacating the depot – September 2020 to December 2020 • HEx Depot decommissioned • All Operational services and cables within Stage 4 footprint disconnected or relocated (incl. radio & transmission rooms) • OLE feeds and wire runs up to the HEx Depot to be decommissioned to allow removal of the Depot • 25kV feed into depot to be removed • Relocation of 2.5 LOC suites (R2/172, D3/08, R3/21C) • Modification of the 6.6kV trough route in northern boundary between Substation B5 and Substation S • Substation B1 and T decommissioned • Backline alteration (relocate signal 6083) to allow for GWR “Z Move” • Application of yellow boxes (to enable physical recovery before data change) • Physical recoveries of redundant signalling equipment post data change

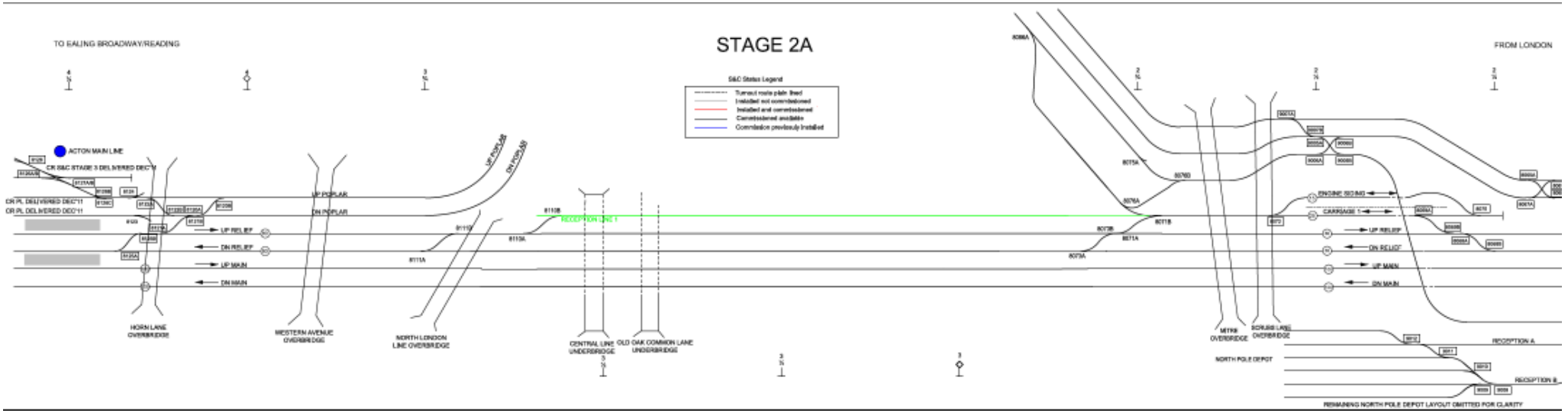
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Stage 2A – Signalling Works

Phase 1

January – December 2021



Stage	Description
HS2 Works	Depot decommissioning works: • Reception Line 1 recovered up to and including 8077 when alternative operational solution to allow western access in and out of the Crossrail Depot is agreed • Signalling alterations to allow Reception Line 1 removal, and equipment recovery works • OLE to be modified to allow removal of Reception Line 1 • New TTCs (5 number) to be installed in the footprint of Reception Line 1 • Driver's walkway on the E&C line is required as a result of Reception Line L1 severance • Signal SN6080 relocated
Others	• Points 8110A & B retained to enable future provision for a rail head to support OOC & GWML construction • Essentials works commission new 6.6Kv power ring from new DNO to allow decommissioning of all substations on OOC site. • SFI MOS works in the area on the Relief Lines Sectioning at J/04/11 and J/04/15, or the recovery of the switched overlaps switches between J/05/26 and J/05/29 under 'Others'
Assumptions	• Reception Line 1 is recovered no later than September 2021 • 8110A/B is retained with Approximate 100m Plain off the back to accommodate railhead

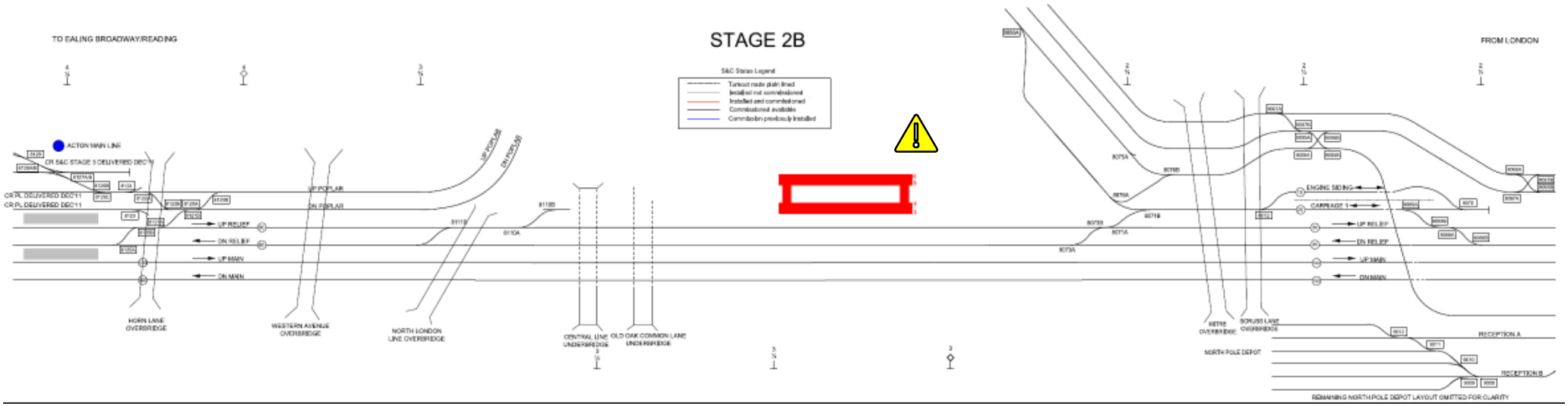
KD7 - Area 1 Q2-2024	KD7 - Area 2 MAR-2025	KD12 - Area 1 SEP-2026	KD12 – Area 2 SEP-2027
KD5 - Area 1 OCT-2024	KD7 - Area 3 Q2-2025	KD12 – Area 2 SEP-2027	KD5 – Area 2 SEP-2027

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Stage 2B – Station Build North

Phase 1

January – December 2021



Stage	Description
P2R	**Signalling Stage T** • NR Axle Counter programme commissioning • Data change for Depot Decommissioning Stage 4 (Does not include Reception Line 1 decommissioning) • TVSC and interlocking hardware update for rail system
HS2 Works	• Reception Line 1 equipment removal • Recover Reception line 1 Track & 8077 pts PL UR (the Country end turnout is not recovered and is used for the rail head over the future UR alignment). De-wire OLE Reception Line 1 (no live OLE over Reception Line 1 - only suitably altered headspan structures may remain). Extra shunt required from the West onto Crossrail Depot Washer Road due to removal of 8077 pts • Platform Construction commences (Plat 3-6)
Depot decom	• 25th December 2021 – data change associated with recovery of HEx Depot, Reception Line 2, 8101A/B, 8104A/B, 8106A/B
	Programme for Platform construction to be confirmed by BBVS

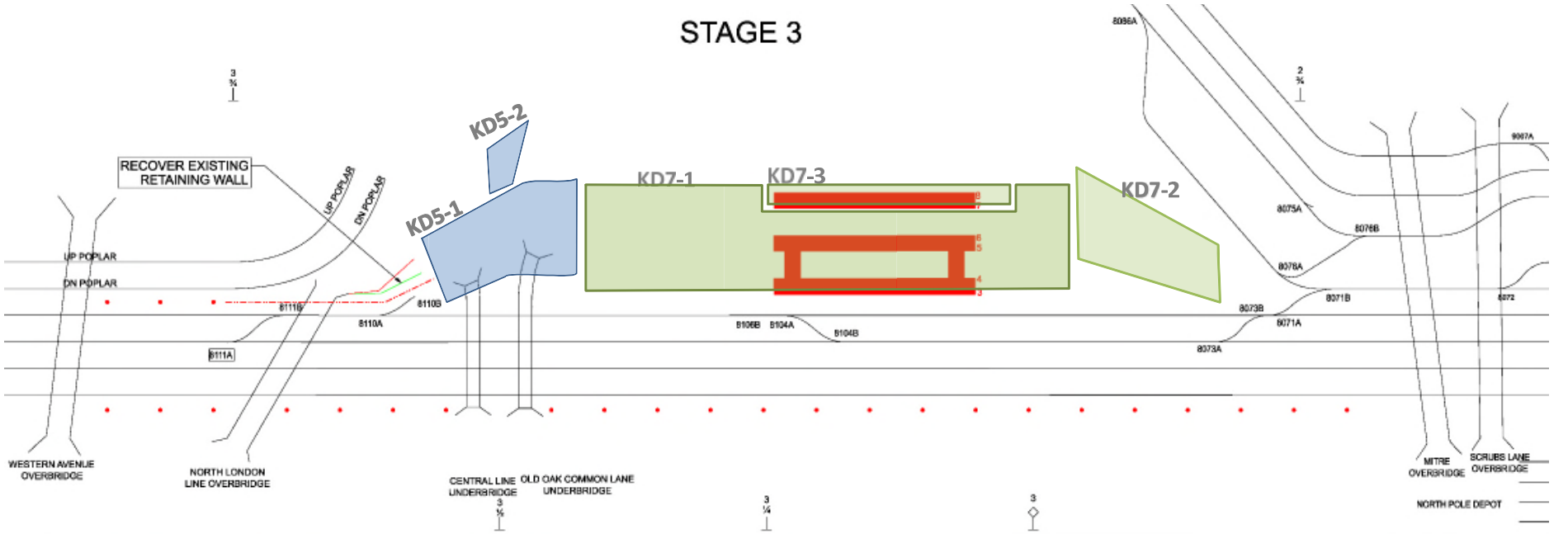
KD7 - Area 1 Q2-2024	KD7 - Area 2 MAR-2025	KD12 - Area 1 SEP-2026	KD12 – Area 2 SEP-2027
KD5 - Area 1 OCT-2024	KD7 - Area 3 Q2-2025	KD12 – Area 2 SEP-2027	KD5 – Area 2 SEP-2027

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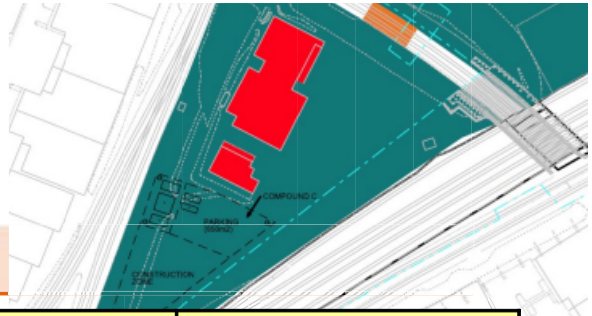
Stage 3 – Station Build North

Phase 1

January – December 2022

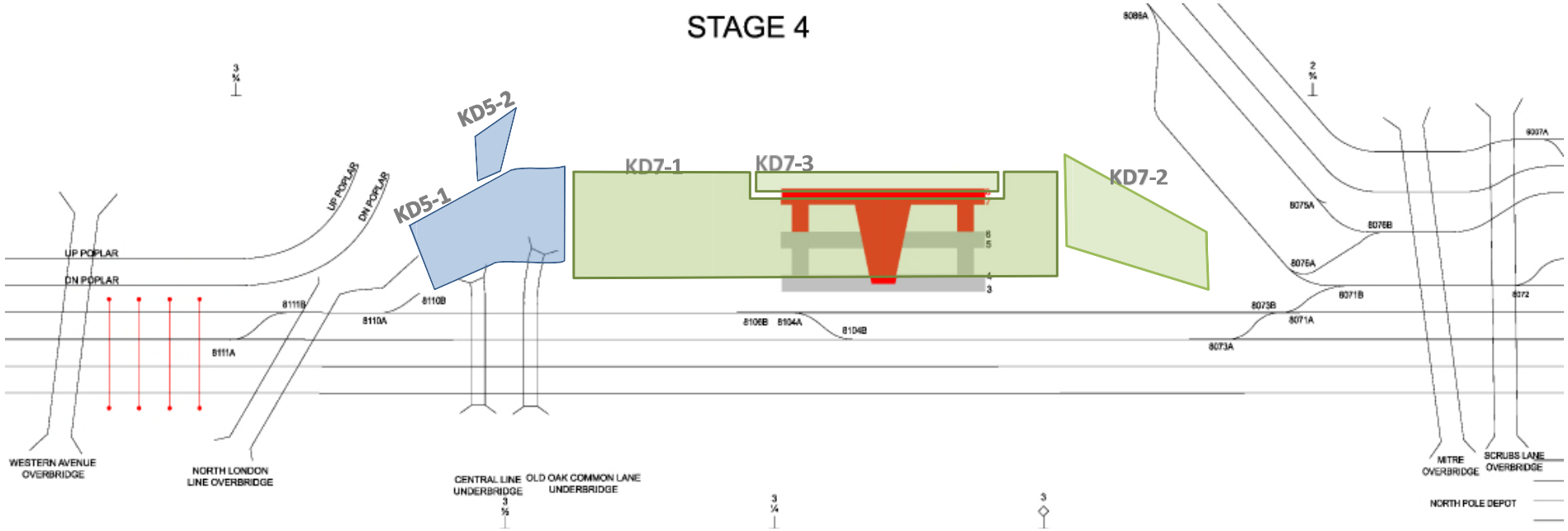


Stage	Description
HS2 Works	GWML Station Works: • Demolish Wycombe Line – OOCL Bridge • Construct Platforms 6-5 & 4-3 and associated concourse overbridge & EoP bridges. • Construct Platform UTX • Construct Platform 7 and associated concourseoverbridge • Construct OOCL & CL Underbridges (Part 1) – North of existing Reception Line 1 OOCL & CL Underbridges • Cables removed / diverted by others from the Reception Line 1 – OOCL & CL Underbridges prior bridge demolition at Christmas
GWML Works	• Establish compounds at Acton Yard & Jewson • Install foundations in Acton cutting & Down Main Cess • Install Masts in Acton Cutting and Down Main Cess • Trial holes for OHLE Foundations • ATF works (minor in Acton Cutting) • Establish compound near NLL retaining wall. • Construction proposed NLL retaining wall
Assumptions	• Existing OOCL and CL underbridge used as road access assuming that Reception line 1 is removed



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KD7 - Area 1 Q2-2024	KD7 - Area 2 MAR-2025		
KD5 - Area 1 OCT-2024	KD7 - Area 3 Q2-2025		KD5 – Area 2 SEP-2027

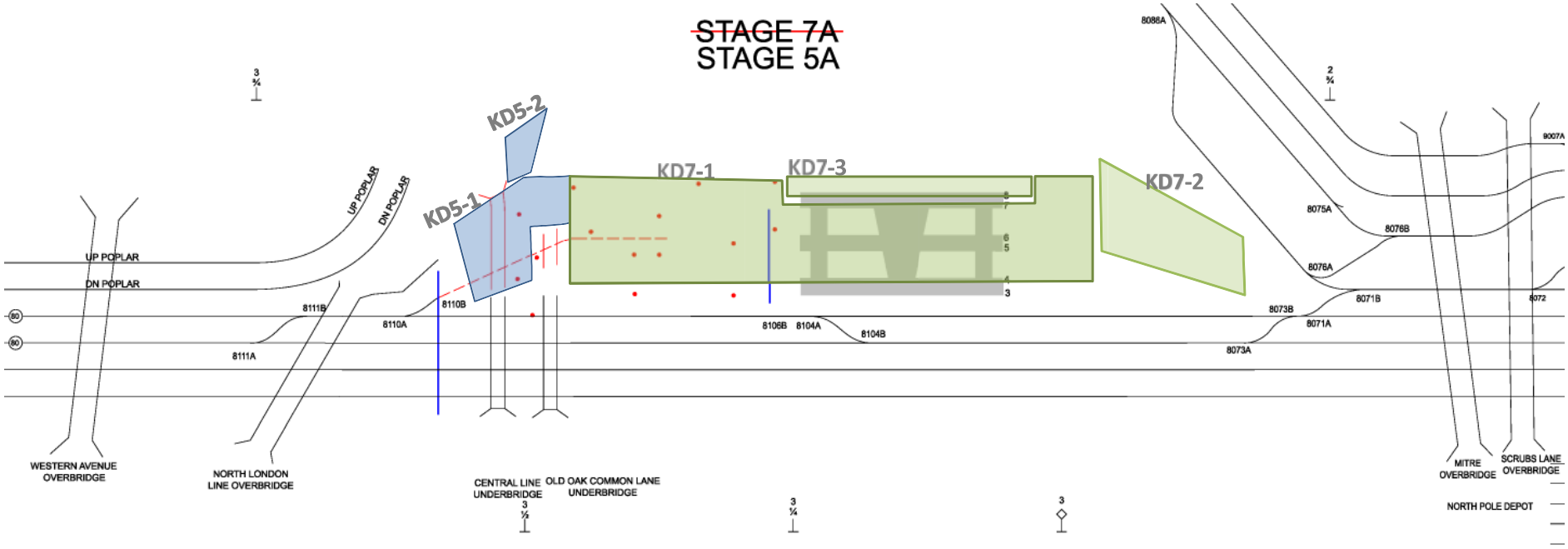


Stage	Description
HS2 Works	• Demolish Reception Line 1 OOC & CL Underbridges • OLE works through platforms • Construction of concourse and station EOP bridges (P7-P6)
GWML Works	• Install OLE portal structures in Acton cutting • Trial holes for OHLE structures at the East • NR ETCS train protection programme installation in the OOC area (critical interface) – Signalling Stage C

⚠ Programme for Platform construction to be confirmed by BBVS

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KD7 - Area 1 Q2-2024	KD7 - Area 2 MAR-2025		
KD5 - Area 1 OCT-2024	KD7 - Area 3 Q2-2025		KD5 – Area 2 SEP-2027



Stage	Description
HS2 Works	• Central overbridge & Eastern EoP bridge fit-out • Temporary bridge over OOC Lane • Construct Platform 8 & associated means of escape bridges • Construct CL Underbridges (Part 1) - completion of underbridges (in the location of the demolished RL1 Underbridges
GWML Works	• Install temporary alignment 1 rail head over new UR alignment • Run Cables through UTX to West of Station (5870ch) • Install 1st phase of UTX (5353ch)

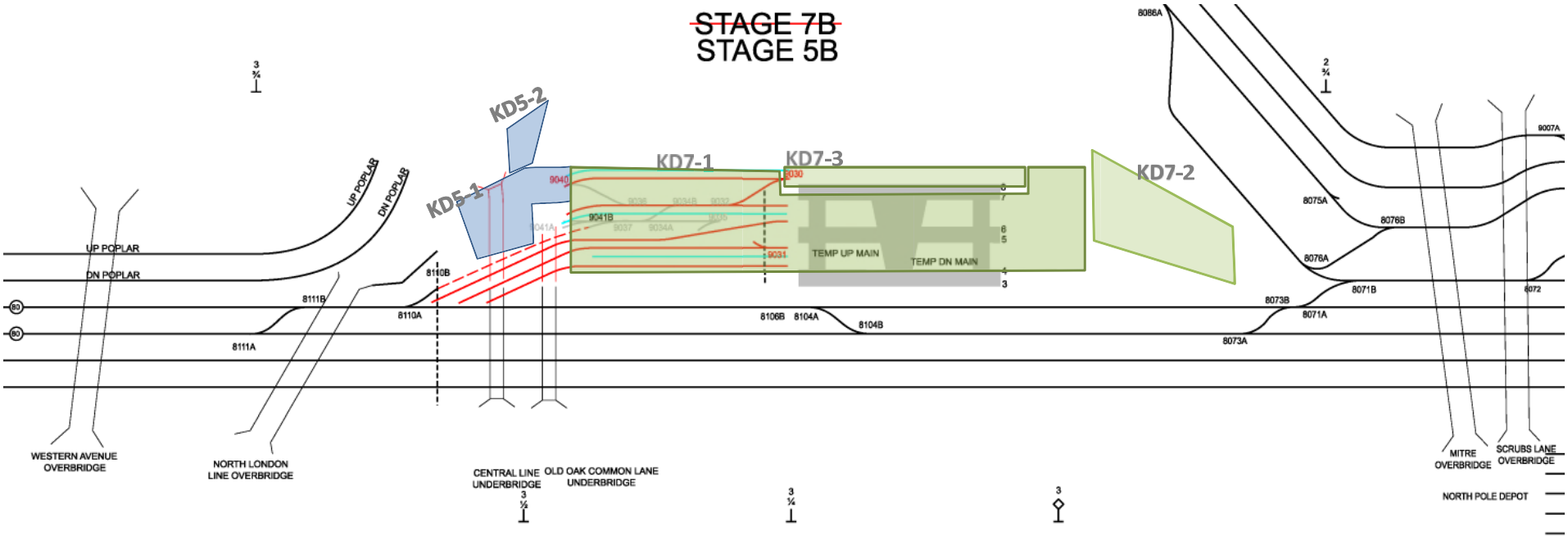
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KD7 - Area 1 Q2-2024	KD7 - Area 2 MAR-2025		
KD5 - Area 1 OCT-2024	KD7 - Area 3 Q2-2025		KD5 – Area 2 SEP-2027

Stage 5.B – Station Build North

Phase 2

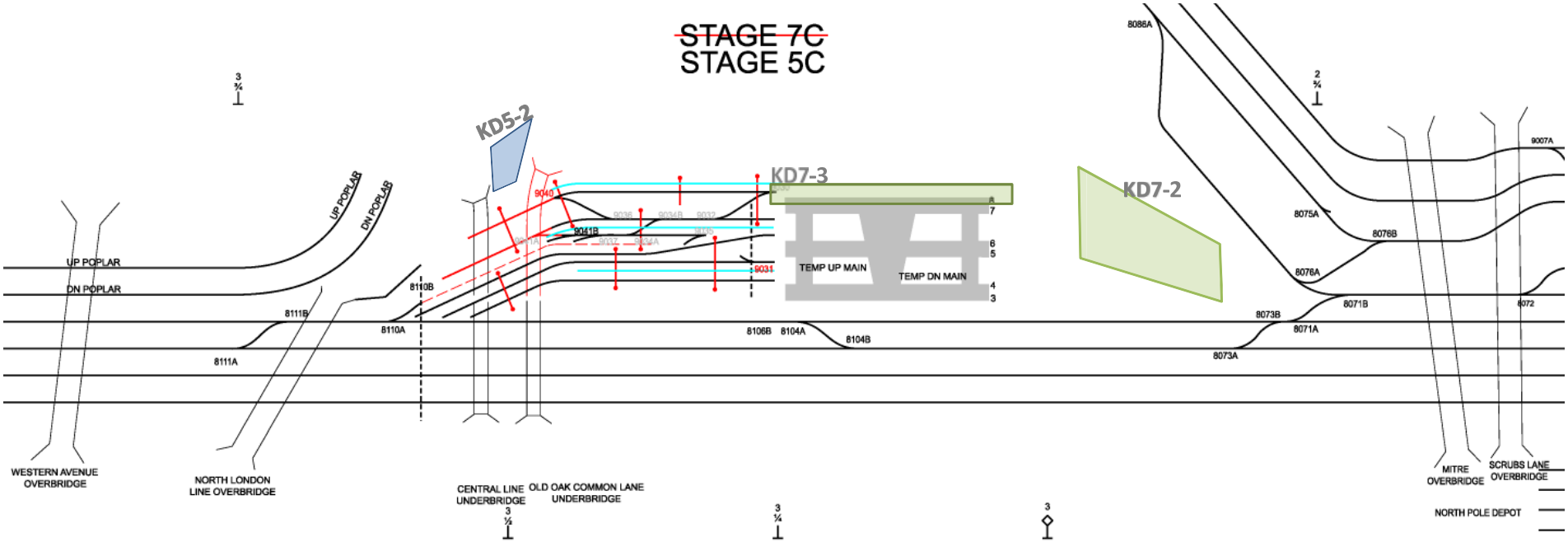
April – August 2024



Stage	Description
HS2 Works	• Central overbridge & Eastern EoP bridge fit-out • Temporary bridge over OOC Lane moved south and rail head slued accordingly • Construct Platform 8 & associated means of escape bridges • Construct OOCL & CL Underbridges (Part 1) - completion of underbridges (in the location of the demolished RL1 Underbridges
GWML Works	• Earthworks, rail and formation for 3 no. turnback sidings, DR and UM loop / Track drainage / OLE structures and wires installed for 3 turnback sidings. DR and UM Loop • Cantilever SN171 (West of the station) steelwork • Install Drainage (W) • Relay Track • Install signalling structures and 4ft equipment • Temporary Up and Down Relief

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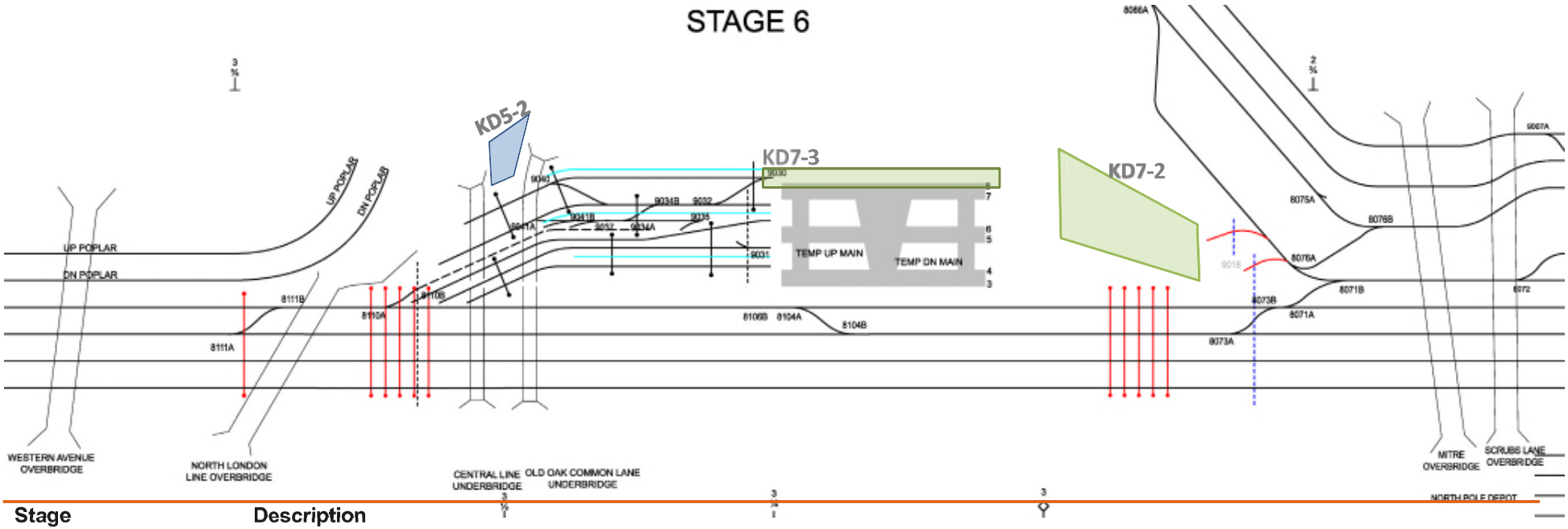
KD7 - Area 1 Q2-2024	KD7 - Area 2 MAR-2025		
KD5 - Area 1 OCT-2024	KD7 - Area 3 Q2-2025		KD5 – Area 2 SEP-2027



Stage	Description
HS2 Works	• Central overbridge & Eastern EoP bridge fit-out • Construct Platform 8 & associated means of escape bridges • Construct OOCL & CL Underbridges (Part 1) - completion of underbridges (in the location of the demolished RL1 Underbridges
GWML Works	• Install OLE structures on operational lines to allow future track changes • Extend reliefs over underbridges • Construct all Up Relief line cess cable routes and Loc cases • Install OHLE structures and registrations • Install troughing and run cable signalling testing • Install REB West

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KD7 - Area 1 Q2-2024	KD7 - Area 2 MAR-2025		
KD5 - Area 1 OCT-2024	KD7 - Area 3 Q2-2025		KD5 – Area 2 SEP-2027



Stage	Description
GWML Works	• Install OHLE Portals Acton Cutting • Install 9017 Plain lined (not commissioned) & 9016 (shows 8077 as existing) Signalling Commission to bring into operation 9016 (8077) • Switch over OHLE for Wing wall move • Interlocking expansion andrealignment • TVSC control panel and systems amendments • SN174 gantry steelwork installed • Install UTX (4575ch) • Install UTX (4590ch) • Install 9016 and 9017points Erect OLE portal booms • 8110B relock to protect rail head • OHLE Portal Install East of Station and West of OOC Lane Underbridge • Welding and Tamping (beaver) East around 9018

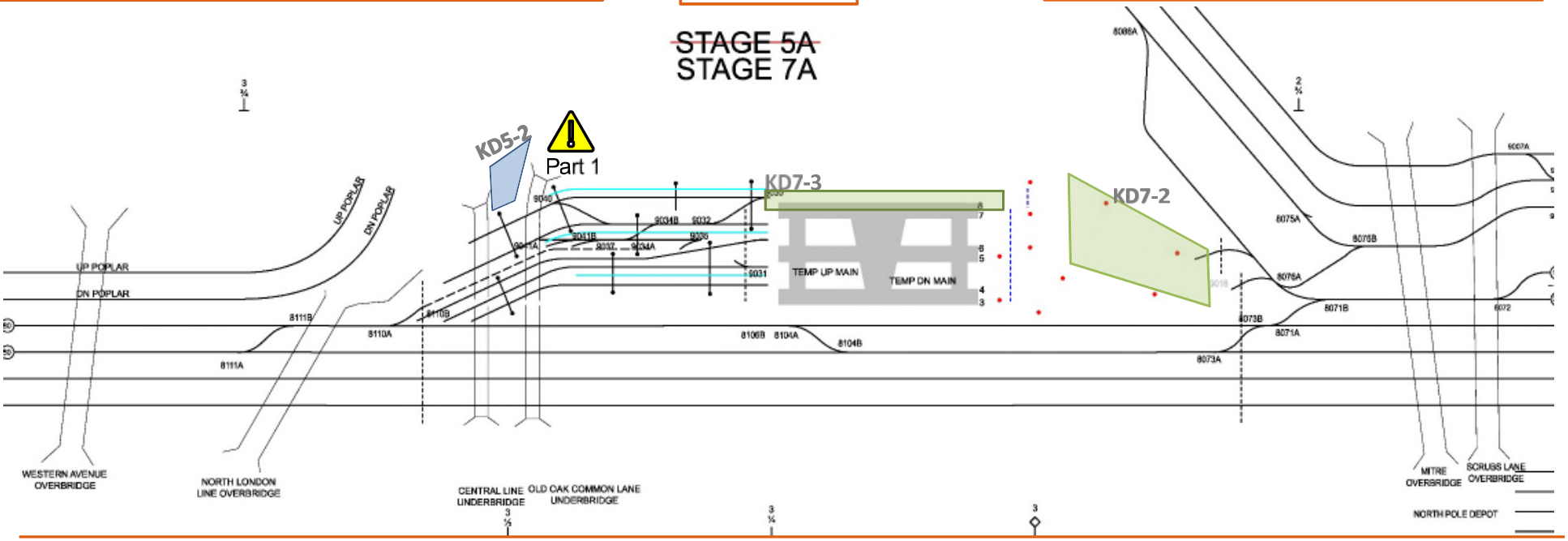
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KD7 - Area 2 MAR-2025		
KD7 – Area 3 Q2-2025		KD5 – Area 2 SEP-2027

Stage 7A – Station Build North

Phase 2

January – February 2025

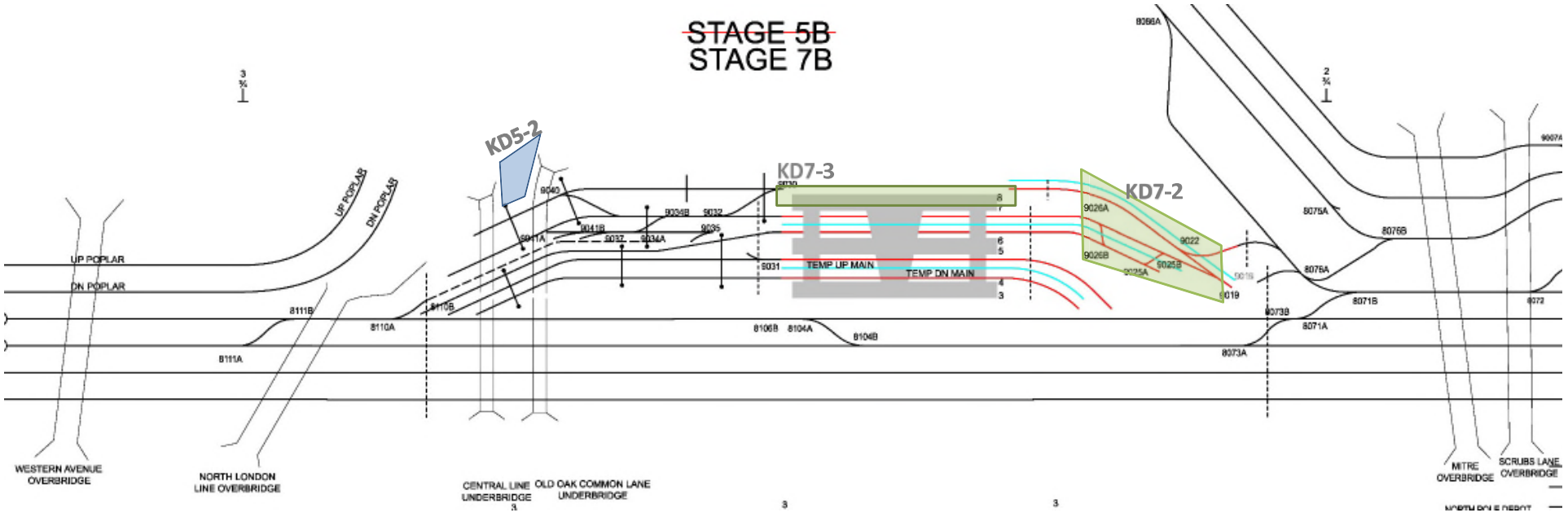


Stage	Description
HS2 Works	• Construct Platform 7 & 8 and associated concourse overbridge & EoP bridges [Note - crane for roof lift at Platform 8 location]. • Construct OOCL & CL Underbridges (Part 1) – completion of underbridges (in the location of the demolished RL1 Underbridges)
GWML Works	• Install Foundations OHLE & Signalling Structures East of station • Unload Pway materials to Compound Track and Drainage including 9016 and 9017 S&C • Install REB R3/13 and M3/13 bases • Gantry SN418-SN417-SN416 (East of the station) Foundations • Assume stage can slide # 6 months • East of station foundations for straight post signals • Install 1st Phase UTX (4980m) • Install UTX (4800m)

Programme for Platform and Underbridge construction to be confirmed by BBVS

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KD7 - Area 2 MAR-2025	KD12 - Area 1 SEP-2026	KD12 – Area 2 SEP-2027
KD7 – Area 3 Q2-2025	KD12 – Area 2 SEP-2027	KD5 – Area 2 SEP-2027

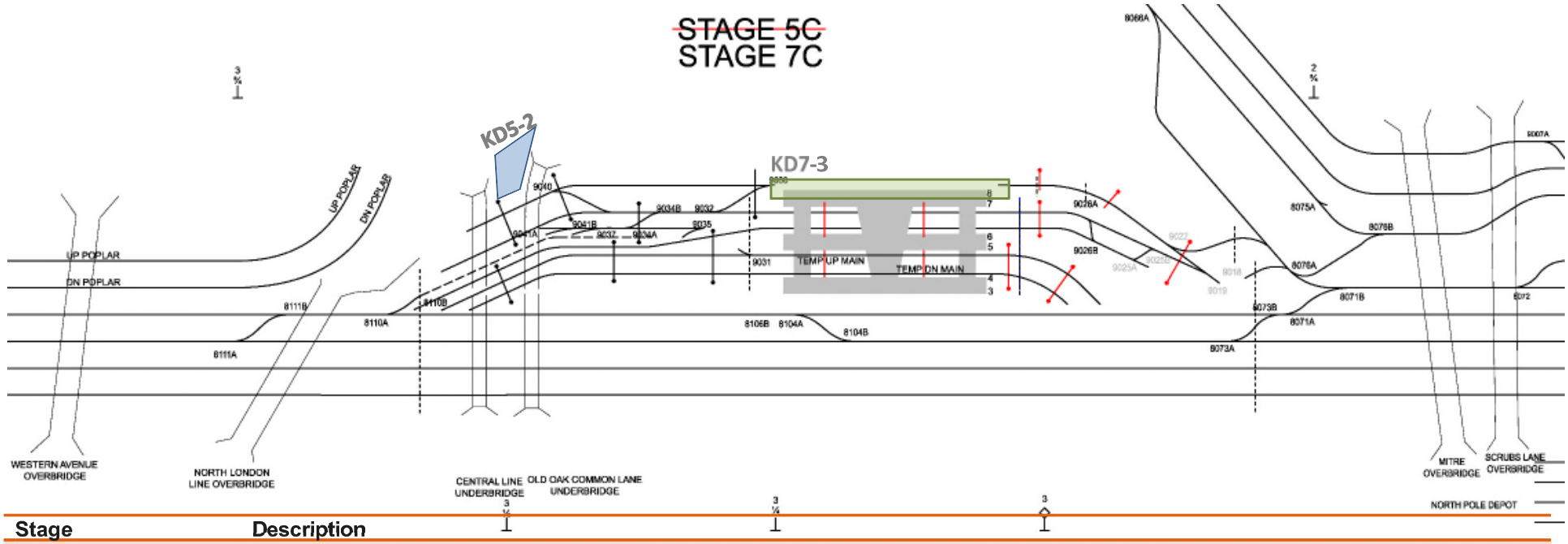


Stage	Description
HS2 Works	• Construct Platform 7 & 8 and associated concourse overbridge & EoP bridges [Note - crane for roof lift at Platform 8 location]. • Construct OOCL & CL Underbridges (Part 1) – completion of underbridges (in the location of the demolished RL1 Underbridges)
GWML Works	• Install Track and Drainage to the East of Station • East of station welding and top ballast run out through P4 – P7 • Plain Line S&C in temporary Runs • Install 9026AB,9025AB & 9019A points • Relay track & drainage through P3 –P7
Commissioning Strategy	
Status S&C	• 9026A/B installed Bearers only • 9025A/B installed complete no commission 9022 Plain lined • 9019 installed (9018 is stage 9)

⚠ Programme for Platform and Underbridge construction to be confirmed by BBVS

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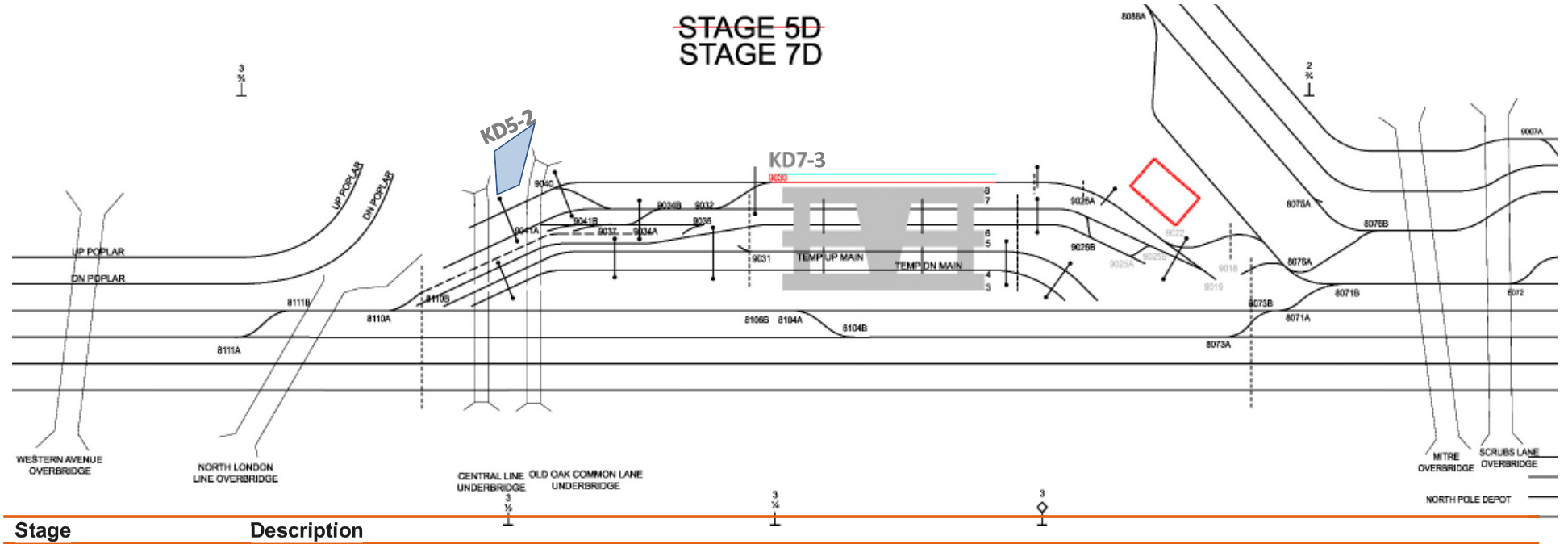
KD7 - Area 2 MAR-2025	KD12 - Area 1 SEP-2026	KD12 – Area 2 SEP-2027
KD7 - Area 3 Q2-2025	KD12 – Area 2 SEP-2027	KD5 – Area 2 SEP-2027



Stage	Description
HS2 Works	• Construct Platform 7 & 8 and associated concourse overbridge & EoP bridges [Note - crane for roof lift at Platform 8 location]. • Construct OOCL & CL Underbridges (Part 1) – completion of underbridges (in the location of the demolished RL1 Underbridges)
GWML Works	• Install signals for new Up Relief alignment • Civils works Install troughing runs East • Install Signals Structures and 4ft equip East • ATF modifications • Substation S works • Portals to the east (5 no extend ALB to 5 hrs)
Commissioning Strategy	• Form RL 1 prospective

⚠ Programme for Platform and Underbridge construction to be confirmed by BBVS

KD7 - Area 2 MAR-2025	KD12 - Area 1 SEP-2026	KD12 – Area 2 SEP-2027
KD7 - Area 3 Q2-2025	KD12 – Area 2 SEP-2027	KD5 – Area 2 SEP-2027



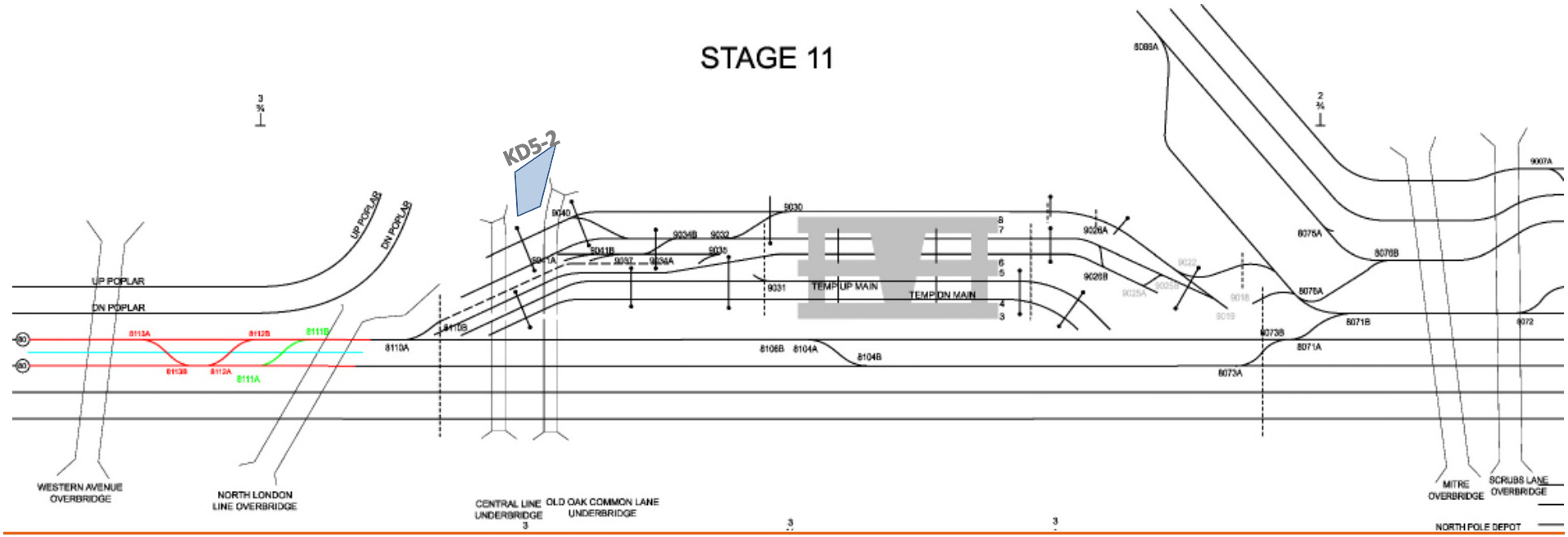
Stage	Description
HS2 Works	• Construct Platform 7 & 8 and associated concourse overbridge & EoP bridges [Note - crane for roof lift at Platform 8 location]. • Construct OOCL & CL Underbridges (Part 1) – completion of underbridges (in the location of the demolished RL1 Underbridges) • OLE works in Acton cutting area
GWML Works	• Cantilever SN416 (East of the station) steelwork • Install drainage from centre out P8 • Welding and top ballast run out through P8 • 9016 and 9017 pts prep • Running cables • Install Signals Structures and 4ft equip East • GSMR RRH1 site installation and fibre run. • PSP compound build up • **Assume platform 8 works can move to Stage 8 depending on Q2/Q3 access**

⚠ Programme for Platform and Underbridge construction to be confirmed by BBVS

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Stage 11 – Acton Cutting/Mains Stage Prep

Xmas 2025



Stage	Description
HS2 Works	• Construct OOCL & CL Underbridges (Part 2) • Install OLE Portals London end of site • Transfer OLE to new structure and remove existing • Install DR (Platform 5) over Underbridge • Install UM Loop (Platform 4) over Underbridges Run • OLE wires to available track DM Loop/UM • Track drainage (where track is on final alignment) • Recovery of the Reliefs and associated OHLE/Equipment
GWML Works	• OHLE transfer to Mains portals • Delivery of Materials and CWR rail strings for Stage 12 • Removal of Friars junction (DNO supply at Brunel Road to remain as temporary supply) • West drainage installation • Reliefs only Abnormal in the winter time table to put in Acton Crossovers • Mains Feeder

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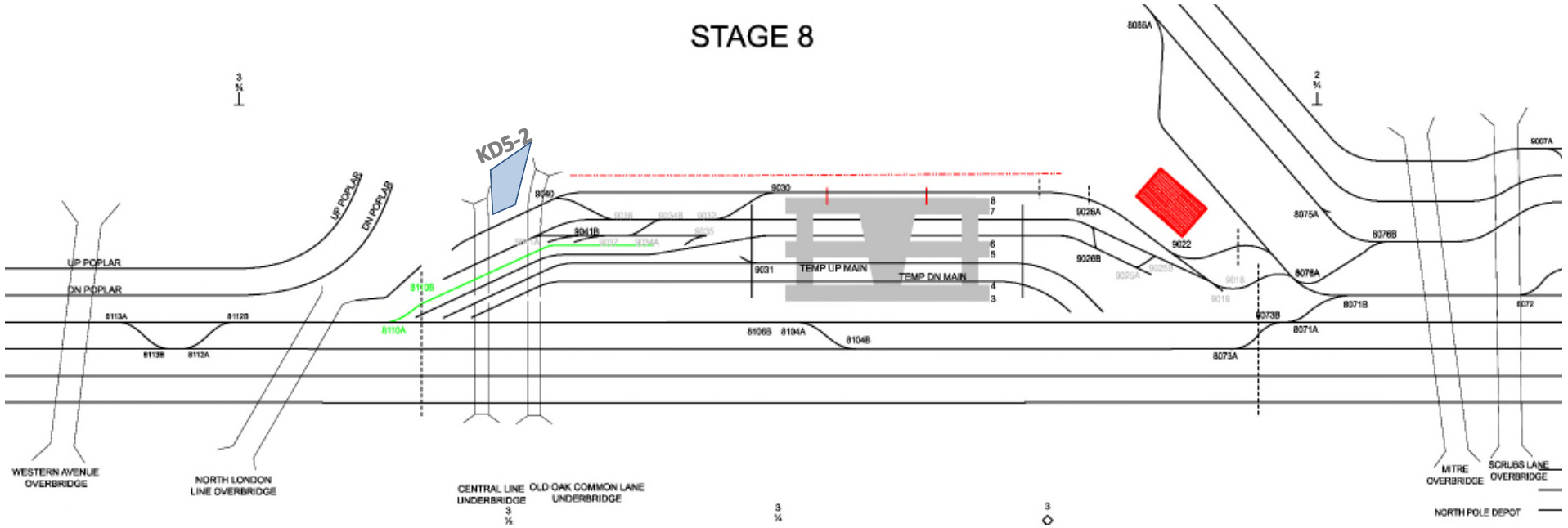
KD7 – Area 3 Q2-2025

KD5 – Area 2 SEP-2027

Stage 8 – Stage 9 Preparation

Phase 2

September – December 2025



Stage	Description
HS2 Works	• Central overbridge & Eastern EoP bridge fit-out
GWML Works	• OLE structures and wires installed for new UR at Platform 8 • Complete all OLE structures on operational lines including transfers to allow future track changes Construct all Up Relief line cess cable routes and Loc cases • OHLE wiring and transfers on Relief Lines • Signalling testing • Soak Testing • Trough route installation West of station • Recover West Rail Head • OOC Area PSP base installed and delivered to site. • Prep work for Stage 9 • New FSP's installed, connector feeder to OOC • Relief Feeders • NW RRAP Installation • ATS Installed

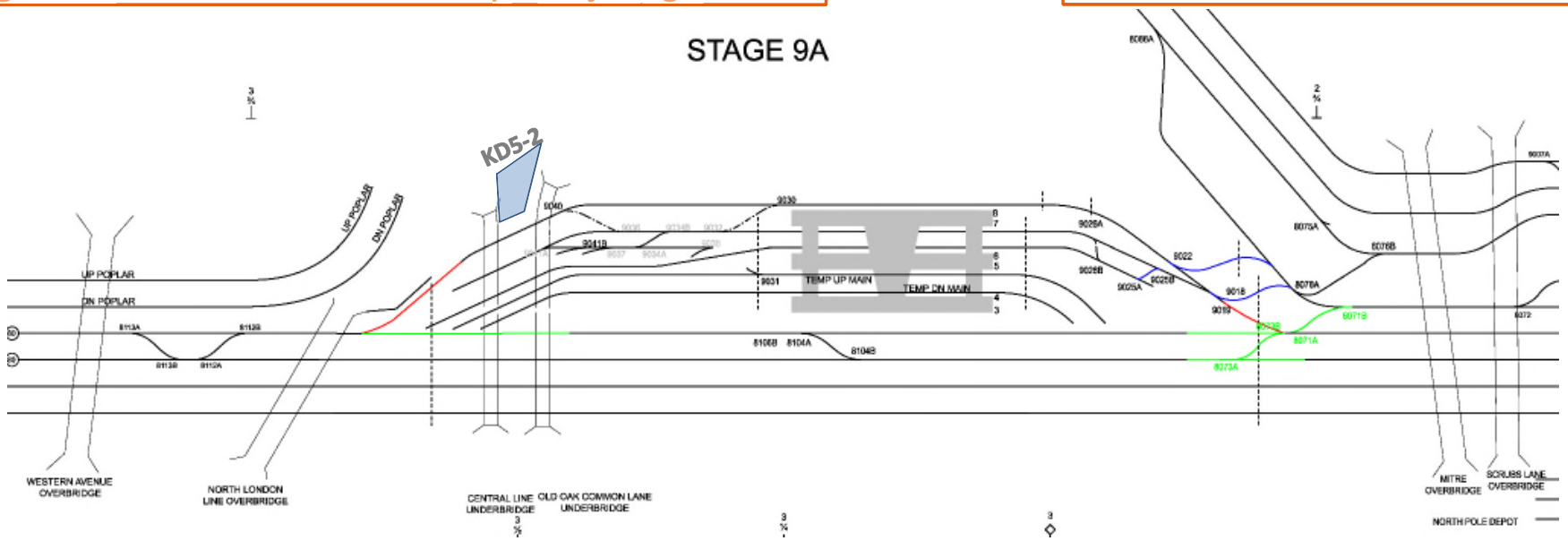
⚠ Programme for Platform and Underbridge construction to be confirmed by BBVS

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KD7 – Area 3 Q2-2025		KD5 – Area 2 SEP-2027

Stage 9A – Commission Temporary Alignment

Xmas 2026

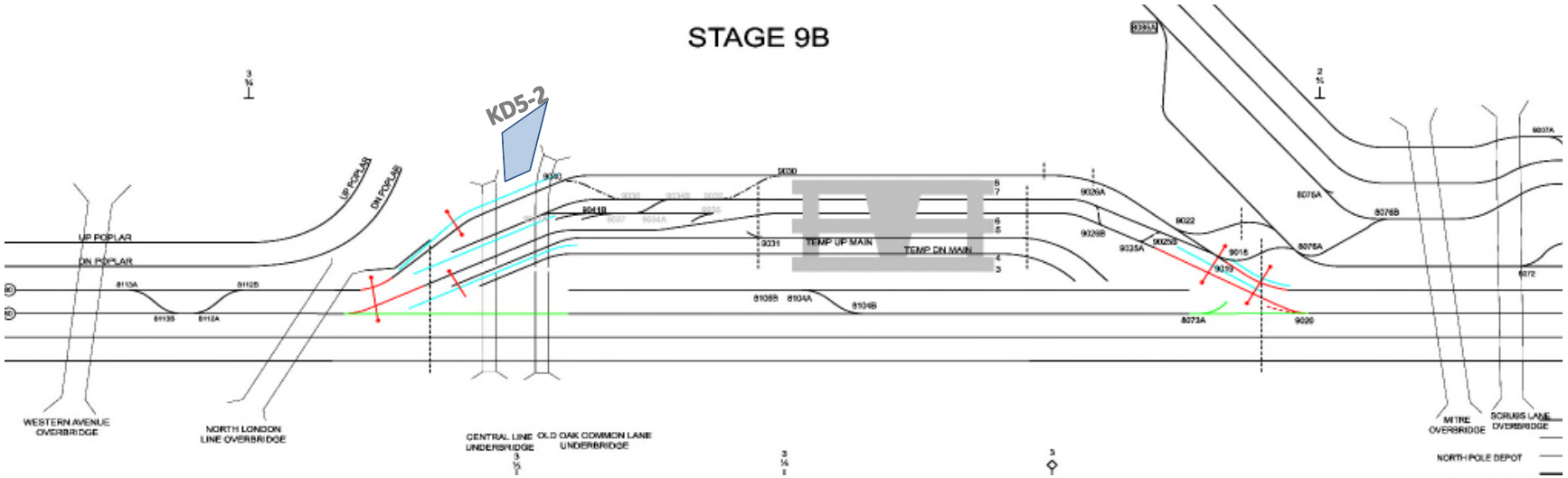


Stage	Description
GWML Works	• Install turnout to CL London end and final PL for UP and DN Reliefs • Install turnout for Down Relief final alignment (Platform 5) at London end (PL switches) • Connect existing Down Relief to temporary tie-in to the Turnback Siding • Complete any outstanding OLE transfers • Relay Plain line to make connection Up Relief East and West simultaneous • OHLE Temporary commissioned • Redundant (in temporary state) switches to be plain lined for commissioning in later stage • OHLE amendments to depot tie-in . • Recovery 9073 and Plain line 9071 • Signalling install and testing 9025, 9026 and 9020 • Installation of temporary Up and Down Relief • PSP Traction Supply • Earthing and Bonding Staging works

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Stage 9.B – Commission Temporary Alignment

Xmas 2026

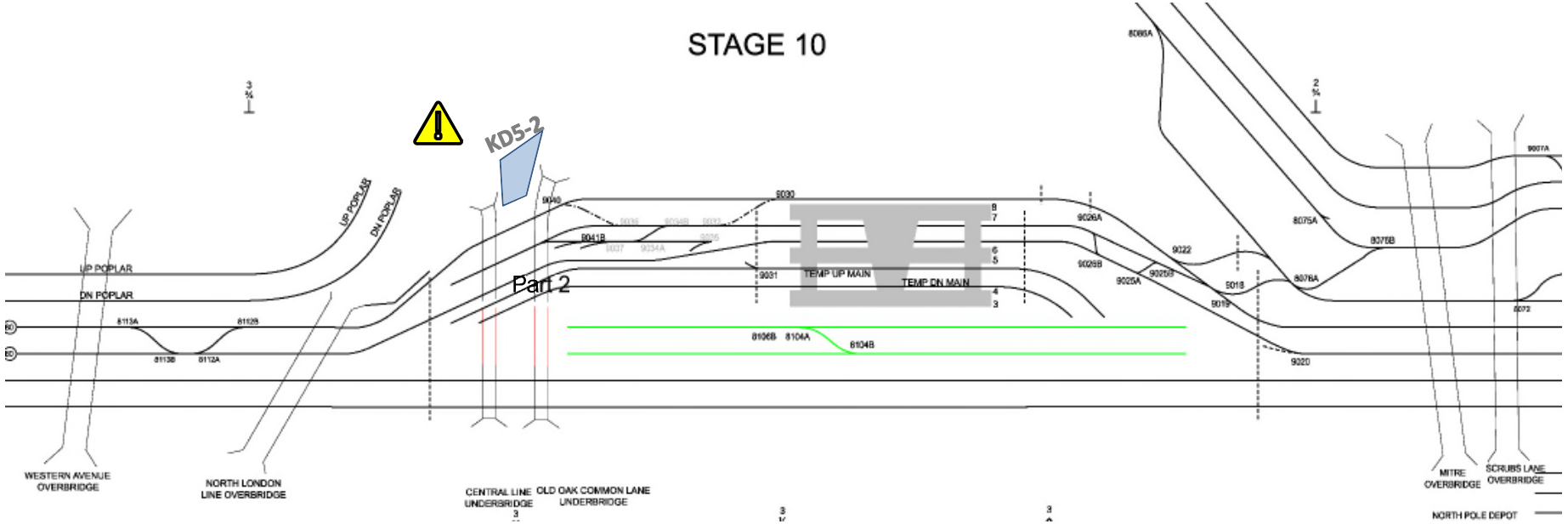


Stage	Description
HS2 Works	• Remove existing Up Relief and Down Relief • Remove existing OOCL & CL Underbridges (existing Relief Lines) • Install turnout to CL London end and final PL for UP and DN Reliefs • Install turnout for Down Relief final alignment (Platform 5) at London end (PL switches) • Connect existing Down Relief to temporary tie-in to the Turnback Siding • Complete any outstanding OLE transfers • Up Relief in final position at Platform 8 & Down Relief at Platform 6
GWML Works	• Relay Plain line to make connection Dn Relief East and West simultaneous • OHLE Temporary commissioned • Interlocking, IECC and ETCS data change and testing of new equipment (interface with OOC Depot – Electrologics alterations) Reliefs side data changes only. (discussion around Rail head on Down Main Ongoing) • Redundant (in temporary state) switches to be plain lined for commissioning in later stage. • Recovery of all assets over OOCL and Central line Underbridges • Commission 9025,9026,9020 and 9016.

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Stage 10 – Recovery Stage

January – April 2027



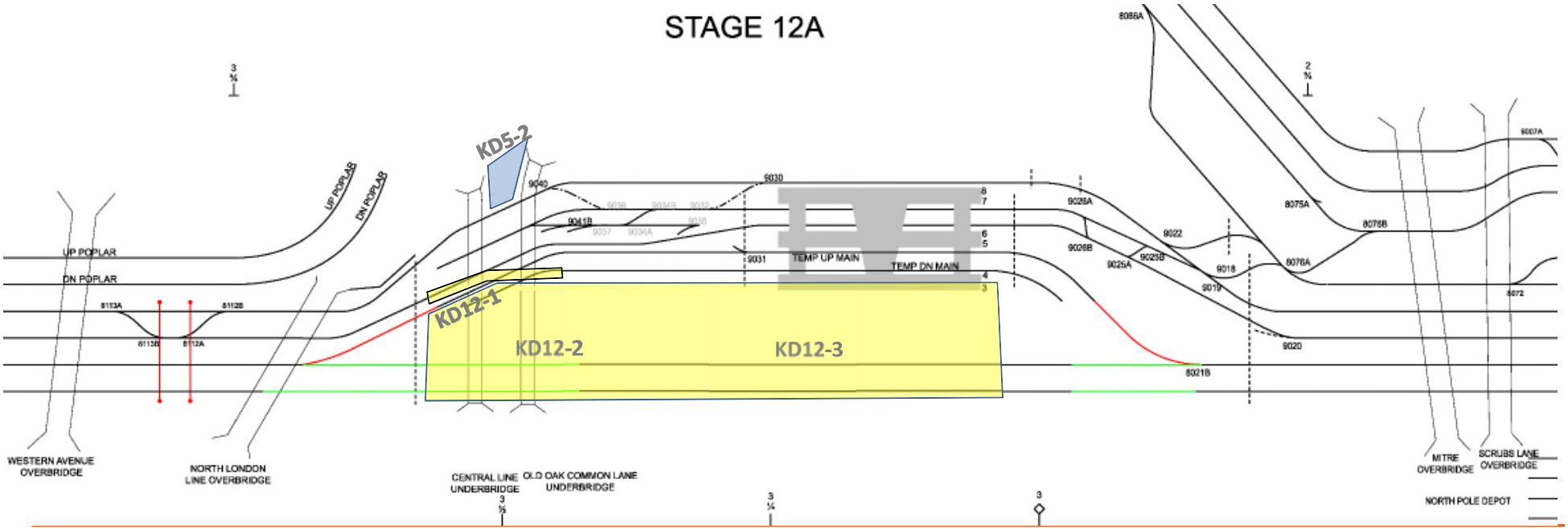
Stage	Description
HS2 Works	• Construct OOCL & CL Underbridges (Part 2) • Install OLE Portals London end of site • Transfer OLE to new structure and remove existing • Diversion of signalling and telecoms assets in old Up Relief Cess through new Platform cable routes
GWML Works	• Recovery of the Reliefs and associated OHLE/Equipment • West of station OHLE pile foundations • OHLE transfer to Mains portals • Load Reliefs scrap to trains • Delivery of Materials • East of station straightpost signals foundations • Existing FSP's to be disconnected and removed • Acton cutting maintenance staging to be installed

Programme for Underbridge construction to be confirmed by BBVS

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Stage 12.A – Commission Temporary Main Alignments

Phase 3 | **Xmas 2027**



Stage	Description
HS2 Works	• Remove existing Up Main and Down Main & Remove existing OOCL & CL Underbridges (existing Main Lines) • Install temporary connections UM & DM to existing London End and Country End • UR at Platform 8. DR at Platform 6.UM to Plat. 5 & DM to Plat. 4 (No operational railway at Plat. 3, 2 or 1 to facilitate Platform 1-2 built as one island platform)
GWML Works	• Relay Plain line to make connection Up Main East and West simultaneous • Installation of temporary Mains • OHLE Temporary commissioned • Interlocking, IECC and ETCS data change and testing of new equipment (interface with OOC Depot – Electrologics alterations) • Redundant (in temporary state) switches to be plain lined for commissioning in later stage. • Earthing and Bonding staging works

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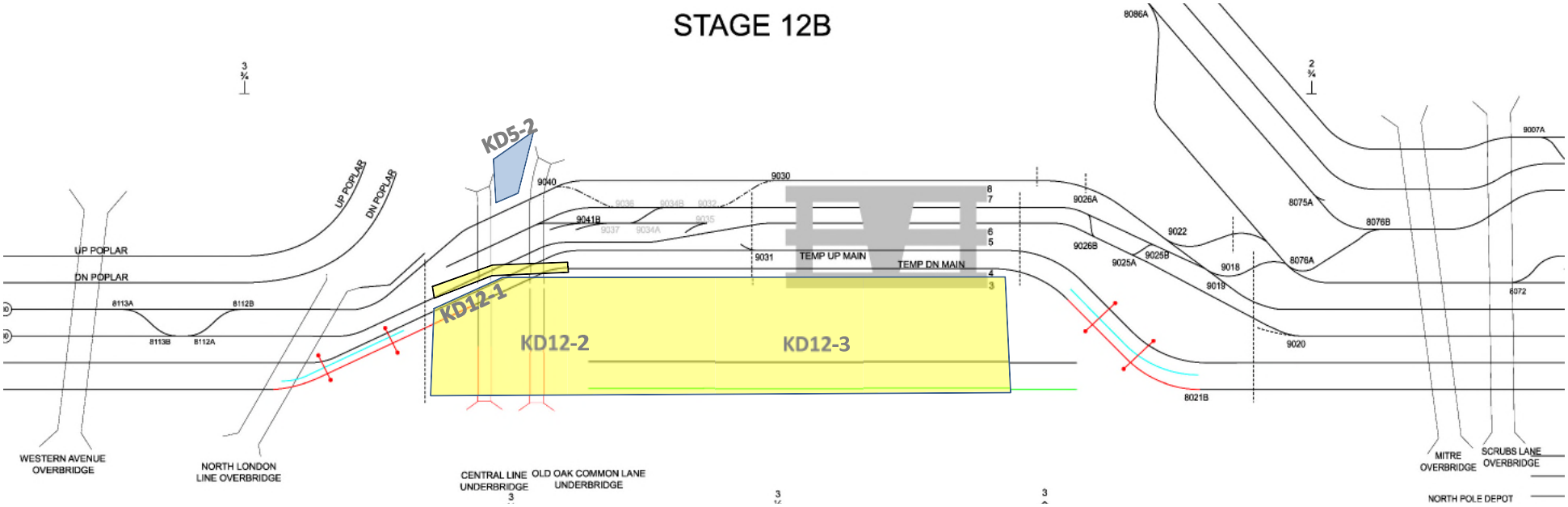
Programme for Platform and Underbridge construction to be confirmed by BBVS

KD12 - Area 1 SEP-2026	KD12 – Area 2 SEP-2027
KD12 – Area 2 SEP-2027	KD5 – Area 2 SEP-2027

Classification:UNCLASSIFIED

Stage 12.B – Commission Temporary Mains Alignments

Phase 3 | **Xmas 2027**



Stage	Description
HS2 Works	• Construct new OOCL & CL Underbridges (Part 3) • Remove existing Up Main and Down Main & Remove existing OOCL & CL Underbridges (existing Main Lines) • Install temporary connections UM & DM to existing London End and Country End
GWML Works	• Run all remaining OLE wire runs • UR at Platform 8. DR at Platform 6.UM to Plat. 5 & DM to Plat. 4 (No operational railway at Plat. 3, 2 or 1 to facilitate Platform 1-2 built as one island platform) • Relay Plain line to make connection Dn Main East and West simultaneous • OHLE Temporary commissioned • OOC DNO & Perry Avenue to be installed • Interlocking, IECC and ETCS data change and testing of new equipment (interface with OOC Depot – Electrologics alterations) • Redundant (in temporary state) switches to be plain lined for commissioning in later stage. • East Connection to south Rail Head subject to (Data Change Agreement at stage 9)

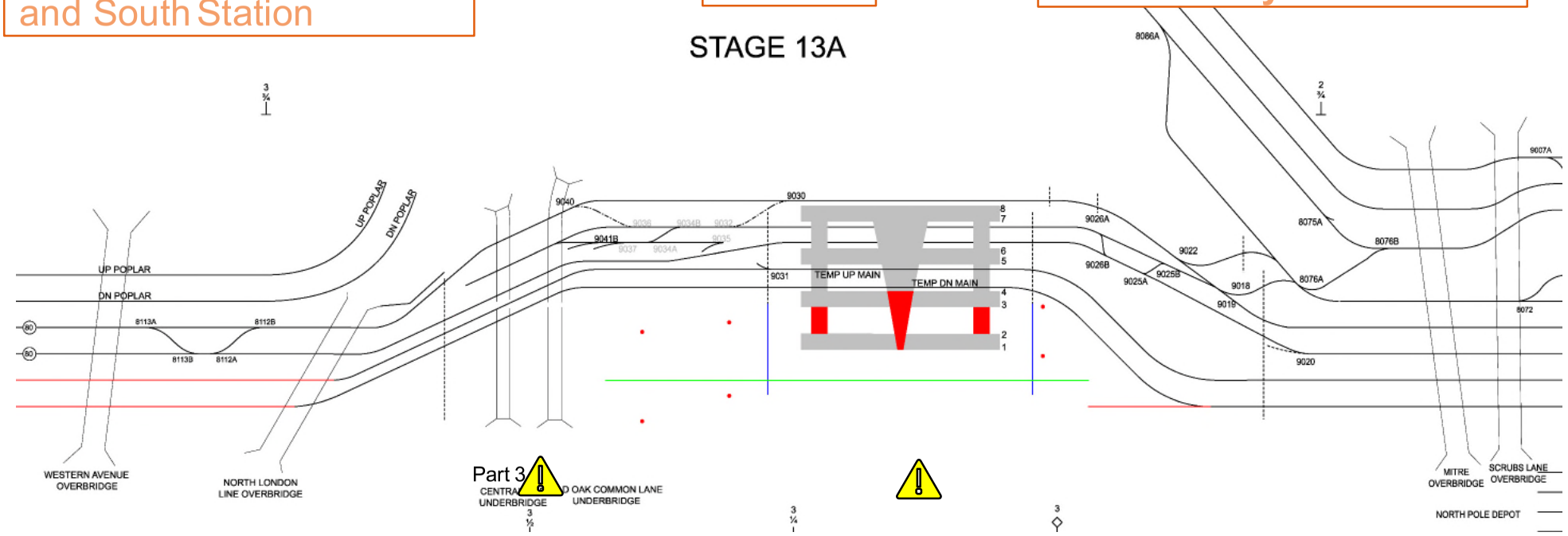
KD12 - Area 1 SEP-2026	KD12 – Area 2 SEP-2027
KD12 – Area 2 SEP-2027	KD5 – Area 2 SEP-2027

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Stage 13.A – Acton lowers and South Station

Phase 4

January – March 2029



Stage	Description
HS2 Works	• Install temporary RRAP for accessing plant to Platform 1-2 worksite • Construct Platform 1/2 and associated concourse overbridge & means of escape bridges, Access for crane at Platform 2 & 3 (no track installed). • Install new final DM / DML / UM at London end only
GWML Works	• Recovery of Up main and associated assets • Install New down Main alignment prior to station Platform 1 work • Track Lowering Acton Mains Subject to Temporary re alignment of Up and Down Main • Install OHLE Foundations and Signalling Foundations • Install UTX East and West extensions • Establish compounds and laydown areas • SW RRAP Compound (if access agreement in place) • OOC DNO & Perry Avenue DNO Commissioned

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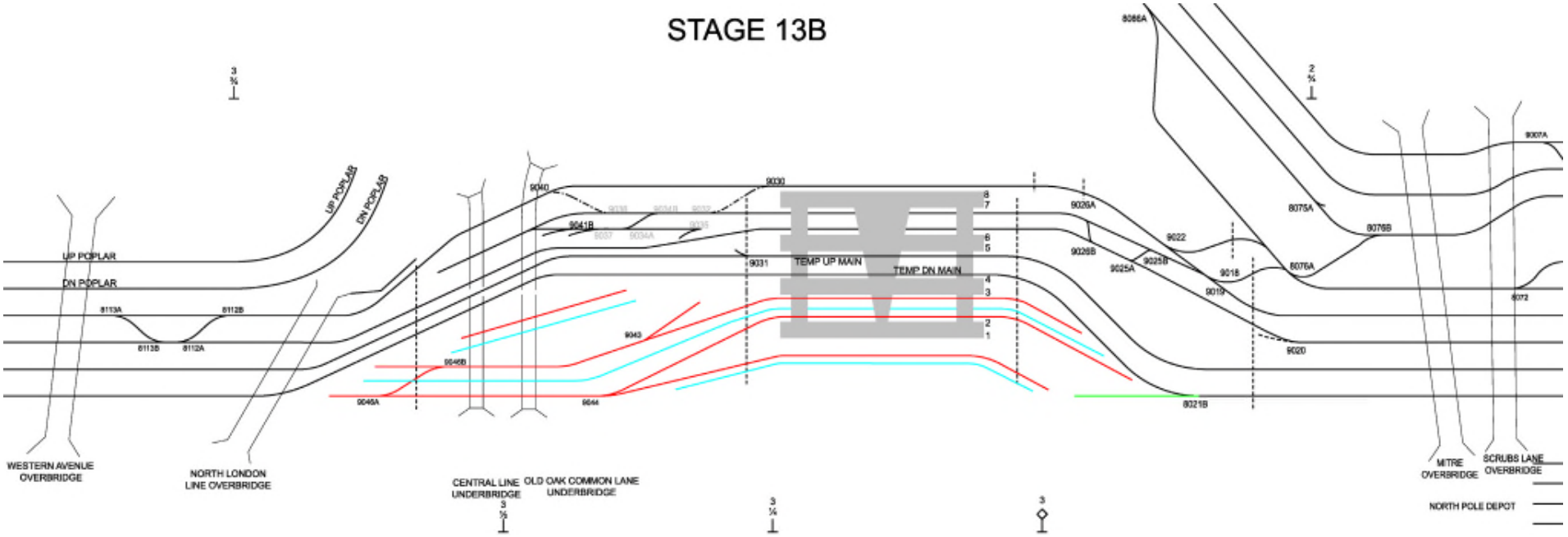
Programme for Platform and Underbridge construction to be confirmed by BBVS

Classification: UNCLASSIFIED

Stage 13.B – South Rail systems Install

Phase 4

March – June 2029



Stage	Description
HS2 Works	• Install temporary RRAP for accessing plant to Platform 1-2 worksite • Construct Platform 1/2 and associated concourse overbridge & means of escape bridges, Access for crane at Platform 2 & 3 (no track installed). • Install new final DM / DML / UM at London end only
GWML Works	• Install Connection to form Loop from Railhead • P-Way & Drainage Works East and West (Platform 1 & 2) • Ancillary civils trough route and Signalling structures • Excavate and relay Down and Up Main • Install Up Main Loop and Down Main Loop • Install drainage on Mains • Excavate and relay Down Relief • SW RRAP installed

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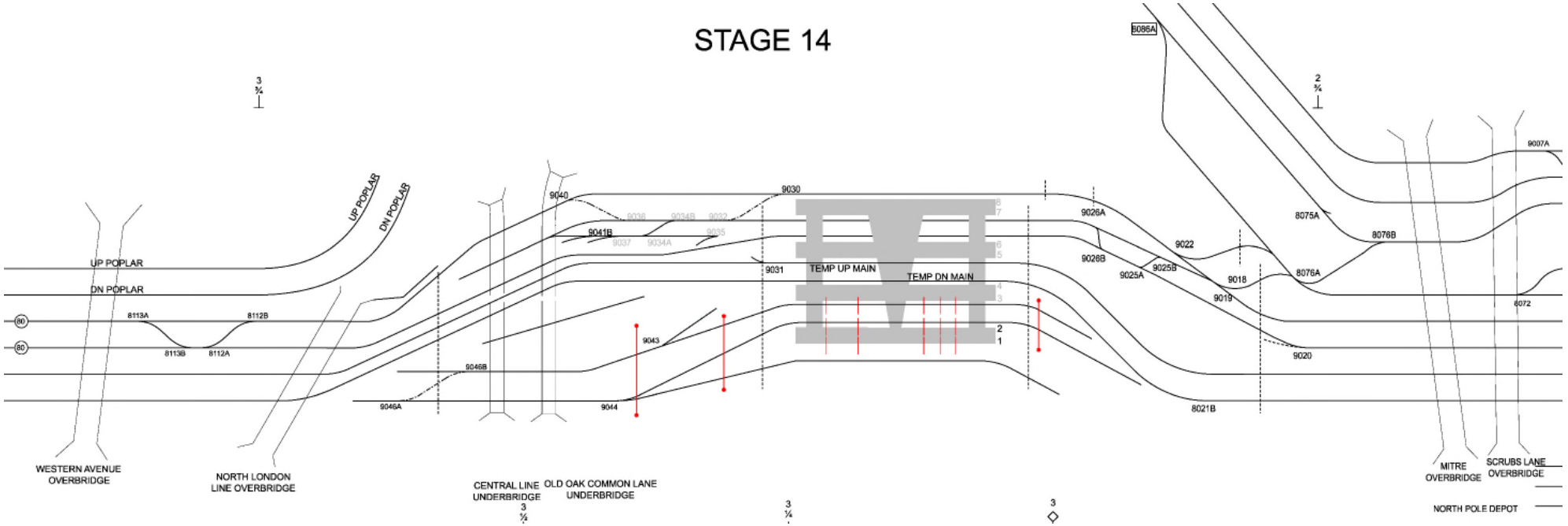
Programme for Platform and Underbridge construction to be confirmed by BBVS

Classification: UNCLASSIFIED

Stage 14 – South Rail systems Install

Phase 4

August – December 2029



Stage	Description
HS2 Works	• Install OLE Structures platform 1, 2 and 3 • Station area Up Relief signal installation
GWML Works	• West of station foundation installation of straight post signals • Relay 9046 and 9043 points • Run wiring and reposition drop tubes Down and Up Main

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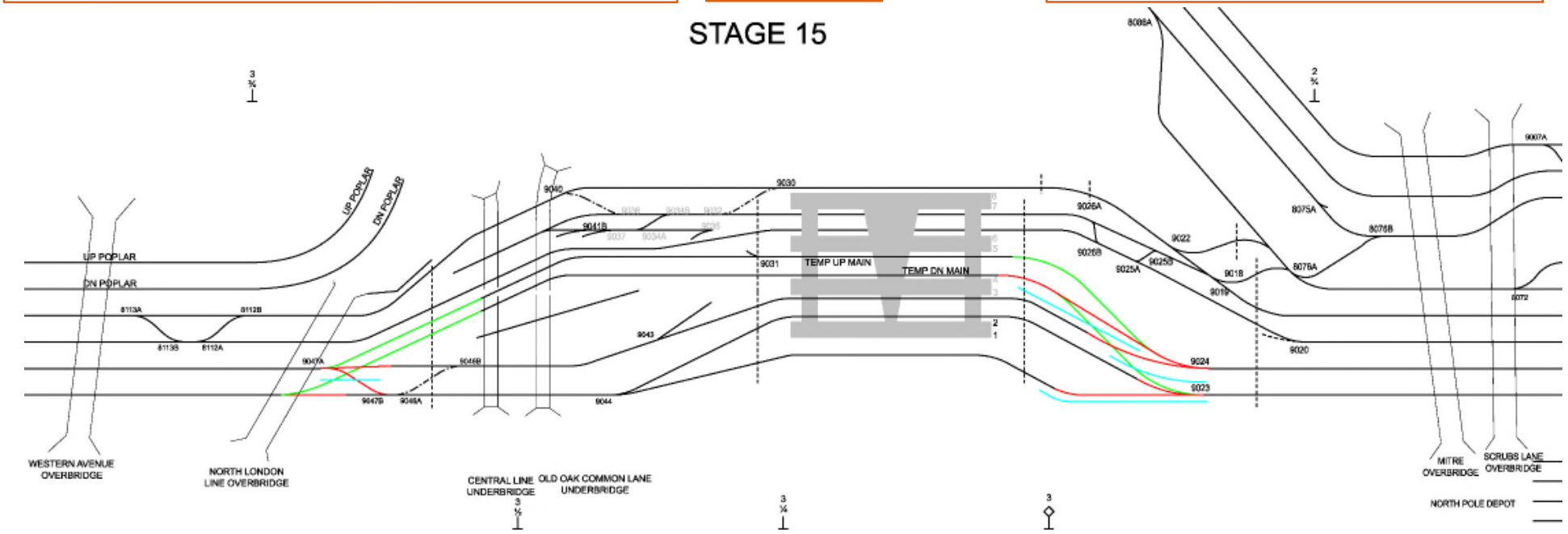
Programme for Platform and Underbridge construction to be confirmed by BBVS

Classification:UNCLASSIFIED

Stage 15 – Mains Alignment to final

Phase 4

Xmas 2029



Stage	Description
GWML Works	• Remove temporary alignments for UM and DM • Install final PL - Mains to finalpositions • Install Turnout section of the DR turnout London end of station on DR (No OLE wires installed) • Run new OLE wire runs - Mains • Install and commission 9023 and 9024 to East • Install and Commission 9047 A/B to East • OHLE and transfers wiring • Interlocking, ETCS and IECC data change and testing • Mains Feeder • Earthing and Bonding staging works

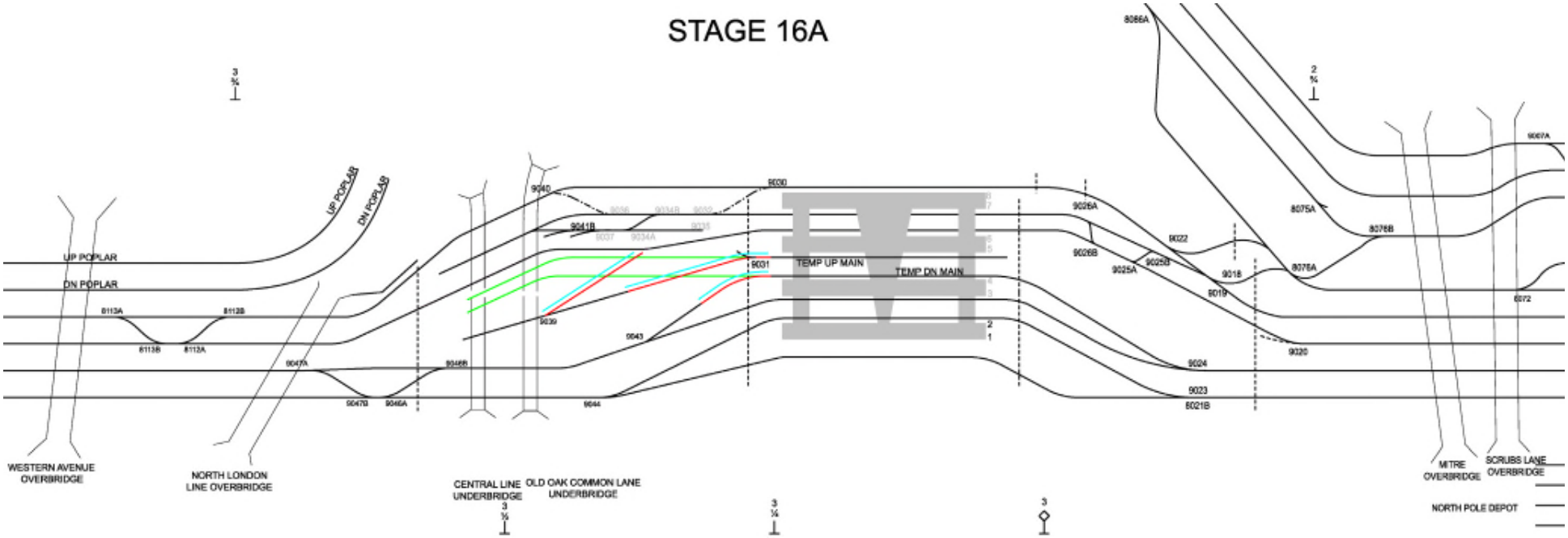
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Classification:UNCLASSIFIED

Stage 16.A – Recovery of Temporary Mains

Phase 5

January – March 2031



Stage	Description
GWML Works	• Prep for Easter works OLE/S&T • Install 9039 and 9031 • Recover temporary Mains • Install Up Relief signals • Foundation installation for straight postsignals

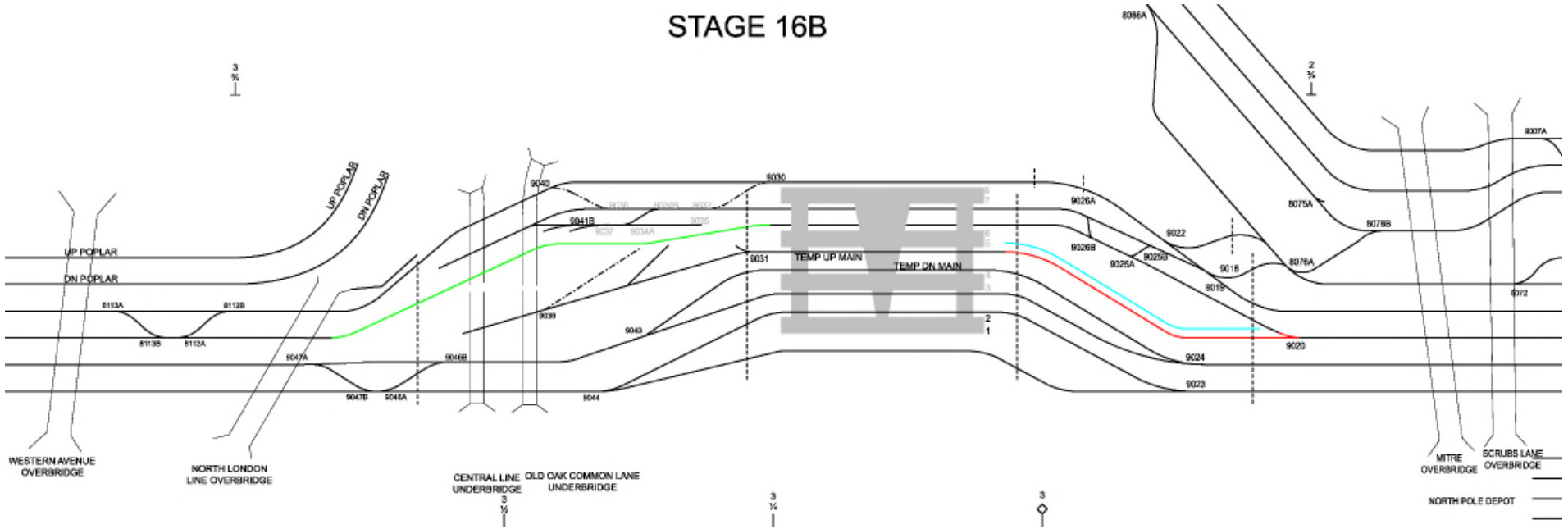
© Arcadis 2018

Classification:UNCLASSIFIED

Stage 16.B – Down Relief to Final Alignment

Phase 5

Easter 2031



Stage	Description
HS2 Works	• Fit out of the concourse Overbridge
GWML Works	• Remove DR temporary alignment PL (Country end) • Install final DR PL (Country end) • Install two turnouts - Down Relief to Turnback 3 • OLE wiring for DR turnout (London end) • Install 9020 • Install plain line to connect Down relief to final • East and West OLE wiring

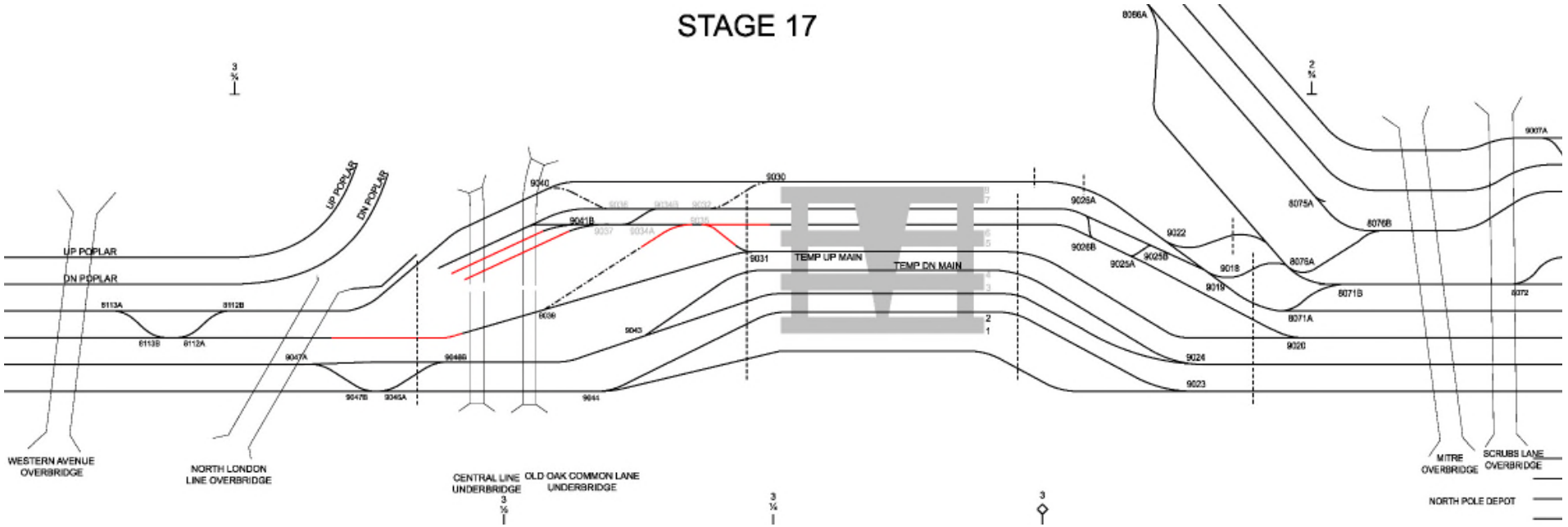
© Arcadis 2018

Classification: UNCLASSIFIED

Stage 17– Final Install for Commissioning

Phase 5

April – December 2031



Stage	Description
HS2 Works	• Track drainage connection into Attenuation tanks • Final Station Works, including SFO / NR T&C
GWML Works	• Install PL and Buffer Stop to Turnback 1 • Including removal of construction joints • Install 9033 • Finish install of turnback's • Remaining West drainage • Prep work for final commissioning • East and West of station OLE wiring • North sidings and crossover OLE wiring • Remove Existing FSP's, Connect Feeder to Ladbroke Grove at M2/85 • Earthing and Bonding final staging works

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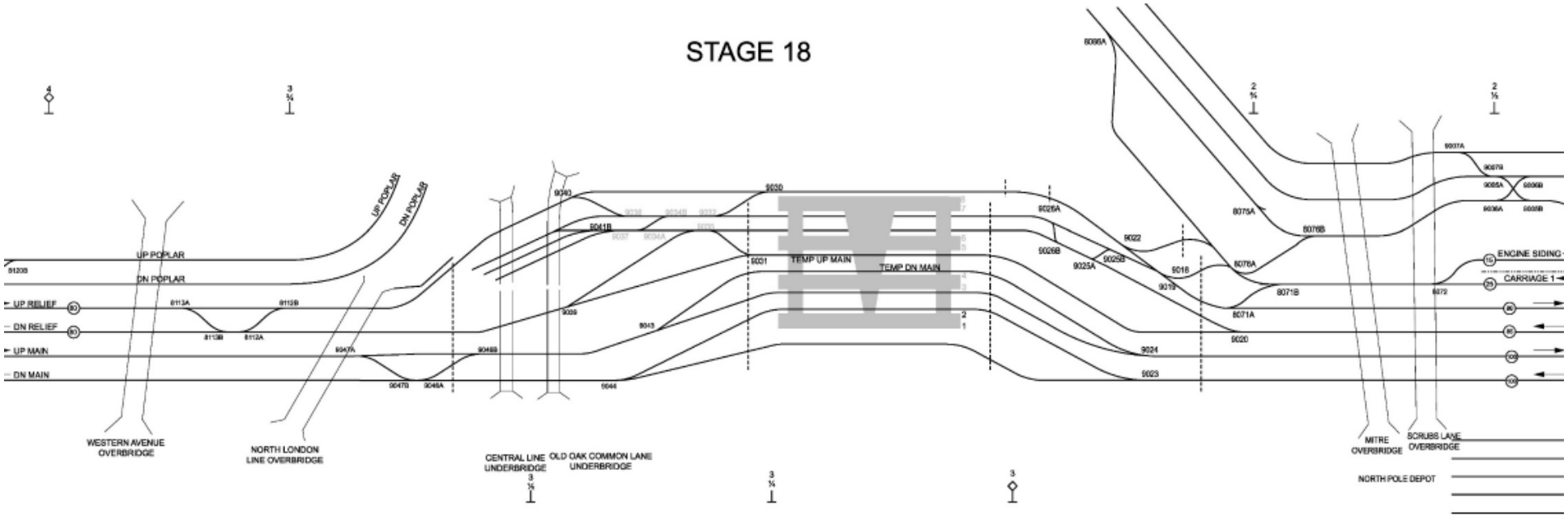
BBVS to confirm date of Attenuation Tank installation for track drainage

Classification:UNCLASSIFIED

Stage 18 – Final Commissioning

Phase 5

Xmas 2031



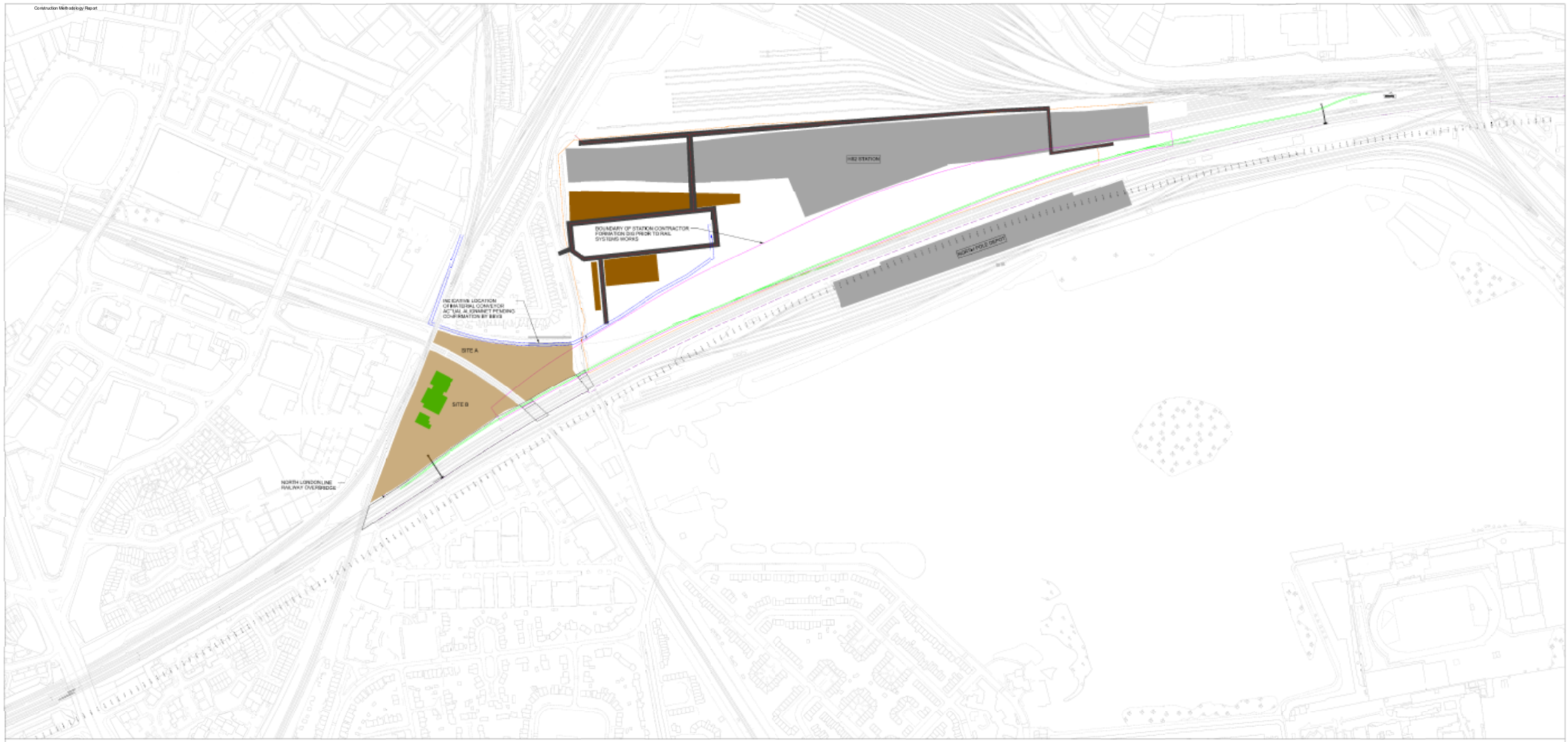
Stage	Description
GWML Works	• Final Signalling commissioning • Final S&C commisioning

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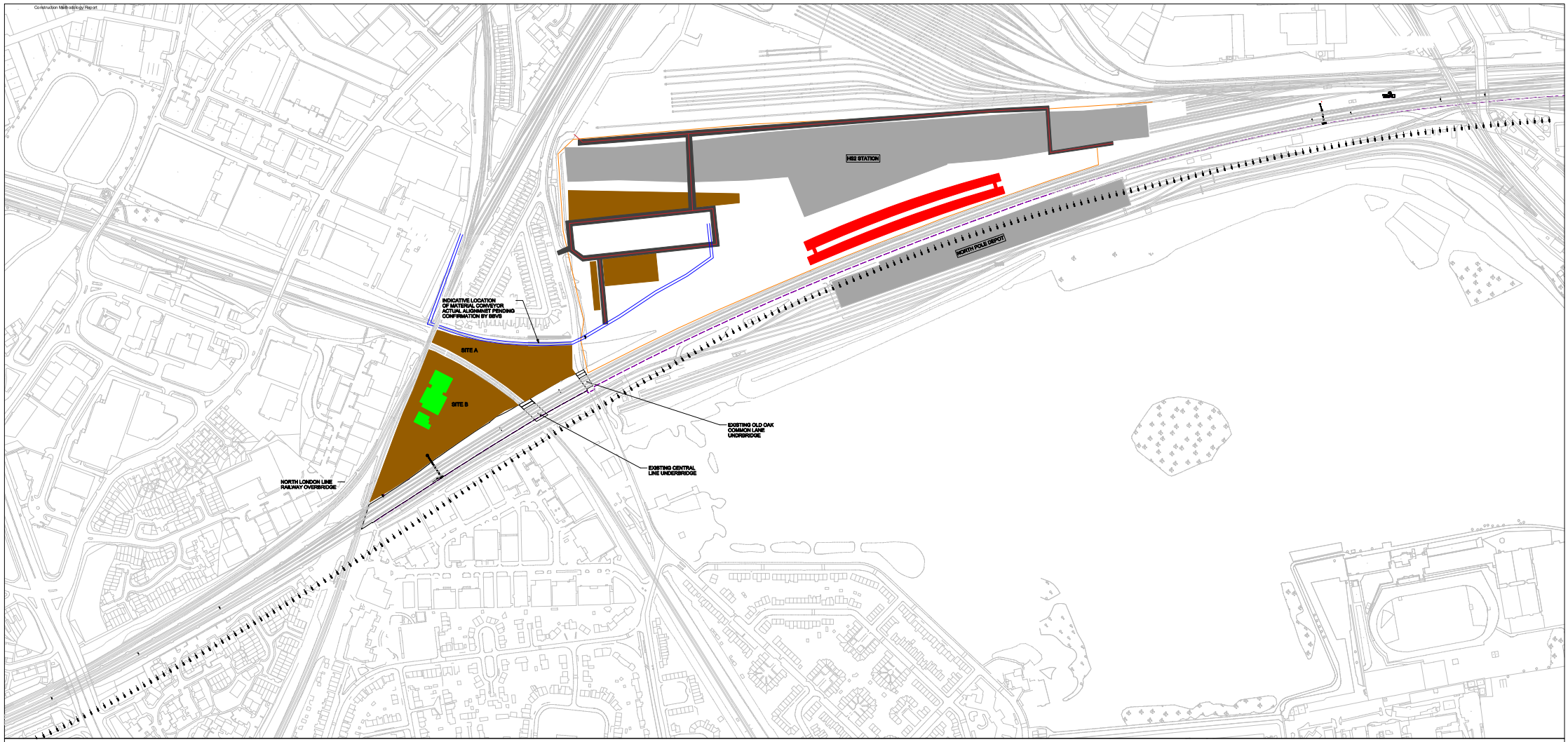
APPENDIX B

Staging Layouts

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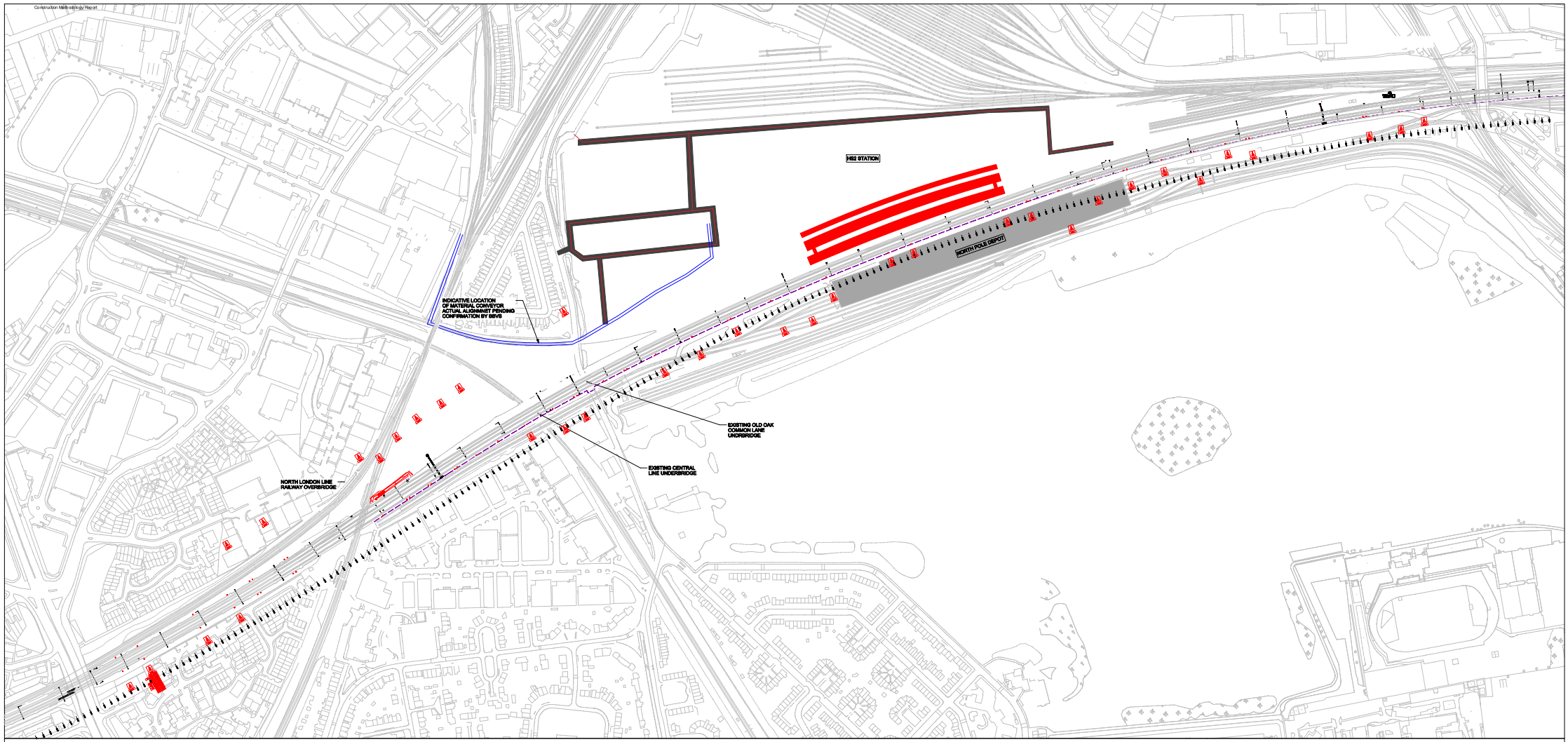
STAGE 2A
STATION BUILD NORTH
YEAR: 2021



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

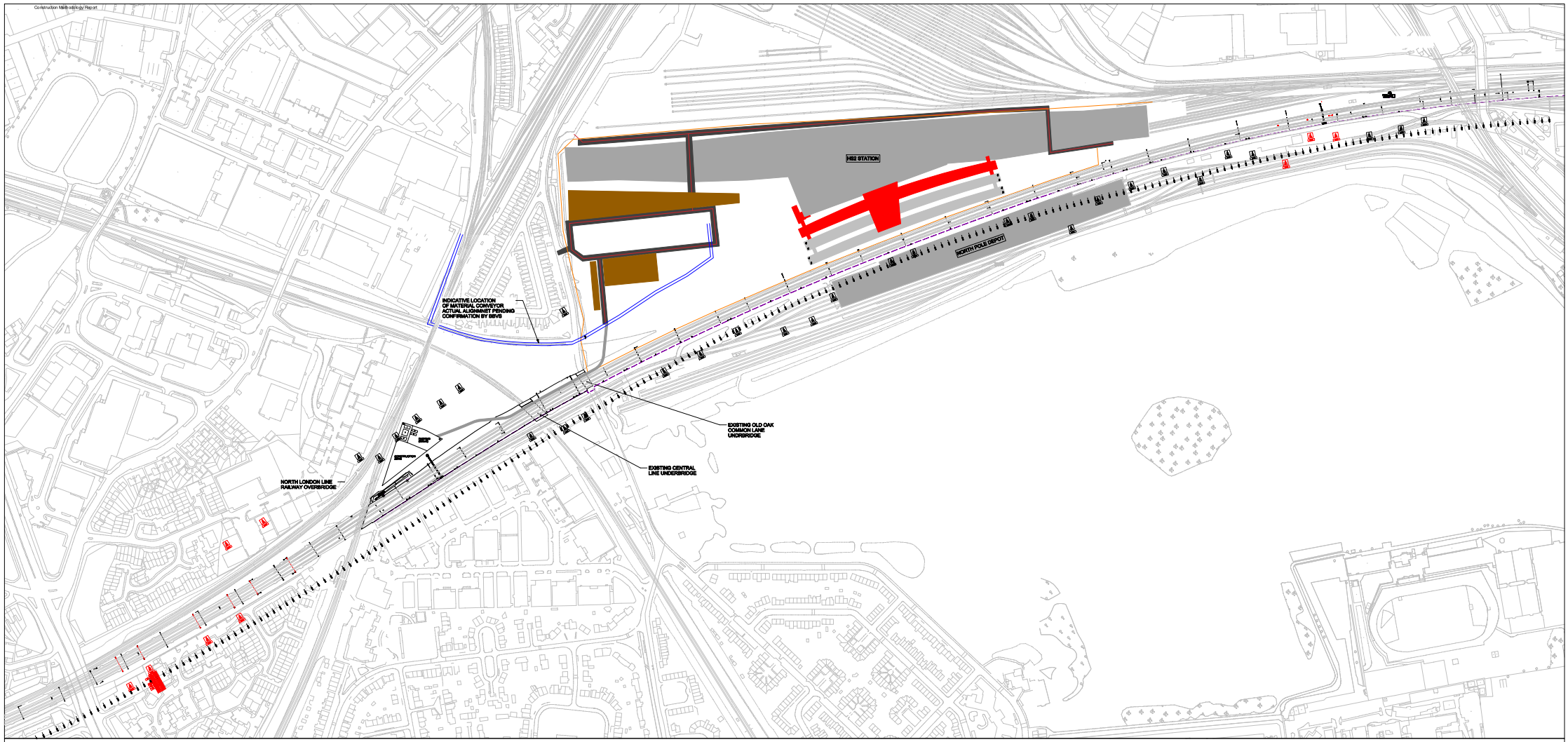
STAGE 2B
SIGNALLING WORKS
YEAR: 2021



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
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13 LIGHTING

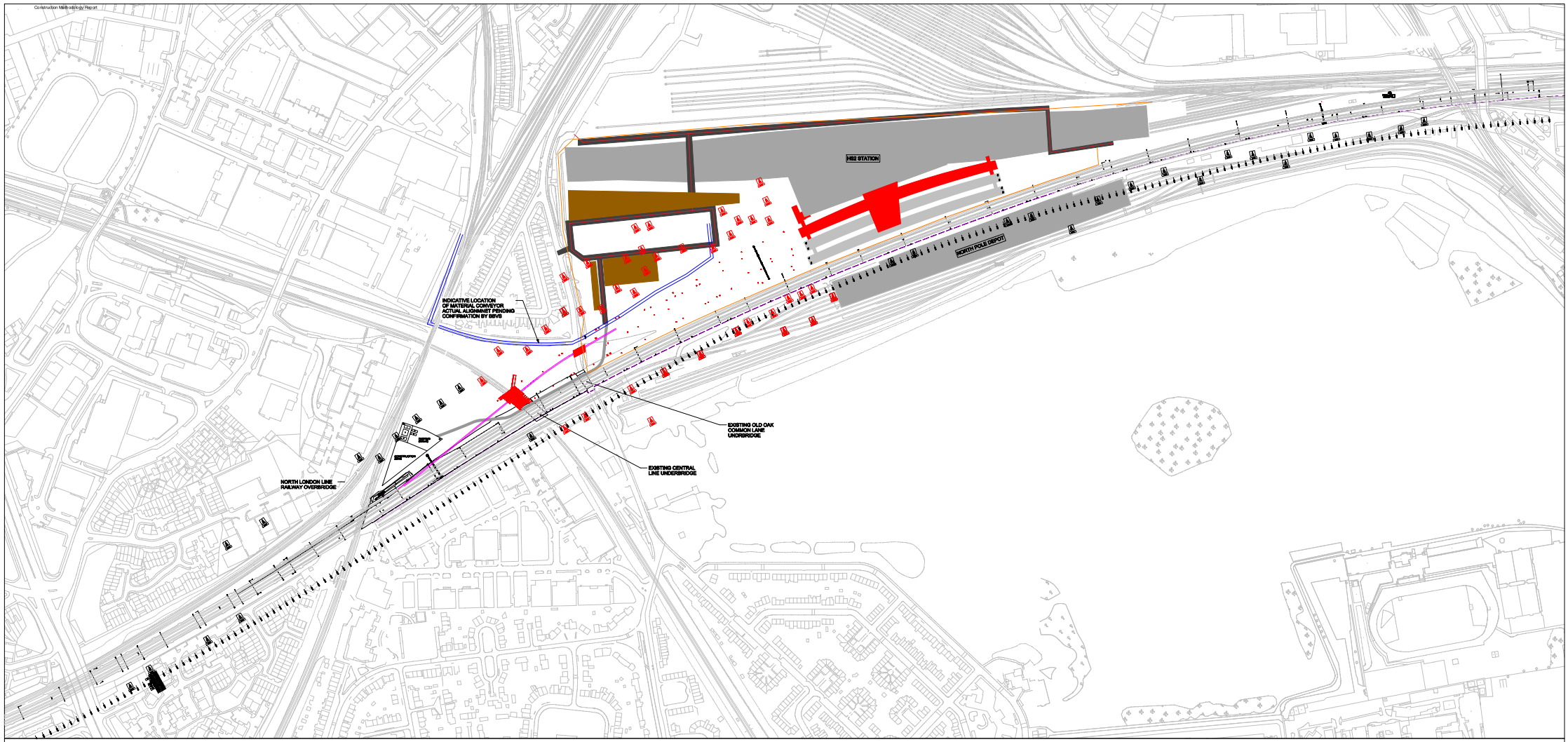
STAGE 3
STATION BUILD NORTH
YEAR: 2022



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

STAGE 4
STATION BUILD NORTH
YEAR: XMAS 2022

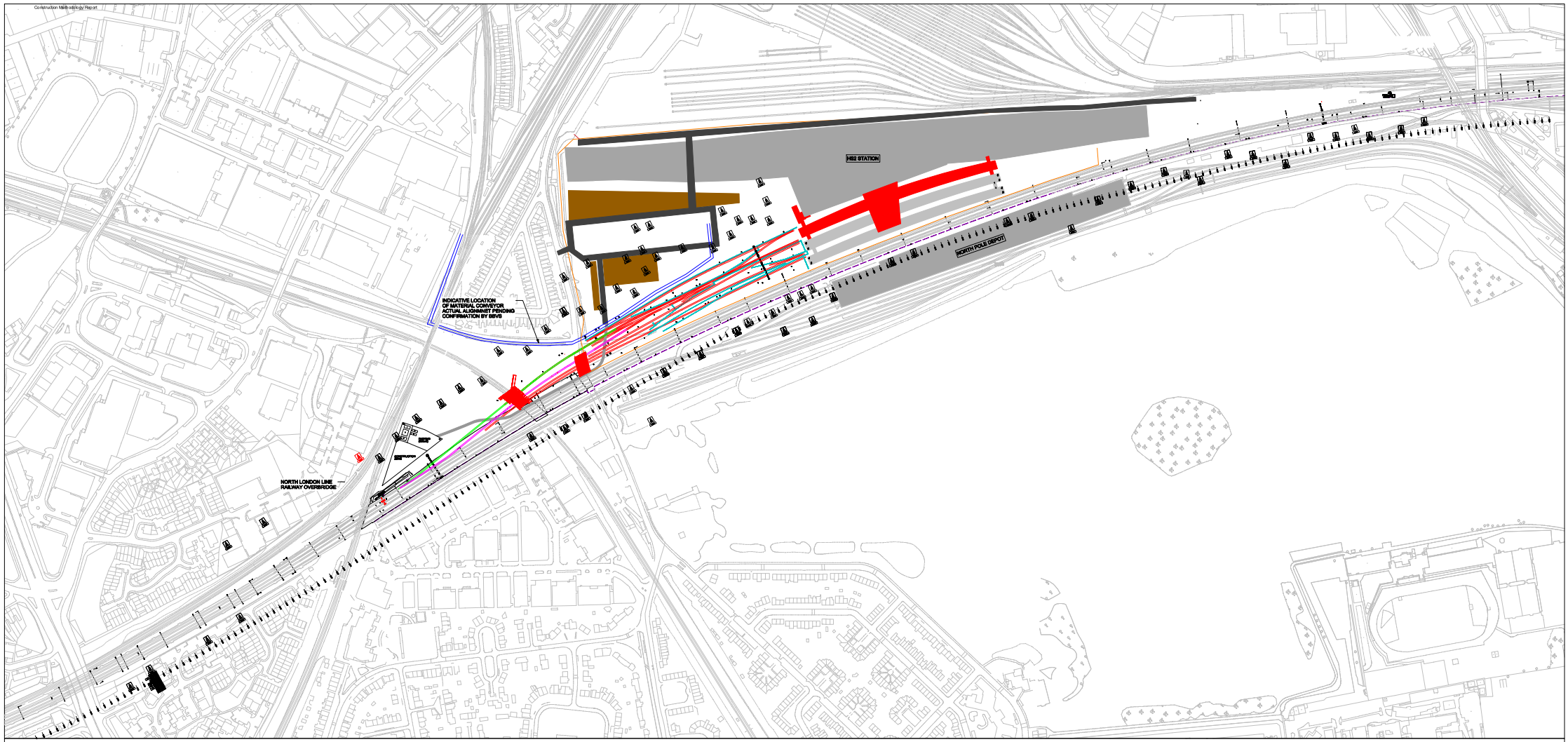


PROPOSED RAIL SYSTEMS
PROPOSED RAIL SYSTEMS DRAINAGE
COMPLETED RAIL SYSTEMS
RECOVERED RAIL SYSTEMS
MODIFIED RAIL SYSTEMS
NR BOUNDARY LINE

WSP PROPOSED CONSTRUCTION
CONSTRUCTION COMPLETED
WSP PROPOSED COMPOUNDS
WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
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6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

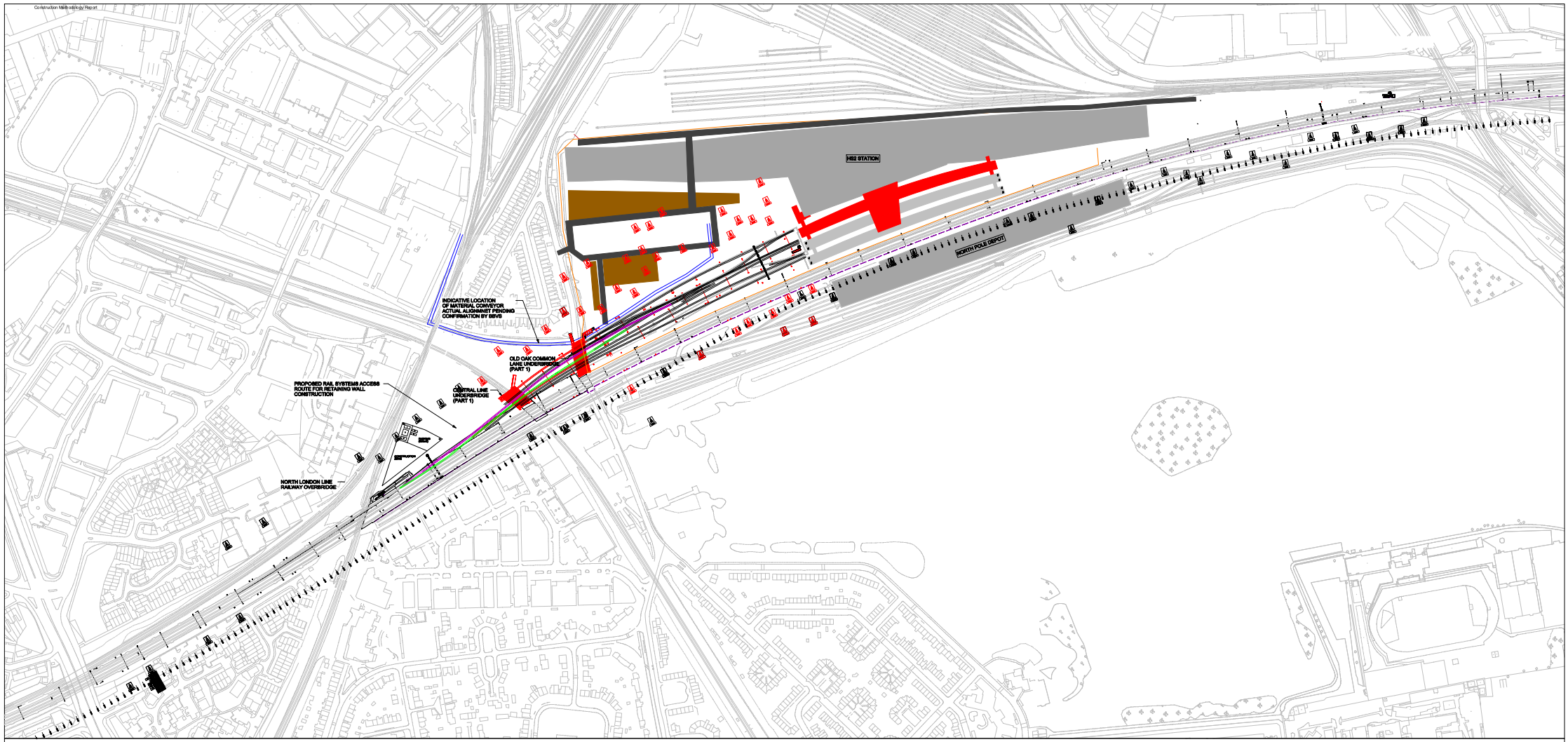
STAGE 5A
STATION BUILD NORTH
YEAR: JANUARY-MARCH 2024



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
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- WSP PROPOSED CONSTRUCTION
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- WSP PROPOSED ROAD HAULAGE ROUTES

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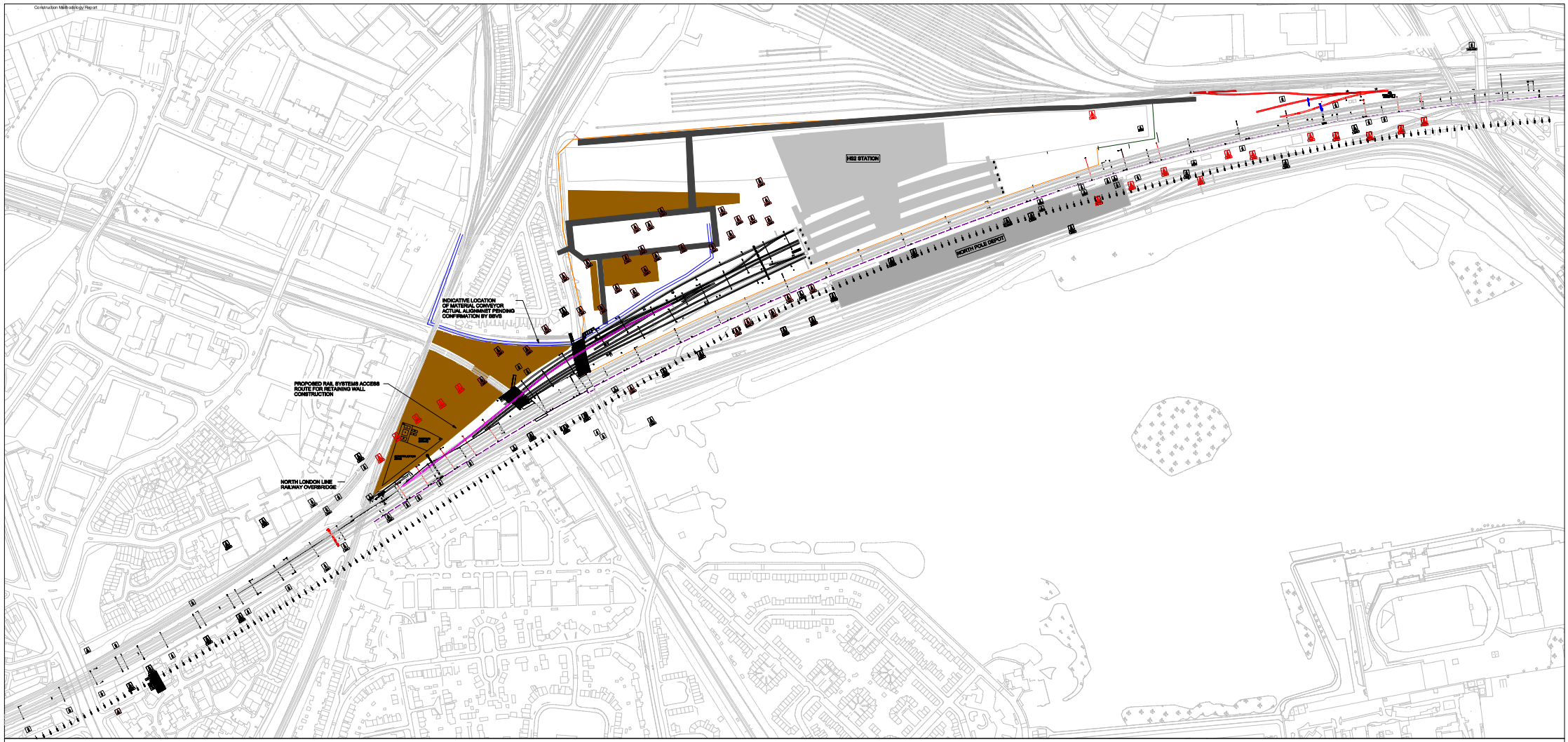
STAGE 5B
STATION BUILD NORTH
YEAR: APRIL- AUGUST 2024



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
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- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
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10 SKIP
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13 LIGHTING

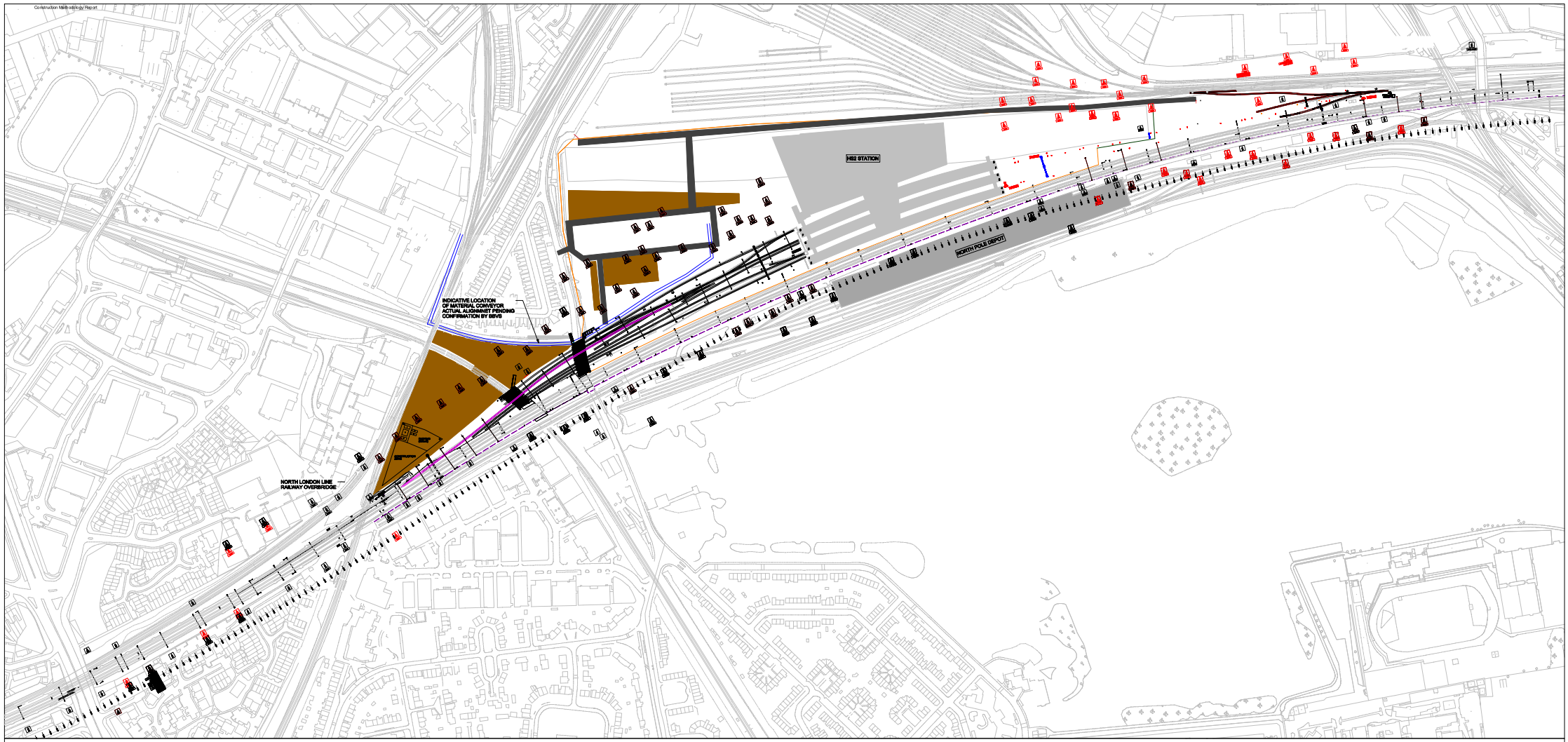
STAGE 5C
STATION BUILD NORTH
YEAR: AUGUST-DECEMBER 2024



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
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6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

STAGE 6
STATION BUILD NORTH
YEAR: XMAS 2024



PROPOSED FINAL ALIGNMENT
PROPOSED RAIL SYSTEMS

TEMPORARY RELIEFS ALIGNMENT
PROPOSED RAIL SYSTEMS DRAINAGE

TEMPORARY MAINS ALIGNMENT
COMPLETED RAIL SYSTEMS

PROPOSED RAIL HEAD
RECOVERED RAIL SYSTEMS

LIMIT OF DEVIATION (LOD)
MODIFIED RAIL SYSTEMS

NR BOUNDARY LINE

CONSTRUCTION COMPLETED
WSP PROPOSED CONSTRUCTION

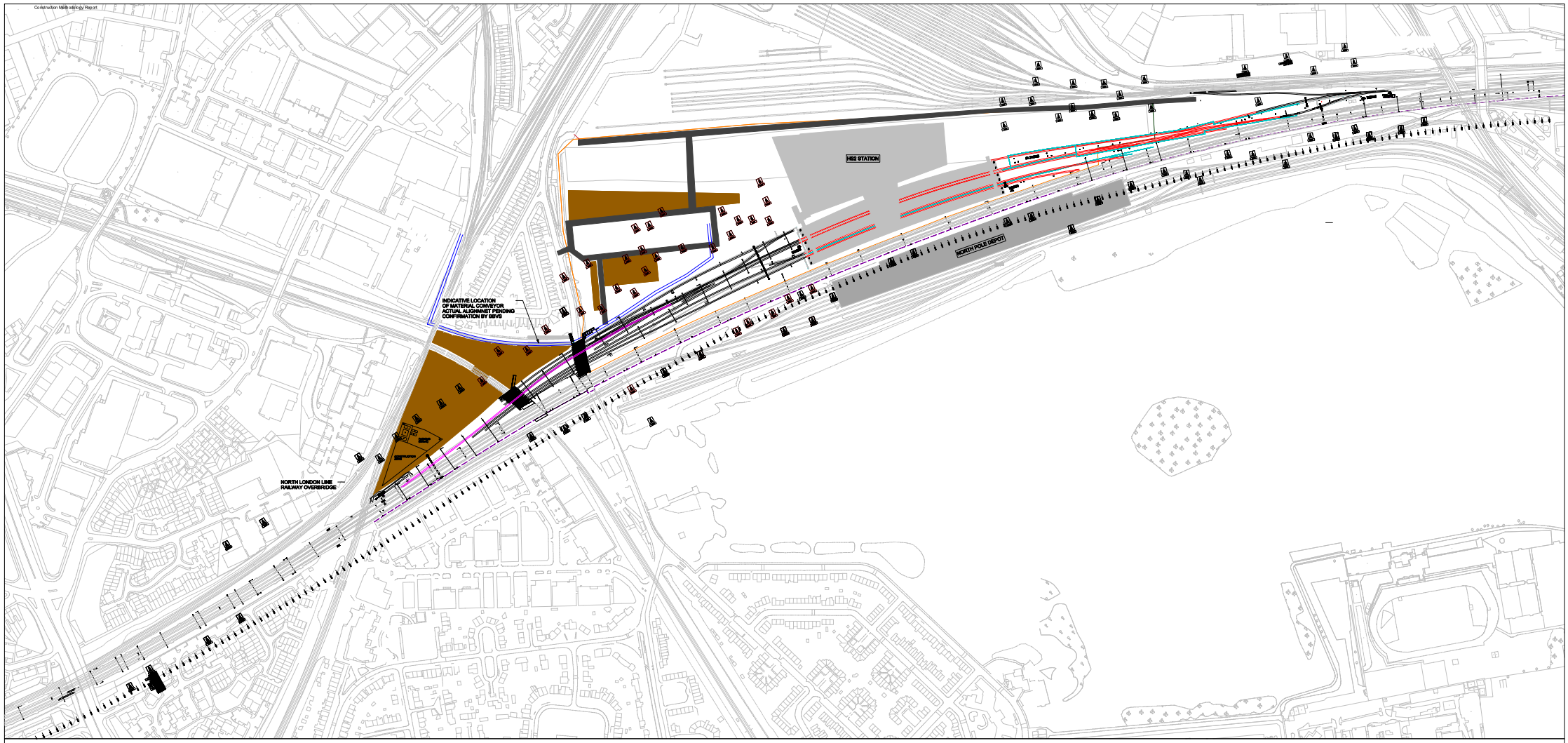
WSP TEMPORARY COMPOUND
CONSTRUCTION COMPLETED

WSP DEMOLITION AREA
WSP PROPOSED COMPOUNDS

WSP DEMOLISHED BUILDING
WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
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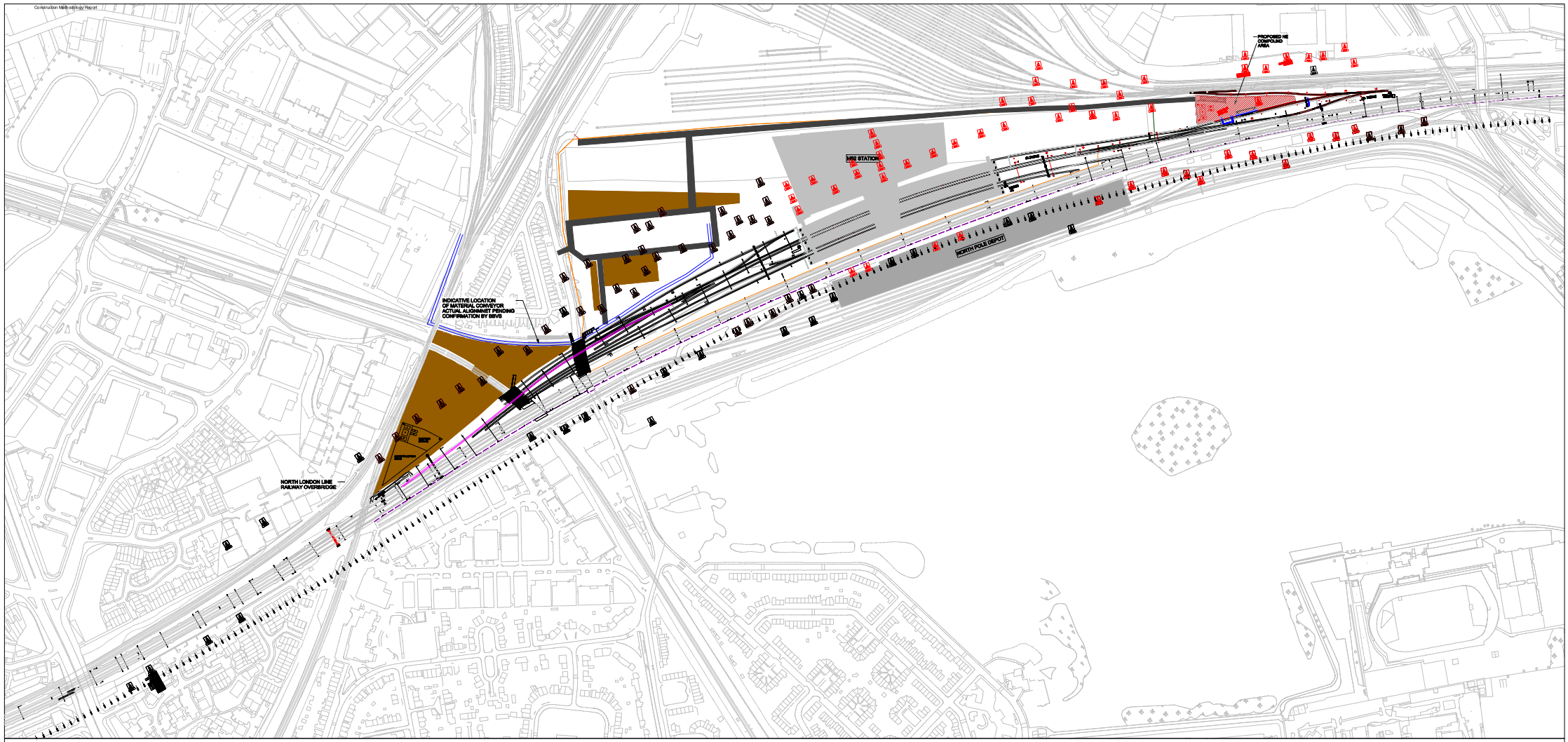
STAGE 7A
STATION BUILD NORTH
YEAR: JANUARY- FEBRUARY 2025



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
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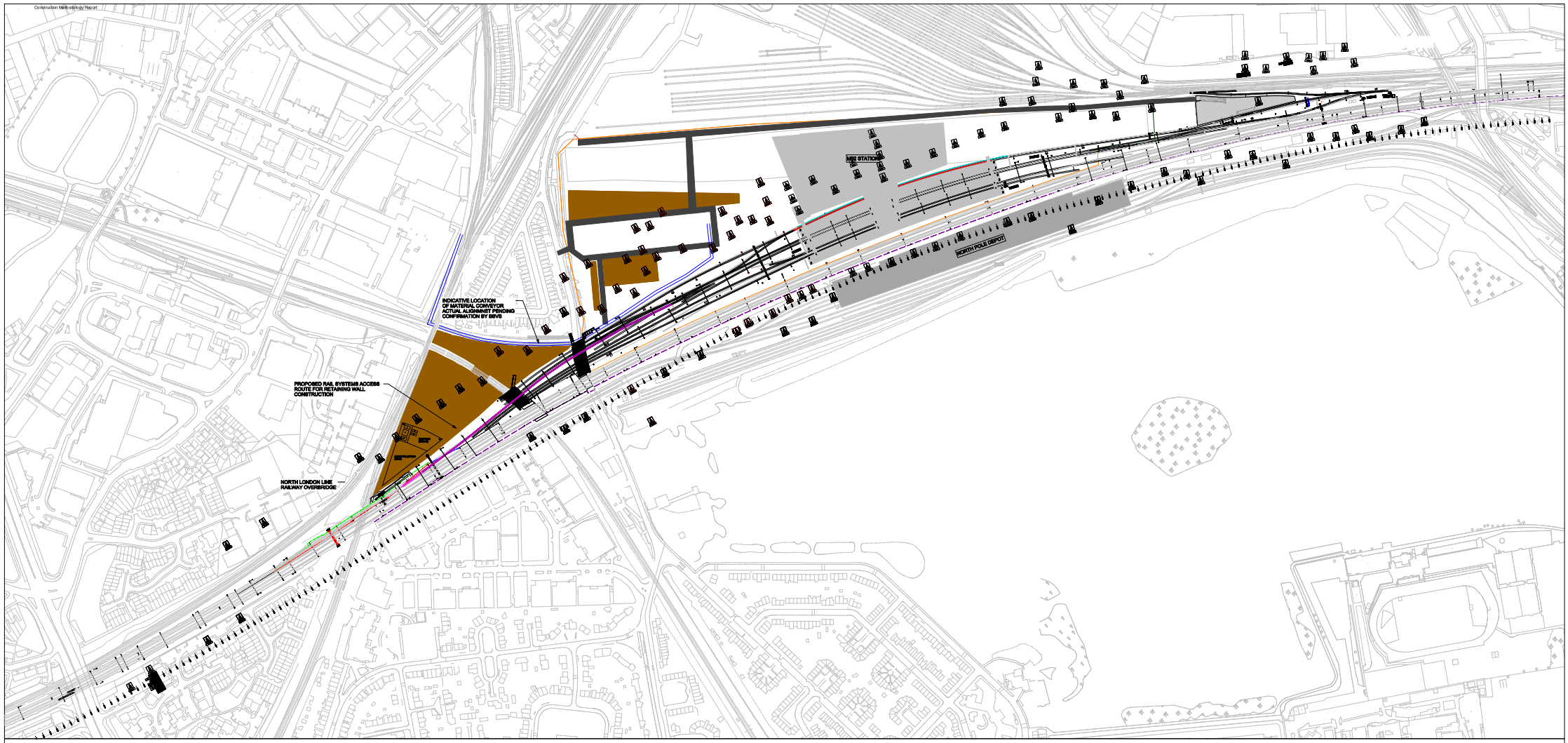
STAGE 7B
STATION BUILD NORTH
YEAR: FEBRUARY - APRIL 2025



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
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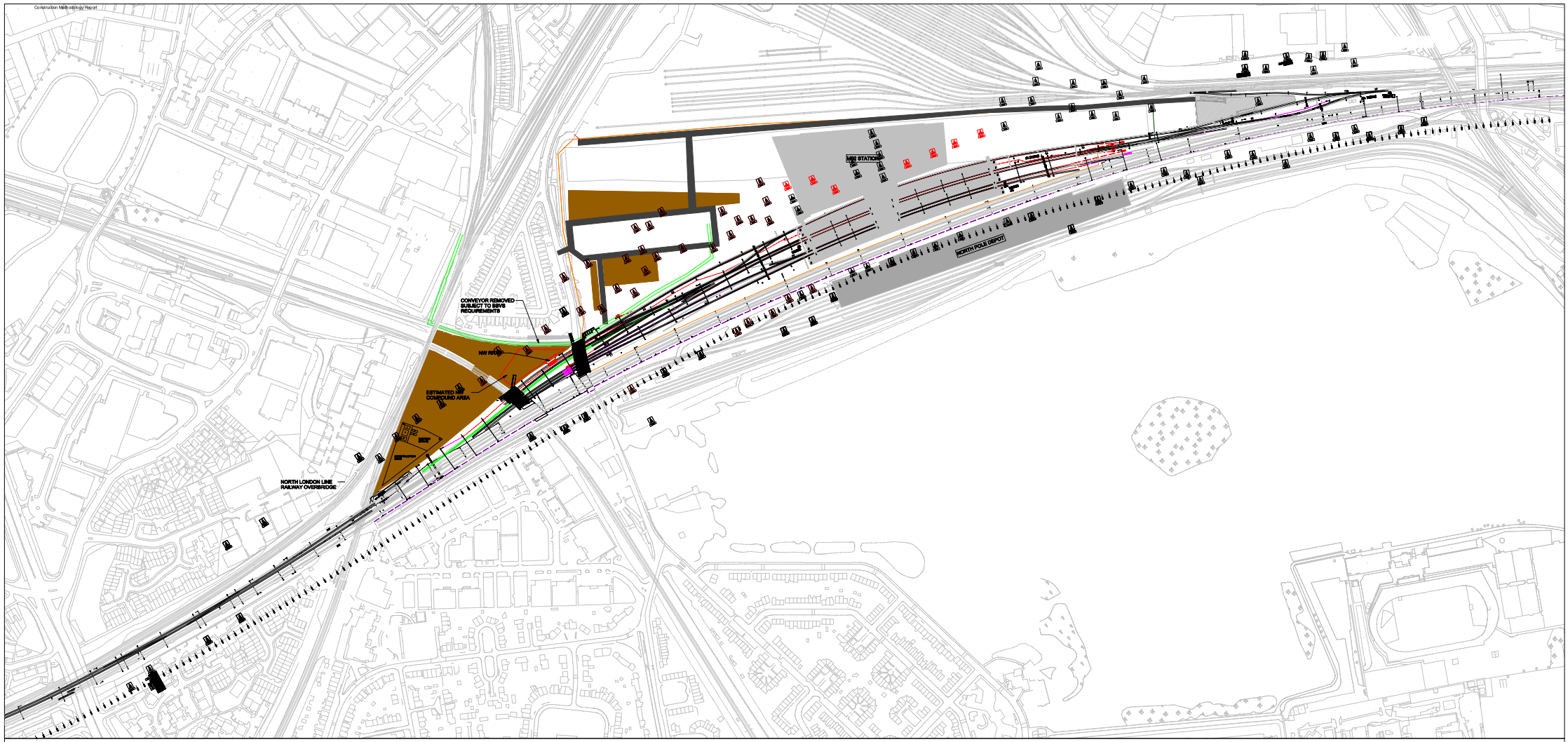
STAGE 7C
STATION BUILD NORTH
YEAR: APRIL - JULY 2025



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
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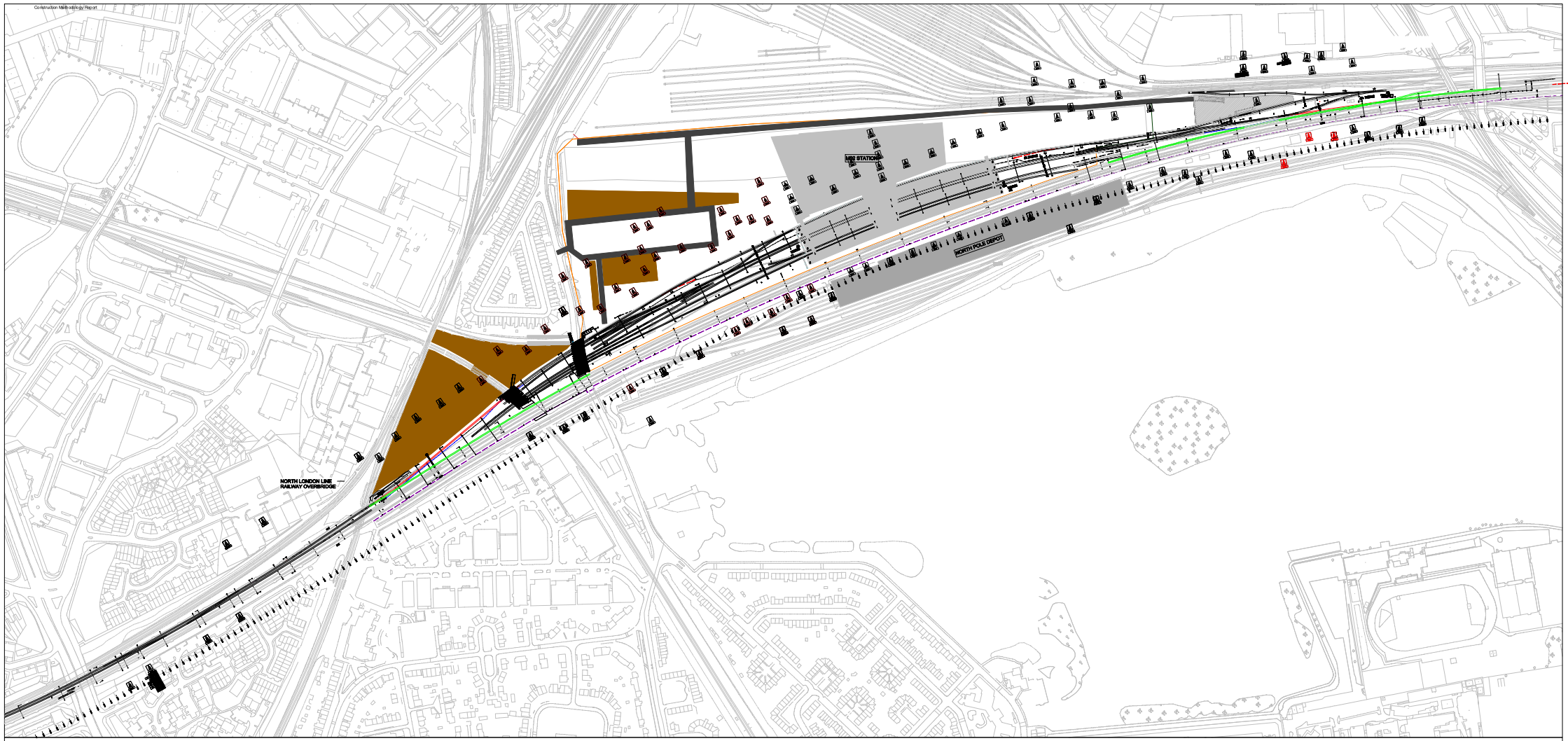
STAGE 7D
STATION BUILD NORTH
YEAR: JULY - SEPTEMBER 2025



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
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7 DRYING ROOM
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12 RRV (SRS PKR750
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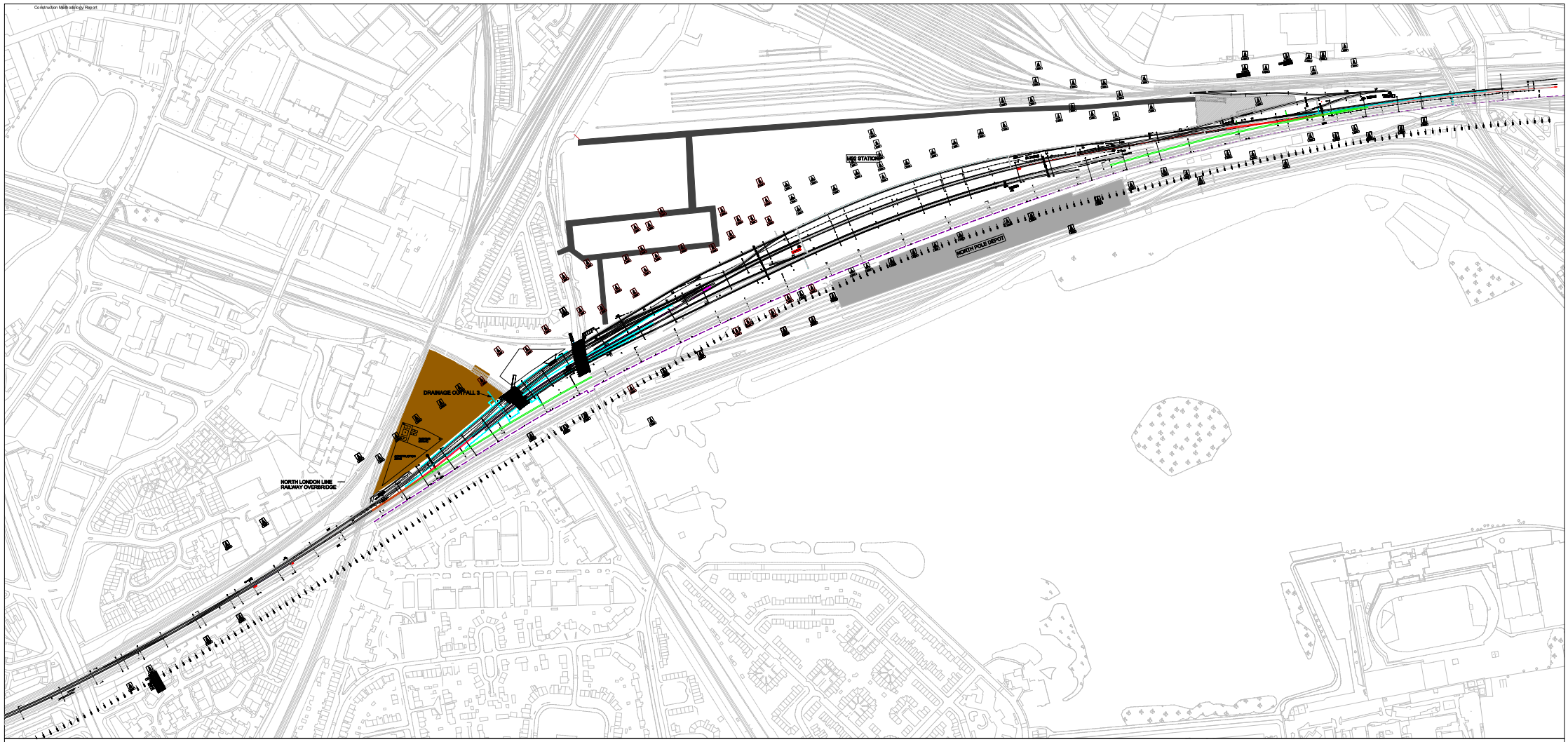
STAGE 8
STAGE 9 PREPARATION
YEAR: SEPTEMBER - DECEMBER 2026



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
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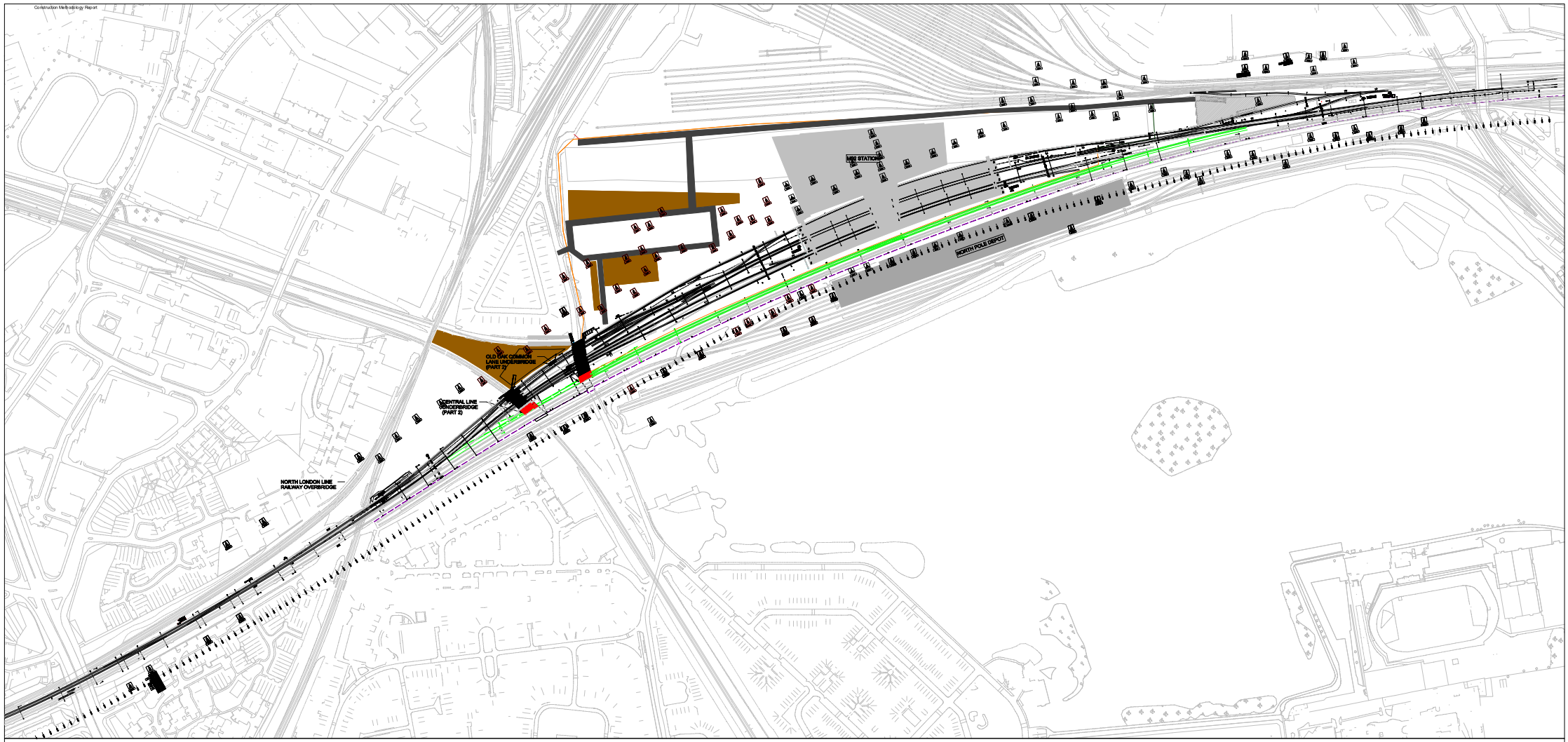
STAGE 9A
COMMISSION TEMPORARY ALIGNMENT
YEAR: XMAS 2026



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
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- WSP PROPOSED COMPOUNDS
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10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

STAGE 9B
COMMISSION TEMPORARY ALIGNMENT
YEAR: XMAS 2026

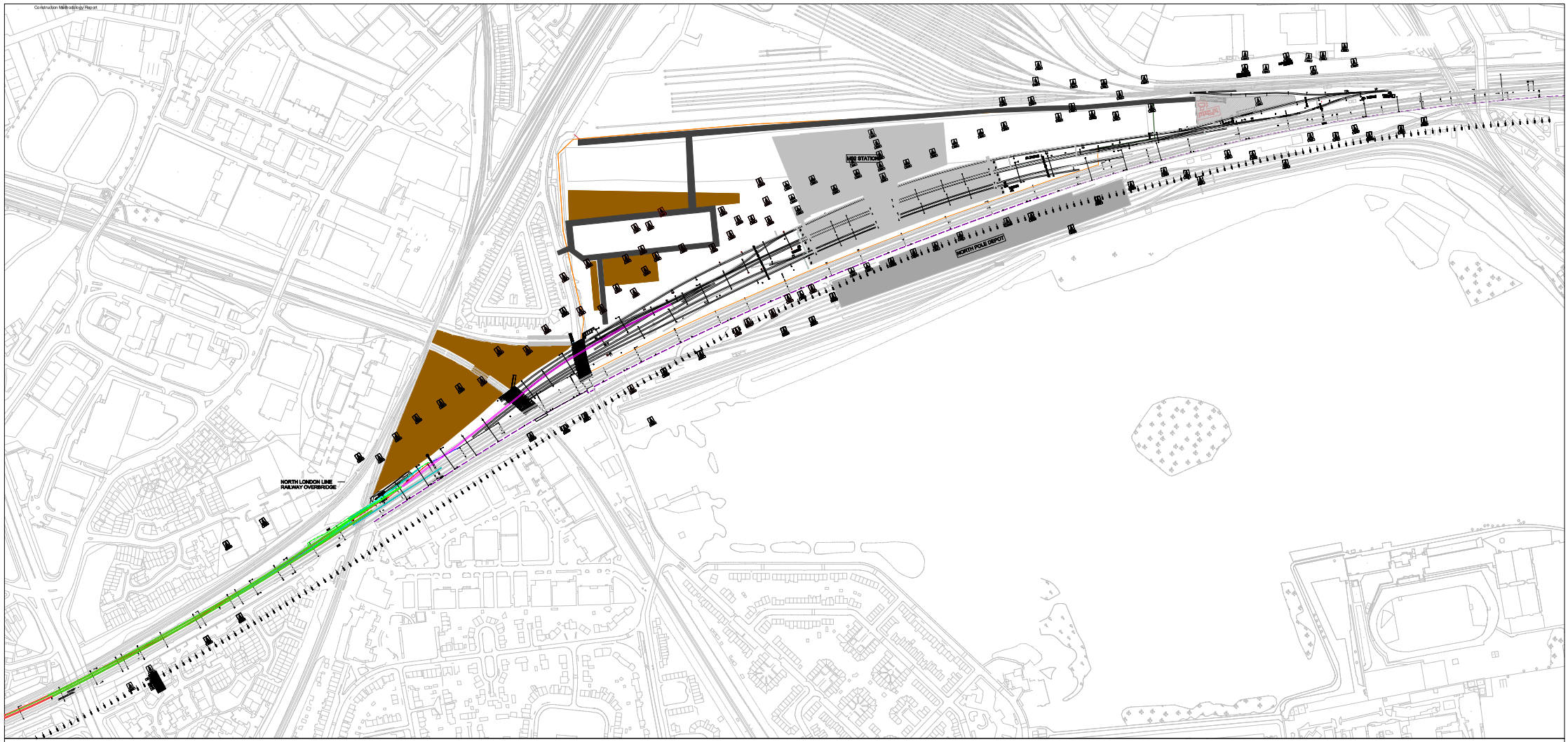


PROPOSED RAIL SYSTEMS
PROPOSED RAIL SYSTEMS DRAINAGE
COMPLETED RAIL SYSTEMS
RECOVERED RAIL SYSTEMS
MODIFIED RAIL SYSTEMS
NR BOUNDARY LINE

WSP PROPOSED CONSTRUCTION
CONSTRUCTION COMPLETED
WSP PROPOSED COMPOUNDS
WSP PROPOSED ROAD HAULAGE ROUTES

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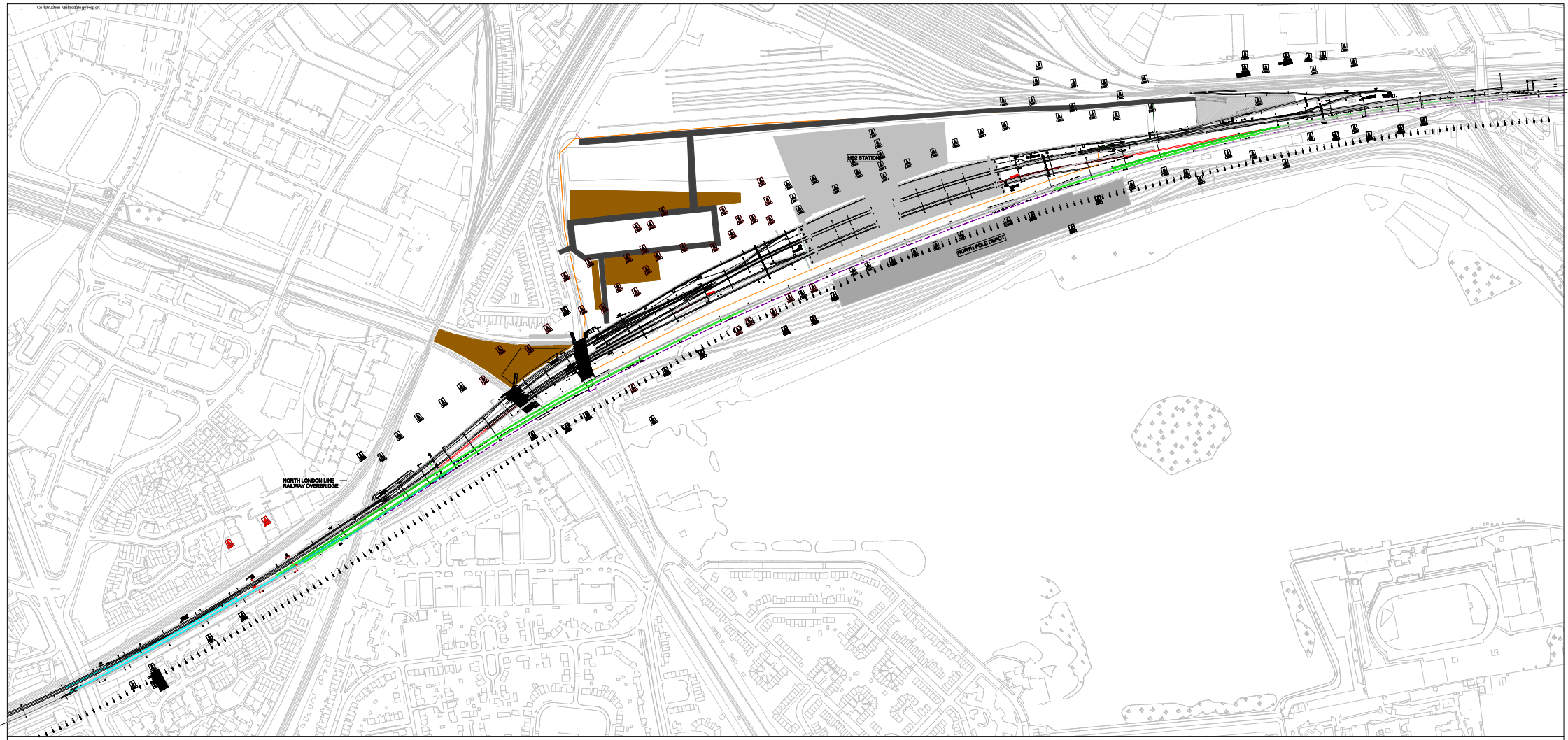
STAGE 10
RECOVERY STAGE
YEAR: JANUARY - APRIL 2027



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
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- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

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10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

STAGE 11
ACTON CUTTING INSTALL
YEAR: XMAS 2025

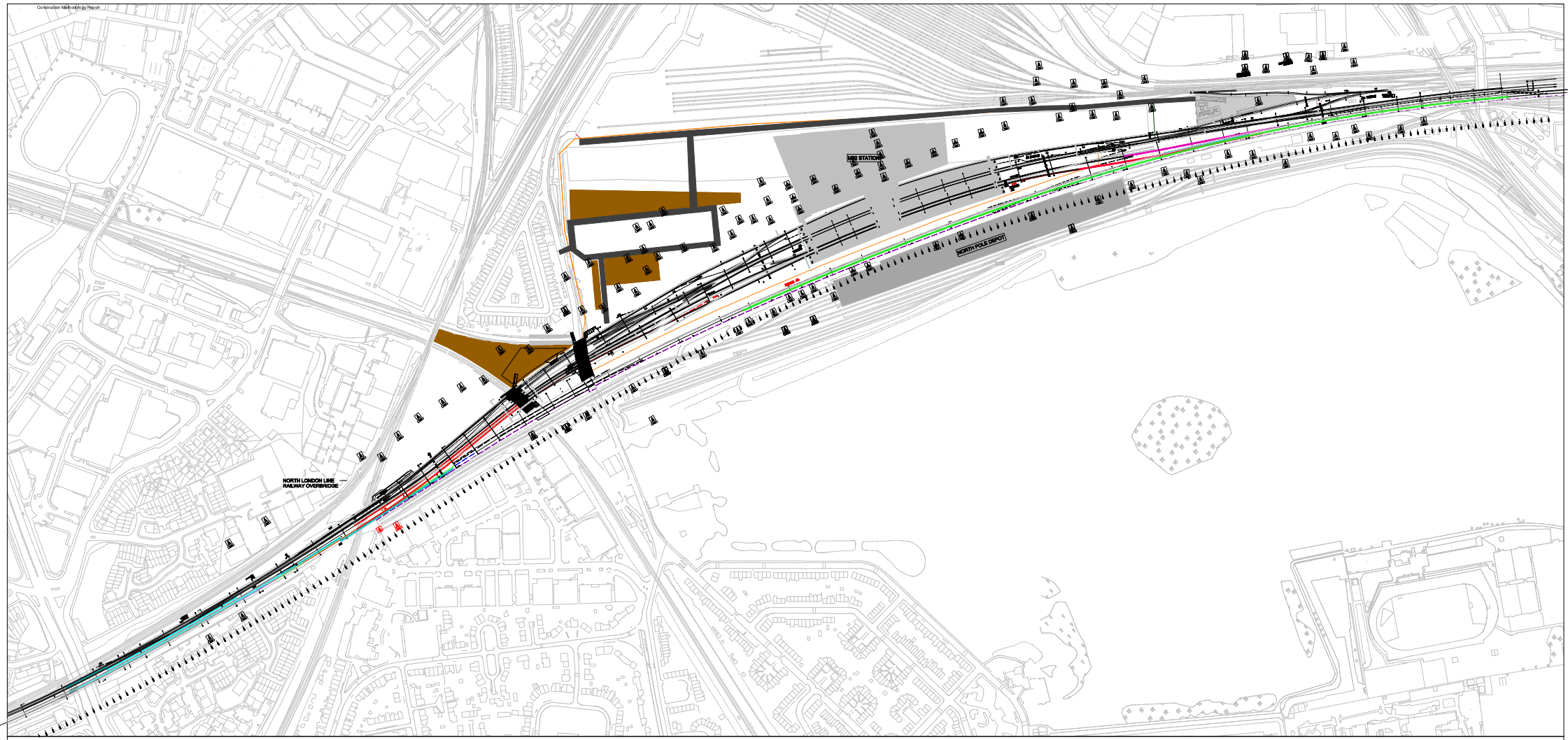


PROPOSED RAIL SYSTEMS
PROPOSED RAIL SYSTEMS DRAINAGE
COMPLETED RAIL SYSTEMS
RECOVERED RAIL SYSTEMS
MODIFIED RAIL SYSTEMS
NR BOUNDARY LINE

WSP PROPOSED CONSTRUCTION
CONSTRUCTION COMPLETED
WSP PROPOSED COMPOUNDS
WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
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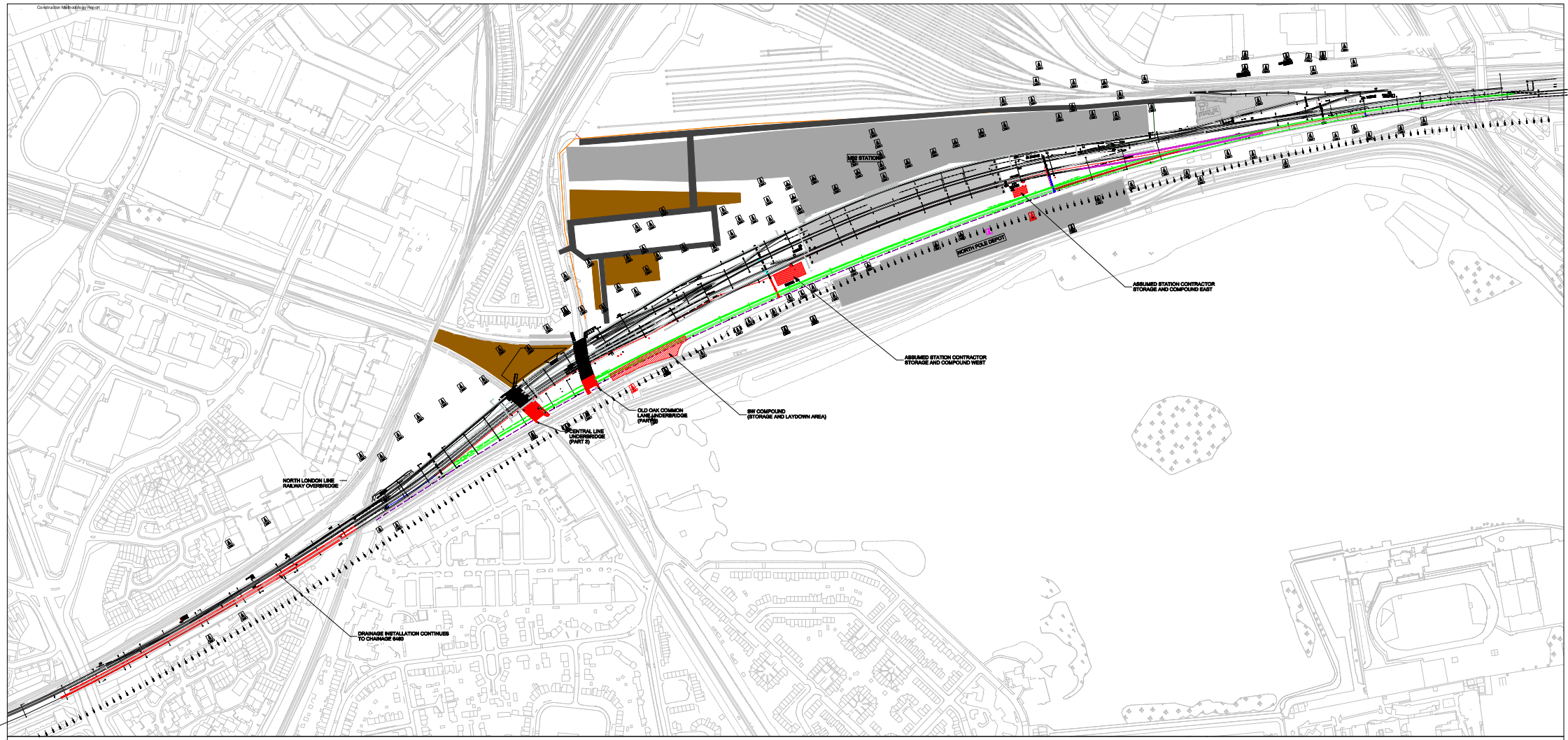
STAGE 12A
COMMISSION TEMPORARY ALIGNMENTS
YEAR: XMAS 2027



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
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12 RRV (SRS PKR750
13 LIGHTING

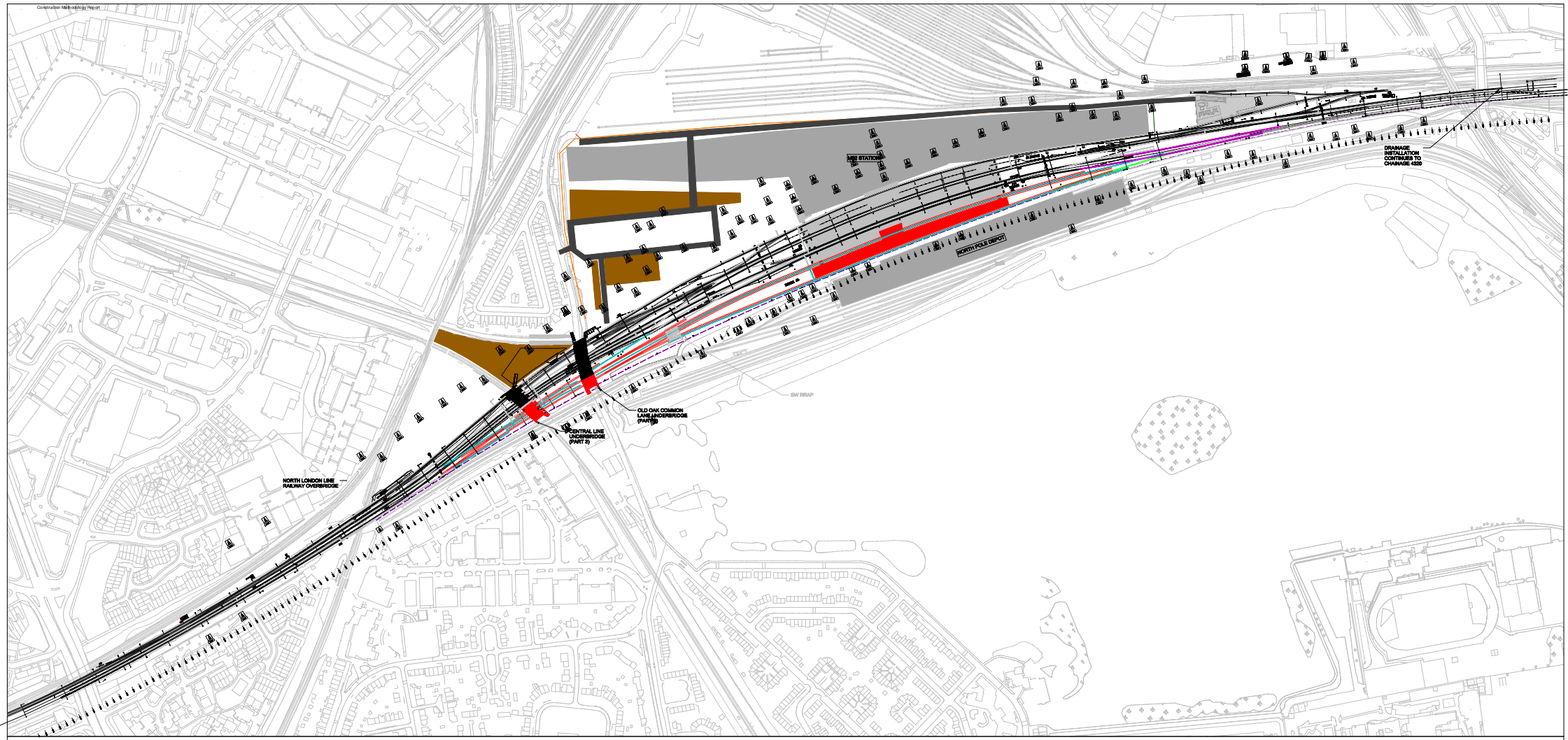
STAGE 12B
COMMISSION TEMPORARY ALIGNMENTS
XMAS 2027



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

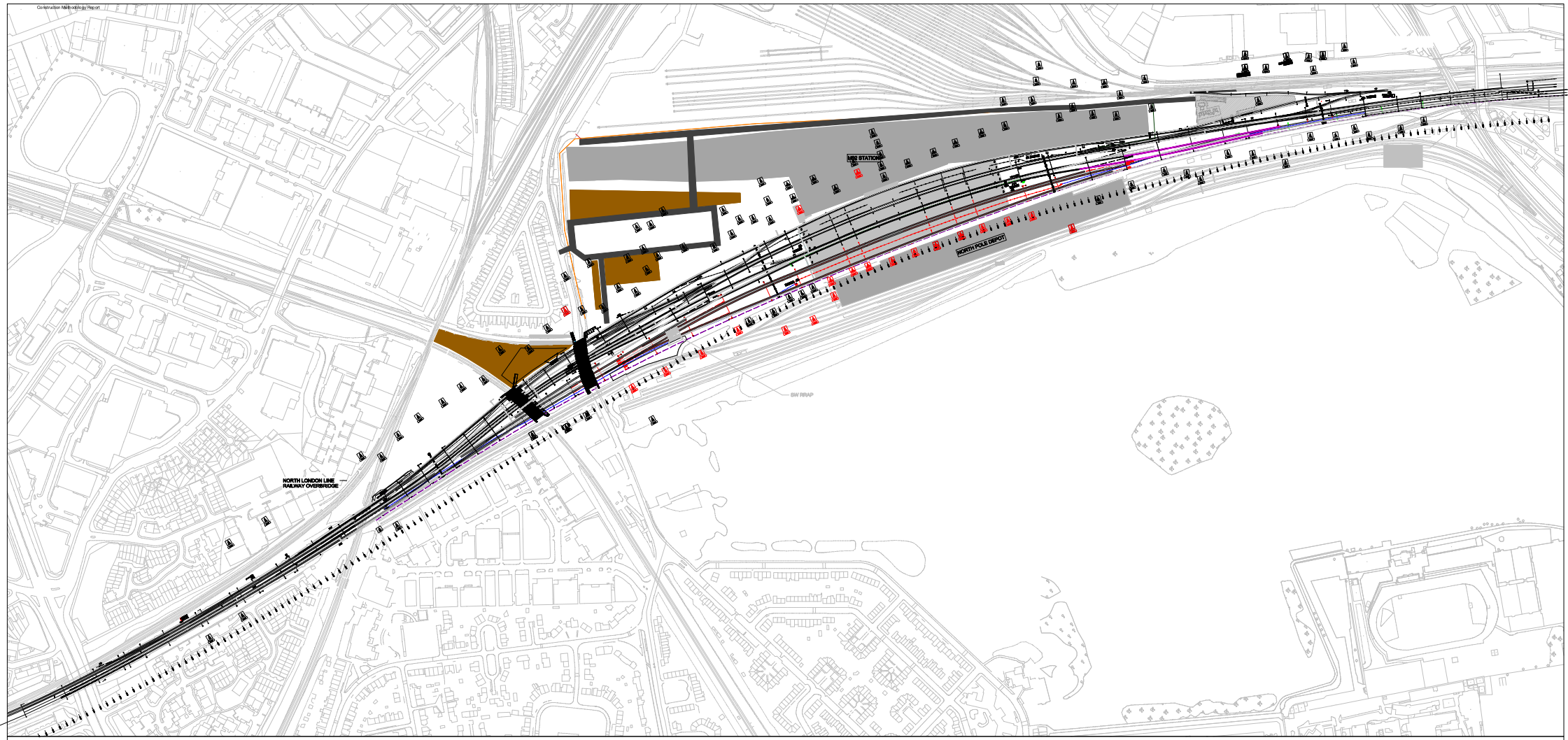
STAGE 13A
ACTON LOWERS AND SOUTH STATION
YEAR: JANUARY - MARCH 2029



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

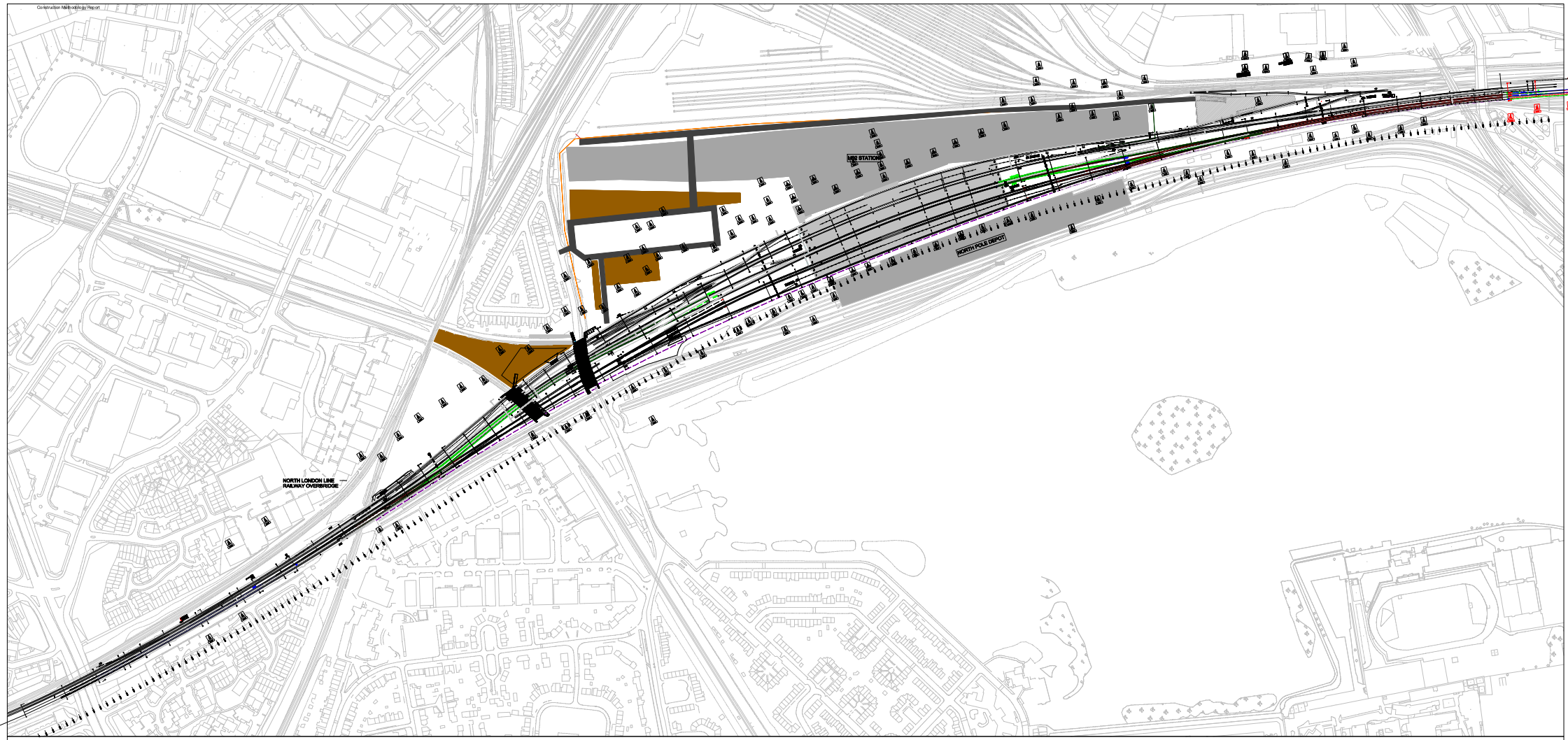
STAGE 13B
SOUTH RAIL SYSTEMS INSTALL
YEAR: MARCH - JUNE 2029



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

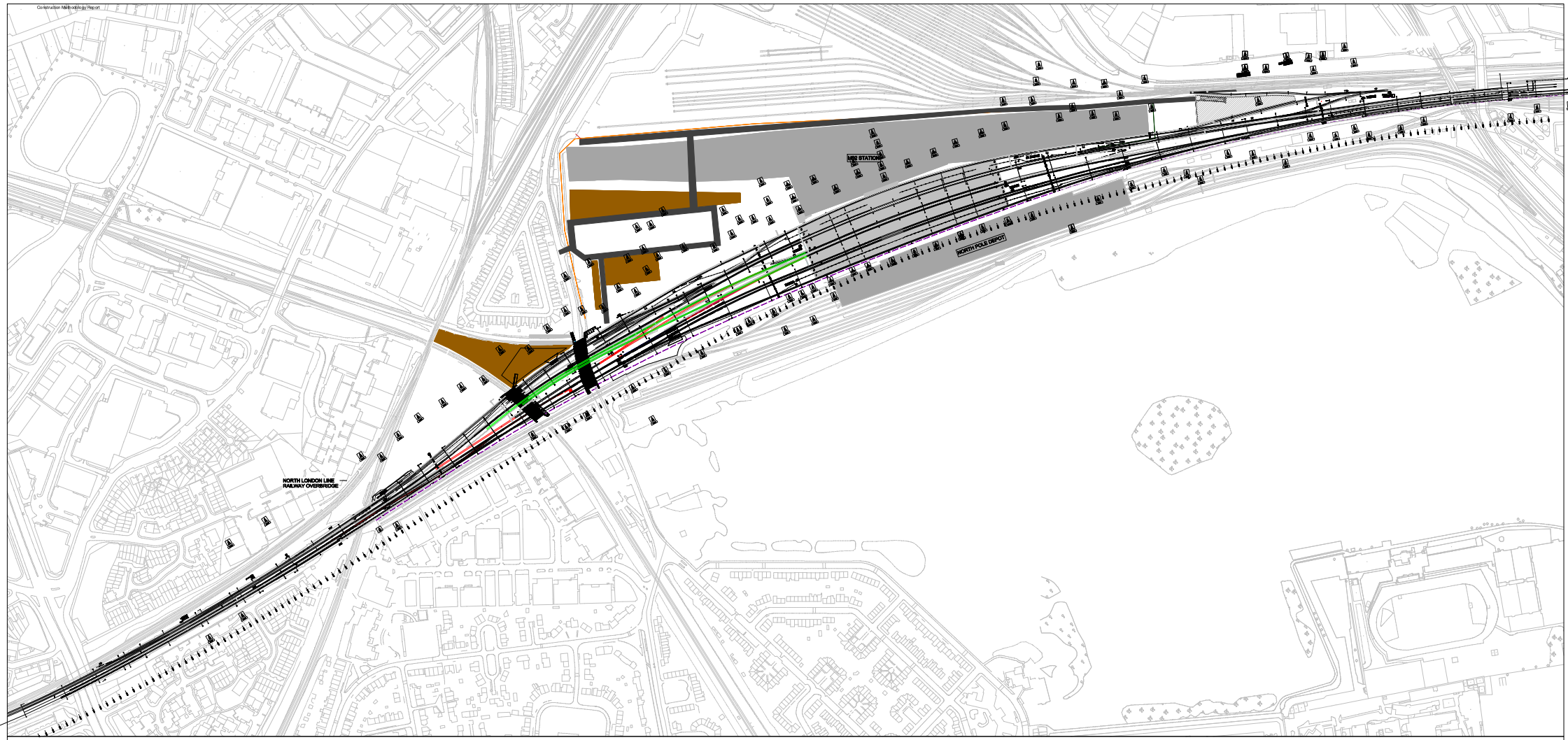
STAGE 14
SOUTH RAIL SYSTEMS INSTALL
YEAR: AUGUST - DECEMBER 2029



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

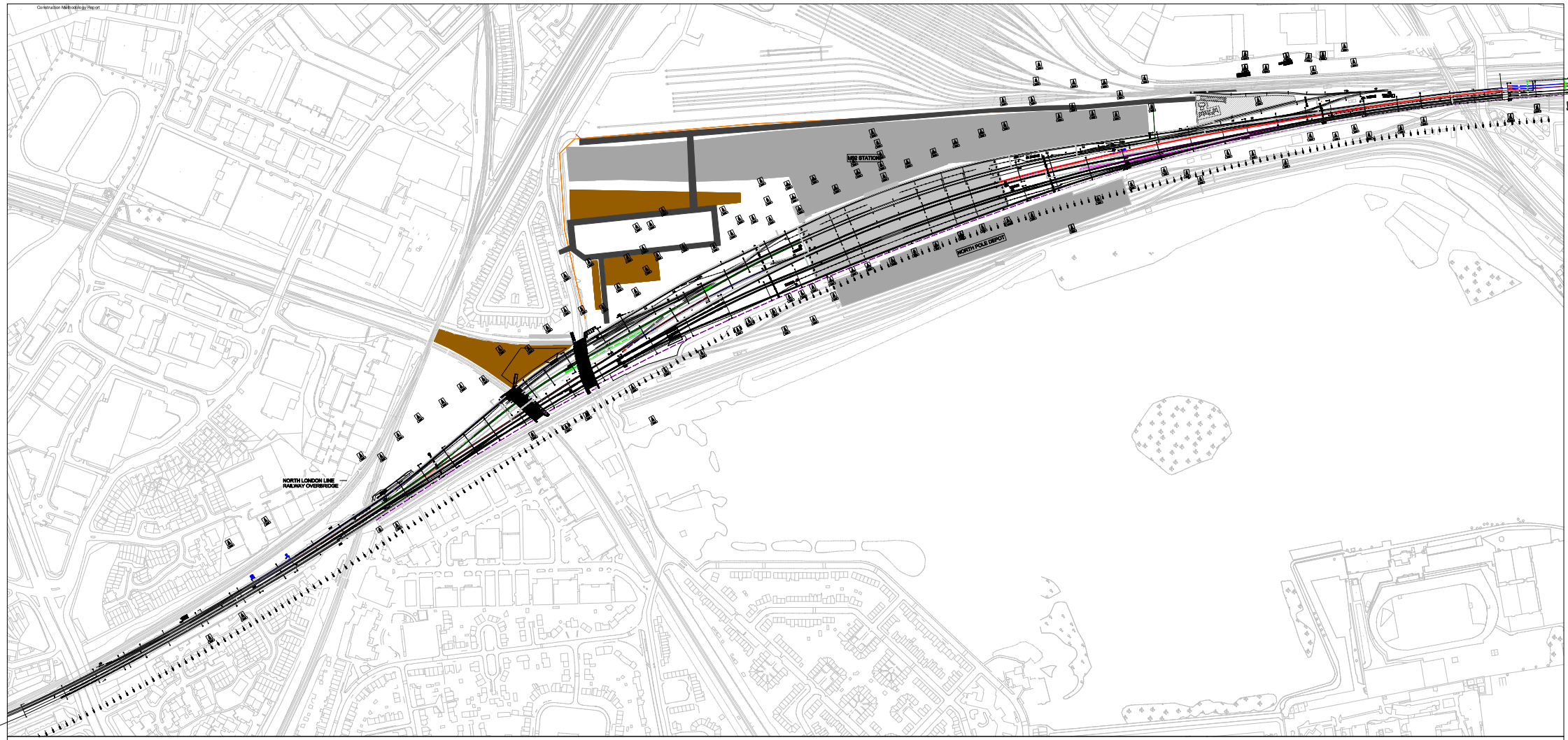
STAGE 15
MAINS ALIGNMENT TO FINAL
YEAR: XMAS 2029



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
2 MEETING ROOM
3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

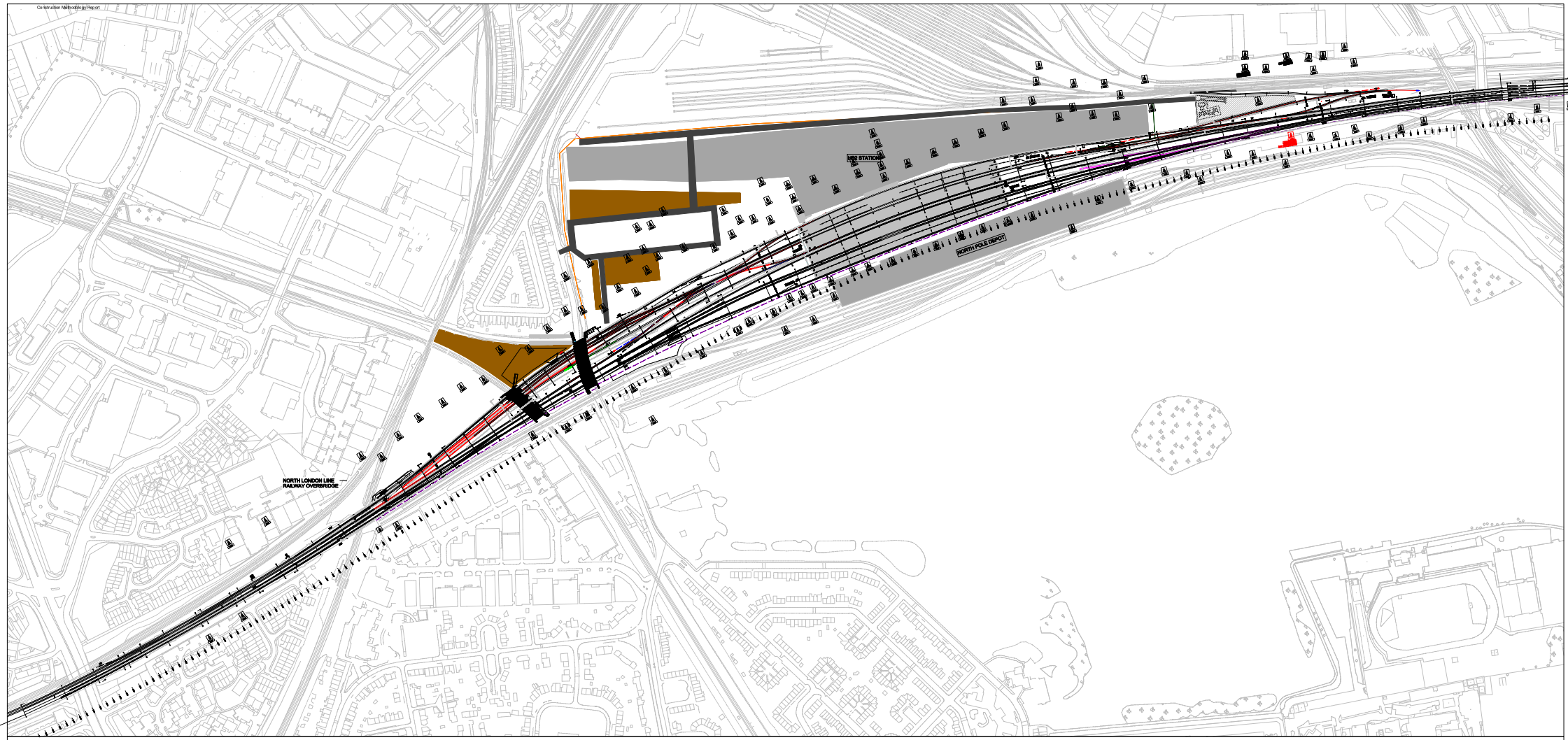
STAGE 16A
RECOVERY OF TEMPORARY MAINS
YEAR: JANUARY - MARCH 2031



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
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3 MESS
4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

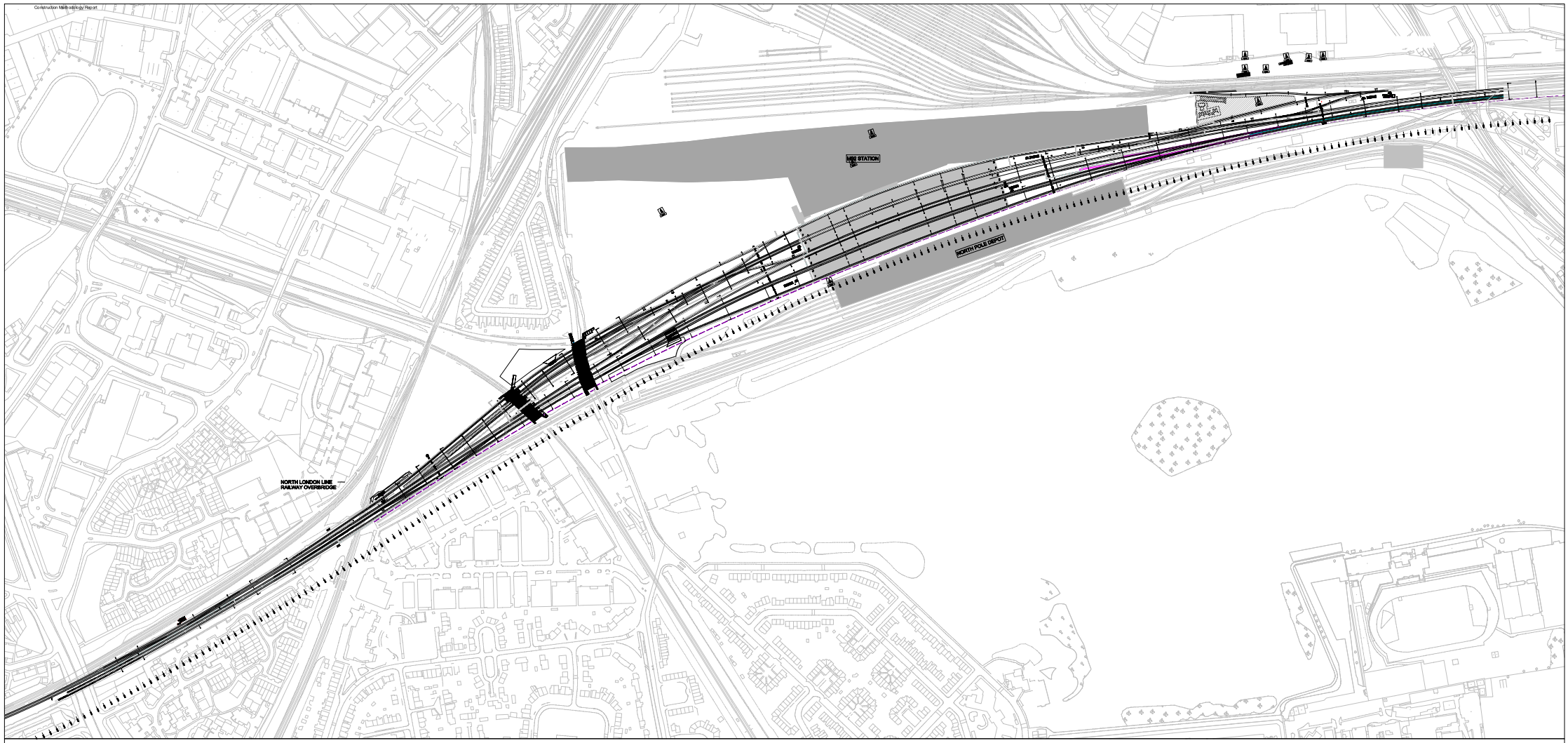
STAGE 16B
DOWN RELIEF TO FINAL ALIGNMENT
YEAR: EASTER 2031



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
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4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

STAGE 17
FINAL INSTALL FOR COMMISSIONING
YEAR: APRIL - DECEMBER 2031



- PROPOSED RAIL SYSTEMS
- PROPOSED RAIL SYSTEMS DRAINAGE
- COMPLETED RAIL SYSTEMS
- RECOVERED RAIL SYSTEMS
- MODIFIED RAIL SYSTEMS
- NR BOUNDARY LINE
- WSP PROPOSED CONSTRUCTION
- CONSTRUCTION COMPLETED
- WSP PROPOSED COMPOUNDS
- WSP PROPOSED ROAD HAULAGE ROUTES

1 SAMS OFFICE
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4 DRYING ROOM
5 MEETING ROOM
6 MESS
7 DRYING ROOM
8 BOWSER
9 FUEL STORE
10 SKIP
11 RRV (GIGARAILER)
12 RRV (SRS PKR750
13 LIGHTING

STAGE 18
FINAL COMMISSIONING
YEAR: XMAS 2031

APPENDIX C

Box Plan

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2021

Planning period	Period 1				Period 2				Period 3				Period 4				Period 5				Period 6				Period 7				Period 8				Period 9				Period 10				Period 11				Period 12				Period 13					
Planning week	WK40	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51	WK52	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	WK12	WK13	WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24	WK25	WK26	WK27	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37	WK38	WK39	WK40
Year	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021	2021				
Date (Sat WC)	02/01/2021	09/01/2021	16/01/2021	23/01/2021	30/01/2021	06/02/2021	13/02/2021	20/02/2021	27/02/2021	06/03/2021	13/03/2021	20/03/2021	27/03/2021	03/04/2021	10/04/2021	17/04/2021	24/04/2021	01/05/2021	08/05/2021	15/05/2021	22/05/2021	29/05/2021	05/06/2021	12/06/2021	19/06/2021	26/06/2021	03/07/2021	10/07/2021	17/07/2021	24/07/2021	31/07/2021	07/08/2021	14/08/2021	21/08/2021	28/08/2021	04/09/2021	11/09/2021	18/09/2021	25/09/2021	02/10/2021	09/10/2021	16/10/2021	23/10/2021	30/10/2021	06/11/2021	13/11/2021	20/11/2021	27/11/2021	04/12/2021	11/12/2021	18/12/2021	25/12/2021	01/01/2022
Possession	Ladbroke grove to Southall East	Royal Oak to Acton West	Ladbroke grove to Southall East	Ladbroke Grove to Dolphin	Ladbroke grove to Southall East	Royal Oak to Acton West	Ladbroke Grove to Dolphin	Ladbroke grove to Southall East	Royal Oak to Acton West	Friars Jn to Heathrow Airport Jn	Paddington to Ladbroke Grove	Ladbroke grove to Southall West	Ladbroke grove to Friars Jn	Ladbroke Grove to Dolphin	Royal Oak to Acton West	Ladbroke grove to Southall West	Ladbroke Grove to Dolphin	Royal Oak to Acton West	Ladbroke grove to Southall West	Ladbroke Grove to Dolphin	Ladbroke Grove to Heathrow Airport Jn	Royal Oak to Acton West	Ladbroke grove to Southall West	Ladbroke Grove to Dolphin	Ladbroke grove to Heathrow Airport Jn	Ladbroke Grove to Dolphin	Royal Oak to Acton West	Ladbroke grove to Southall West	Ladbroke grove to Heathrow Airport Jn	Ladbroke Grove to Dolphin	Royal Oak to Acton West	Ladbroke grove to Southall West	Ladbroke grove to Heathrow Airport Jn	Royal Oak to Acton West	Friars Jn to Heathrow Airport Jn	Paddington to Ladbroke Grove	Ladbroke Grove to Dolphin	Royal Oak to Acton West	Friars Jn to Heathrow Airport Jn	Paddington to Ladbroke Grove	Ladbroke Grove to Dolphin	Ladbroke grove to Heathrow Airport Jn	Royal Oak to Acton West	Ladbroke grove to Southall West	Ladbroke grove to Heathrow Airport Jn	Friars Jn to Heathrow Airp on	ladbroke grove to Friars	Royal Oak to Acton West	Ladbroke grove to Heathrow Airport Jn	Friars Jn to Heathrow Airp on					
Duration	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 16	Sat/Sun 13hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat Sun 8hr	Sat Sun 7hr	Sat/Sun 20hr	Sat/Sun 16hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 16hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 16hr	Sat/Sun 8hr	Sat/Sun 8	Sat/Sun 8hr	Sat/Sun 11hr	Sat/Sun 8hr	Sat/Sun 8	Sat/Sun 8hr	Sat/Sun 11hr	Sat/Sun 8hr	Sat/Sun 11	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 11hr	Sat/Sun 11	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 11	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 8hr	Sat/Sun 7hr					
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Mains	Relief	Mains	Relief	Relief	Relief	Relief	Mains	Mains	Relief	Mains	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Mains	Relief	Relief	Mains	Mains	Relief	Relief	Mains	Relief	Mains	Mains	Relief	Relief	Mains	Mains	Relief	Mains	Mains	Relief	Mains	Mains	Relief	Relief	Relief				
Deliveries		Includes Noth Pole AHB	Ladbroke Grove to Acton East available 0800 1300		Ladbroke Grove to Acton East available 0800 1300	Ladbroke Grove to Acton East available 0800 1300	Include: North pole AHB	Ladbroke Grove to Acton East available 0800 1300	Ladbroke Grove to Acton East available 0800 1300	limited access acton cutting only	No Opportunity	Works for RL Decorre	Dep ot dcorn RL1 recovery, limited access: no acton cutting								11 hours ladbroke grove - Friars				11 hours ladbroke grove - Friars																										Acton OO C split and 3.5 hrs mains				Acton OO C split and 3.5 hrs mains				
Possession		Royal Oak to Acton West	Acton Wells jn to Acton West	Ladbroke Grove to Dolphin	Acton Wells jn to Acton West	Royal Oak to Southall West		Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West		Acton Wells jn to Acton West	Paddington to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Ladbroke Grove to Dolphin	Royal Oak to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Ladbroke Grove to Dolphin	Royal Oak to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West		Acton Wells jn to Acton West	Friars Jn to Heathrow Airport junction	Royal Oak to Acton West	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Friars Jn to Heathrow Airport junction				
Duration		Sun/Mon 5hr	Sat/Sun 8hr	Sat/Sun 3.5	Sat/Sun 8hr	Sun/Mon 5hr		Sat/Sun 8hr	Sat/Sun 3.0hr	Sat/Sun 10hr		Sat/Sun 8hr	Sun/Mon 4	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 8hr	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 8hr	Sat/Sun 3.0hr	Sat/Sun 11hr	Sat/Sun 3.0hr	Sat/Sun 8hr	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 11hr	Sat/Sun 10r	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 10r	Sat/Sun 10r	Sat/Sun 3.0hr	Sat/Sun 8r	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 10r	Sat/Sun 8r	Sat/Sun 3.0hr	Sat/Sun 8r	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 8r	Sat/Sun 3.0hr	Sat/Sun 3.0hr	Sat/Sun 8r				
Lines		Mains	Populars	3.5	Reliefs	Populars		Populars	Populars	Populars		8hr Populars	4 Relefs	3.0hr Populars	3.0hr Relefs	3.0hr Populars	3.0hr Populars	3.0hr Relefs	3.0hr Populars	3.0hr Populars	8hr Populars	3.0hr Relefs	3.0hr Populars	3.0hr Populars	8hr Populars	3.0hr Populars	3.0hr Relefs	3.0hr Populars	10r Populars	3.0hr Populars	3.0hr Relefs	8r Populars	3.0hr Populars	3.0hr Relefs	10r Populars	8r Populars	3.0hr Populars	3.0hr Relefs	10r Populars	8r Populars	3.0hr Populars	3.0hr Relefs	8r Populars	3.0hr Populars	8hr Relefs	3.0hr Relefs	8r Populars	8r Populars				
Deliveries		Includes Noth Pole AHB																																											Acton OOC split and 3.5 hrs mains				Acton OOC split and 3.5 hrs mains				
Possession		Royal Oak to Acton West	Ladbroke grove to Acton West	Acton Wells jn to Acton West	Ladbroke grove to Acton West		Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Friars Junct	Ladbroke grove to Acton West	Paddington to Acton West	Paddington to Friars Jn	Ladbroke Grove to Dolphin	Royal Oak to Southall West	Ladbroke grove to Southall West	Ladbroke Grove to Dolphin	Royal Oak to Southall West	Ladbroke grove to Southall West	Ladbroke Grove to Dolphin	Paddington to Acton West	Royal Oak to Southall West	Ladbroke grove to Southall West	Ladbroke Grove to Dolphin	Paddington to Acton West	Ladbroke Grove to Dolphin	Royal Oak to Southall West	Ladbroke grove to Southall West	Paddington to Acton West	Ladbroke Grove to Dolphin	Royal Oak to Southall West	Friars Jn to Heathrow Airport JN	Ladbroke grove to Acton West	Ladbroke Grove to Dolphin	Ladbroke Grove to Dolphin	Royal Oak to Southall West	Ladbroke Grove to Southall West	Paddington to Acton West	Ladbroke Grove to Southall West	Ladbroke Grove to Dolphin	Royal Oak to Southall West	Friars Jn to Heathrow Airport JN	Ladbroke grove to Acton West	Ladbroke Grove to Dolphin	Acton Wells jn to Acton West	Royal Oak to Southall West	Ladbroke grove to Southall West	Ladbroke grove to Southall West	Acton Wells jn to Acton West				
Duration		Sat/Sun 4.5hr	Sun/Mon 8hr	Sat/Sun 3.5	Sun/Mon 8hr		Sun/Mon 8hr	Sat/Sun 3.0hr		Sun/Mon 27hr	Sun/Mon 8hr	Sun/Mon 4.5hr	Sat Sun 2hr	Sat/Sun 3.5hr	Sun/Mon 8hr	Sun/Mon 8hr	Sat/Sun 3.0hr	Sun/Mon 8hr	Sat/Sun 3.0hr	Sat/Sun 3.5hr	Sun/Mon 8hr	Sat/Sun 4	Sat/Sun 3.5hr	Sat/Sun 8hr	Sun/Mon 8hr	Sat/Sun 4	Sat/Sun 3.5hr	Sat/Sun 8hr	Sun/Mon 8hr	Sat/Sun 4	Sun/Mon 8hr	Sat/Sun 3.5hr	Sun/Mon 8hr	Sun/Mon 8hr	Sat/Sun 4	Sun/Mon 8hr	Sat/Sun 3.5hr	Sat/Sun 3.5hr	Sun/Mon 8hr	Sat/Sun 3.5hr	Sun/Mon 8hr	Sat/Sun 3.5hr	Sat/Sun 8hr	Sun/Mon 8hr	Sat/Sun 3.5hr	Sun/Mon 8hr	Sat/Sun 3.5hr	Sat/Sun 8hr				
Lines		Relief	Relefs	Populars	Relefs		Relefs	Mains		Relief	Relefs	4 Relefs	Main Deput dcorn RL1 recovery, limited access: no acton cutting	Relefs	Mains	Includes Noth Pole AHB	Relefs	Mains	Relefs	Mains	4 Relefs	Mains	Relefs	Mains	4 Relefs	Mains	Relefs	Mains	4 Relefs	Mains	Relefs	Mains	4 Relefs	Mains	Relefs	Mains	4 Relefs	Mains	Relefs	Mains	4 Relefs	Mains	Relefs	Mains	Relefs	Mains	Relefs	Mains	Relefs	Mains				
Deliveries		Excludes Popular								limited access: no acton cutting	No populars	No populars																															No populars											
Possession			Ladbroke grove to Southall West		Ladbroke grove to Southall West		Ladbroke grove to Acton West			Friars Jn to Heathrow Airport JN	Paddington to Ladbroke Grove	Ladbroke grove to Southall West				Ladbroke grove to Southall West			Ladbroke grove to Southall West		Paddington to Heathrow Airport JN		Paddington to Acton West					Ladbroke grove to Southall West			Paddington to Acton West					Ladbroke grove to Southall East		Paddington to Heathrow Airport JN	Ladbroke grove to Southall West			Paddington to Acton West					Paddington to Heathrow Airport JN		Ladbroke Grove to Heathrow Airport JN	Paddington to Acton West	Paddington to Acton West				
Duration			Sat/Sun 3.5hr		Sat/Sun 3.5hr		Tue/Wed 8hr			Sat/Sun 3.0hr	Sat Sun 3.5hr	Sat/Sun 3.5hr				Sat/Sun 3.5hr			Sun/Mon 8hr		Sat Sun 3.0hr		Sun/Mon 8hr					Sat Sun 3.5hr			Sun/Mon 4hr					Sun/Mon 7hr		Sat Sun 4hr	Sat/Sun 3.5hr			Sun/Mon 8hr					Sun/Mon 8hr		Sun/Mon 8hr	Sun/Mon 8hr	Sun/Mon 8hr				
Lines			Mains		Mains		Mains			Mains	Main No Opportunity	Mains				Mains			Relefs		Main NO action Cutting		Relefs					Main NO action Cutting			Main NO action Cutting					Relief		Mains	Mains			Relefs					Relefs		Relefs	Relefs	Relefs				
Deliveries																																																					
Discipline																																																					
Access Point																																																					
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duration																																																					
Lines																																																					
Resources																																																					
Description																																																					
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Lines																																																					
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Access Point																																																					
Possession																																																					
duration																																																					
Lines																																																					
Resources																																																					
Description																																																					

2022

Planning period	Period 1				Period 2				Period 3				Period 4
Planning week	WK40	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51	WK52
Year	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022
Stage													
Date (Sat WC)	01/01/2022	08/01/2022	15/01/2022	22/01/2022	29/01/2022	05/02/2022	12/02/2022	19/02/2022	26/02/2022	05/03/2022	12/03/2022	19/03/2022	26/03/2022
Possession	Ladbroke grove to Southall West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	16hr	16hr	8hr	16hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Relief	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains
			Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Acton Wells jn to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West
	Sat/Sun	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	8hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr
Lines	Populars	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains
			Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Ladbroke grove to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West
	Sun/Mon	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	6hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr
Lines	Reliefs	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief
			Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular
Possession	Ladbroke grove to Southall West	Ladbroke grove to Southall West		Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West	
	Sat/Sun	Sat/Sun		Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun	
Duration	3.5hr	3.5hr		3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr	
Lines	Mains	Mains		Mains		Mains	Mains	Mains		Mains	Mains	Mains	
Discipline			OHLE (prep)	OHLE (prep)	OHLE (prep)	OHLE (prep)	OHLE (prep)		OHLE (prep)		OHLE (prep)		OHLE (prep)
Aaccess Point			Jewson	Acton Yard	Jewson	Acton Yard	Jewson		Jewson		Jewson		Jewson
Possession			Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS		Weekend NBS		Weekend NBS		Weekend NBS
duration			8hr	8hr	8hr	8hr	8hr		8hr		8hr		8hr
Lines			Mains	Relief	Mains	Relief	Mains		Mains		Mains		Mains
Resources			2 x teams, 2 x RRV	2 x teams, 2 x RRV	2 x teams, 2 x RRV	2 x teams, 2 x RRV	2 x teams, 2 x RRV		2 x teams, 2 x RRV		2 x teams, 2 x RRV		2 x teams, 2 x RRV
Description			**Stage 3 Trial Holes.** Down Main, Acton cutting. Team 1: SN: J-06-05B and J-06-06C; 6hrs. Team 2: SN: J-06-03A and J-06-04A; 6hrs.	**Stage 3 Trial Holes**, Up Relief, acton cutting. Team 1: SN: J-06-05B and J-06-06C; 6hrs. Team 2: SN: J-06-03A and J-06-04A; 6hrs.	**Stage 3 Trial Holes**, Down Main, acton cutting. Team 1: SN: J-06-02A Tie/Strut and J-06-02A, 6hrs. Team 2: SN: J-06-01A and J-06-01A Tie/Strut; 6hrs.	**Stage 3 Trial Holes**, Up Relief, acton cutting. Team 1: SN: J-06-02A Tie/Strut and J-06-02A; 6hrs. Team 2: SN J-06-01A and J-06-01A Tie/Strut; 6hrs.	**Stage 3 Trial Holes**, Down Main, West of Station. Team 1: SN: J-05-36B and J-05-34A Tie/Strut; 6hrs. Team 2: SN: J-05-34A Tie/Strut and J-05-33A; 6hrs.		**Stage 3 Trial Holes**, Down Main, West of Station. Team 1: SN: J-05-33A Tie/Strut and J-05-32A; 6hrs. Team 2: SN: J-05-32A Tie/Strut and J-05-31B; 6hrs.		**Stage 3 Trial Holes**, Down Main, West of Station. Team 1: SN: J-05-31A; 3hrs. Team 2: SN: J-05-29B; 3hrs.		**Stage 3 Trial Holes**, Down Main, West of Station. Team 1: SN: J-05-31A and J-05-29B; 6hrs. Team 2: SN: J-05-27B and J-05-25C; 6hrs.
Discipline			OHLE (prep)		OHLE (prep)		OHLE (prep)		OHLE (prep)		OHLE (prep)		OHLE (prep)
Aaccess Point			North Pole		North Pole		North Pole		North Pole		Hitachi		Hitachi
Possession			Weekend NBS		Weekend NBS		Weekend NBS		Weekend NBS		Weekend NBS		Weekend NBS
duration			8hr		8hr		8hr		8hr		8hr		8hr
Lines			Mains		Mains		Mains		Mains		Mains		Mains
Resources			2 x teams, 2 x RRV		2 x teams, 2 x RRV		2 x teams, 2 x RRV		2 x teams, 2 x RRV		2 x teams, 2 x RRV		2 x teams, 2 x RRV
Description			**Stage 3 Trial Holes,** Down Main, Eat of Station. Team 1: SN: J-04-29A and J-04-32C; 6hrs. Team 2: SN: J-04-36A and J-04-36A Tie/Strut; 6hrs.		**Stage 3 Trial Holes**, Down Main, East of Station. Team 1: SN: J-04-43D and J-04-43D Tie/Strut; 6hrs. Team 2: SN: J-04-44A and J-04-44B; 6hrs.		**Stage 3 Trial Holes**, Down Main, East of Station. Team 1: SN: J-04-46D and J-04-49B; 6hrs. Team 2: SN:J-04-49B Tie/Strut and J-04-52D; 6hrs.		**Stage 3 Trial Holes**, Down Main, East of Station. Team 1: SN: J-04-56A and J-04-60B Tie/Strut; 6hrs. Team 2: SN: J-04-60B; 3hrs.		**Stage 3 Trial Holes,** Down Main, Station. Team 1: SN: J-04-60H and J-05-05F; 6hrs. Team 2: SN: J-05-07H and J-05-11A; 6hrs.		**Stage 3 Trial Holes**, Down Main, Station. Team 1: SN: J-05-11D and J-05-12D; 6hrs. Team 2: SN: J-05-16A and J-05-16A Tie/Strut; 6hrs.
Discipline												Civils	Civils
Aaccess Point												OOC site of work	OOC site of work
Possession												Mon-Fri	Mon-Fri
duration												10hr Days	10hr Days
Lines												High Street Env	High Street Env
Resources												2x Teams, 2x Excavator, Dumper, Compactor	2x Teams, 2x Excavator, Dumper, Compactor
Description												**West of station works** Compound build/Establishment	**West of station works** Compound build/Establishment
Discipline													Civils
Aaccess Point													OOC Station Compound
Possession													Weekend NBS
duration													8hrs
Lines													Reliefs
Resources													2 x RRV
Description													**West of the station works.** Delivery of materials for wing wall prep

Planning period				Period 5				Period 6				Period 7	
Planning week	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	WK12	WK13
Year	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022
Stage													Stage 3
Date (Sat WC)	02/04/2022	09/04/2022	16/04/2022	23/04/2022	30/04/2022	07/05/2022	14/05/2022	21/05/2022	28/05/2022	04/06/2022	11/06/2022	18/06/2022	25/06/2022
Possession	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr
Lines	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr
Lines	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs
		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular	
Possession	Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West
	Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun
Duration	3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		3.5hr
Lines	Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains
Discipline		OHLE (prep)											
Aaccess Point		Jewson											
Possession		Weekend NBS											
duration		8hr											
Lines		Mains											
Resources		2 x teams, 2 x RRV											
Description		**Stage 3 Trial Holes**, Down Main, West of Station. Team 1: SN: J-05-25CTie/Strut and J-05-25A; 6hrs. Team 2: SN: J-05-21B and J-05-22A; 6hrs.											
Discipline		OHLE (prep)											
Aaccess Point		Hitachi											
Possession		Weekend NBS											
duration		8hr											
Lines		Mains											
Resources		2 x teams, 2 x RRV											
Description		**Stage 3 Trial Holes**, Down Main, Station. Team 1: SN: J-05-19C; 3hrs. Team 2: SN: J-05-21B Tie/Strut; 3hrs.											
Discipline	Civils	Civils	Civils	Civils	Civils	Civils	Civils	Civils	Civils	Civils	Civils	Civils	Civils
Aaccess Point	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work
Possession	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri
duration	10hr Days	10hr Days	10hr Days	10hr Days	10hr Days	10hr Days	10hr Days	5hr Nights	5hr Nights	5hr Nights	5hr Nights	5hr Nights	10hr Days
Lines	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env
Resources	2x Teams, 2x Excavator, Dumper, Compactor	3x Teams, 3x Excavator, 3 x Dumper, Compactor	2x team + excavator 15t, 1 x 5ton excavator, 2 x 3 ton dumper, roller/compactor, wood chipper	2x team + excavator 15t, 1 x 5ton excavator, 2 x 3 ton dumper, roller/compactor, wood chipper	2x team + excavator 15t, 1 x 5ton excavator, 2 x 3 ton dumper, roller/compactor, wood chipper UTX Construction - 1 x team, excavator, dumper, compactor,	2x team + excavator 15t, 1 x 5ton excavator, 2 x 3 ton dumper, roller/compactor, wood chipper UTX Construction - 1 x team, excavator, dumper, compactor,	2x Teams, Excavator, Dumper, Compactor 1 team + 5ton excavator, 3 ton dumper,	2x Teams, Piling Rig, Concrete Pump, Concrete Wagon, Excavator, Dumper	2x Teams, Piling Rig, Concrete Pump, Concrete Wagon, Excavator, Dumper	2x Teams, Piling Rig, Concrete Pump, Concrete Wagon, Excavator, Dumper	2x Teams, Piling Rig, Concrete Pump, Concrete Wagon, Excavator, Dumper	2x Teams, Piling Rig, Concrete Pump, Concrete Wagon, Excavator, Dumper	2x Teams, Concrete Pump, Concrete Wagon, Excavator, Dumper
Description	**West of station works** Compound build/Establishment	**West of station works** Access route for NLL retaining wall construction	**West of station works** Access route for NLL retaining wall construction	**West of station works** Access route for NLL retaining wall construction. UTX @5920 Construction	**West of station works** Access route for NLL retaining wall construction. UTX @5920 Construction	**West of station works** Access route for NLL retaining wall construction. UTX @5920 Construction	**West of station works** Construction of piling Platform	**West of station works** Mid week nights piling works. Weekend works - concrete supply for piling works during possession	**West of station works** Mid week nights piling works. Weekend works - concrete supply for piling works during possession	**West of station works** Mid week nights piling works. Weekend works - concrete supply for piling works during possession	**West of station works** Mid week nights piling works. Weekend works - concrete supply for piling works during possession	**West of station works** Mid week nights piling works. Weekend works - concrete supply for piling works during possession	**West of station works** NLL Retaining wall pile cap works. Removal of piling rig
Discipline		Civils		Civils	Civils	Civils		Civils	Civils	Civils	Civils	Civils	
Aaccess Point		OOC Station Compound		OOC Station Compound	OOC Station Compound	OOC Station Compound		OOC Station Compound	OOC Station Compound	OOC Station Compound	OOC Station Compound	OOC Station Compound	
Possession		Weekend NBS		Weekend NBS	Weekend NBS	Weekend NBS		Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS	
duration		8hrs		8hrs	8hrs	8hrs		8hrs	8hrs	8hrs	8hrs	8hrs	
Lines		Reliefs		Reliefs	Reliefs	Reliefs		Reliefs	Reliefs	Reliefs	Reliefs	Reliefs	
Resources		2 x RRV		2 x RRV	2 x RRV	2 x RRV		2 x RRV					
Description		**West of the station works.** Delivery of materials for wing wall prep		**West of the station works.** Delivery of materials for wing wall prep	**West of the station works TRAIN DELIVERY** Delivery of materials for wing wall prep. Material Quantities approx. 850 ton of material for compound and site access to NLL. Train 1 x loco and 15 Falcons	**West of the station works.** Delivery of materials for wing wall prep		**West of the station works.** Delivery of materials for wing wall prep. Piling works for NLL retaining wall	**West of the station works.** Piling works for NLL retaining wall	**West of the station works.** Piling works for NLL retaining wall	**West of the station works.** Piling works for NLL retaining wall	**West of the station works.** Piling works for NLL retaining wall	

Planning period			Period 8				Period 9				Period 10		
Planning week	WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24	WK25	WK26
Year	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022
Stage													
Date (Sat WC)	02/07/2022	09/07/2022	16/07/2022	23/07/2022	30/07/2022	06/08/2022	13/08/2022	20/08/2022	27/08/2022	03/09/2022	10/09/2022	17/09/2022	24/09/2022
Possession	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr
Lines	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr
Lines	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief
	Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular
Possession	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West
	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed
Duration	5hr	3.5hr		3.5hr	5hr	3.5hr		4.5hr	5hr	3.5hr		3.5hr	5hr
Lines	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains
Discipline		OHLE	OHLE	OHLE	OHLE	OHLE	OHLE	OHLE	OHLE		OHLE		OHLE
Aaccess Point		Acton Yard	Hitachi/Jewsons	Acton Yard	Hitachi/Jewsons	Acton Yard	Hitachi/Jewsons	Acton Yard	Hitachi/Jewsons		North Pole		North Pole
Possession		Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS	Weekend NBS		Weekend NBS		Weekend NBS
duration		8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr		8hr		8hr
Lines		Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains		Mains		Mains
Resources		2x Number teams 2 x RRV	2x Number teams 2 x RRV	2x Number teams 2 x RRV	2x Number teams 2 x RRV	2x Number teams 2 x RRV	2x Number teams 2 x RRV	2x Number teams 2 x RRV	2x Number teams 2 x RRV		2x Number teams 2 x RRV		2x Number teams 2 x RRV
Description		**Stage 3 Foundations installation** Relief Cess 3, one team will auger ahead with a team behind filling with concrete. SN: J-06-05B and J-06-06C; 6hrs.	**Stage 3 Foundations installation** Relief Cess 4, one team will auger ahead with a team behind filling with concrete. SN: J-06-05B and J-06-06C; 6hrs.	**Stage 3 Foundations installation** Relief Cess 3, one team will auger ahead with a team behind filling with concrete. SN: J-06-04A and J-06-03A; 6hrs.	**Stage 3 Foundations installation** Relief Cess 4, one team will auger ahead with a team behind filling with concrete. SN: J-06-04A and J-06-03A; 6hrs.	**Stage 3 Foundations installation** Relief Cess 3 number per night, one team will auger ahead with a team behind filling with concrete. SN: J-06-02A and J-06-02A Tie/Strut; 6hrs.	**Stage 3 Foundations installation** Relief Cess 4 number per night, one team will auger ahead with a team behind filling with concrete. SN: J-06-02A and J-06-02A Tie/Strut; Chainage: 6.166, 6.161.	**Stage 3 Foundations installation** Relief Cess 3 number per night, one team will auger ahead with a team behind filling with concrete. SN: J-06-01A Tie/Strut and J-06-01A; 6hrs.	**Stage 3 Foundations installation** Relief Cess 4 number per night, one team will auger ahead with a team behind filling with concrete. SN: J-06-01A Tie/Strut and J-06-01A; 6hrs.		**Stage 3 Vibro Piles** in Down Main Cess. **East of Station.** Team 1: SN: J-04-29A, J-04-32C, J-04-36A and J-04-36A Tie/Strut. 6hrs. Team 2: SN: J-04-43D, J-04-43D Tie/Strut, J-04-44A and J-04-44B. 6hrs.		**Stage 3 Vibro Piles** in Down Main Cess. **East of Station.** Team 1: SN: J-04-46D, J-04-49B, J-04-49B Tie/Strut and J-04-52D; 6hrs. Team 2: SN: J-04-56A, J-04-60B Tie / Strut and J-04-60B, 4.5hrs.
Discipline	Civils	Civils	Civils	Civils	Civils	Civils							
Aaccess Point	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work	OOC site of work							
Possession	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri	Mon-Fri							
duration	10hr Days	10hr Days	10hr Days	10hr Days	10hr Days	10hr Days							
Lines	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env	High Street Env							
Resources	2x Teams, Concrete Pump, Concrete Wagon, Excavator, Dumper	2x Teams, Dumper, Excavator	2x Teams, Dumper, Excavator	2x Teams, 2x Excavator, Dumper, Compactor	2x Teams, 2x Excavator, 2x Dumper, Compactor	2x Teams, 2x Excavator, 2x Dumper,							
Description	**West of station works** NLL Retaining wall pile cap works. Pour concrete for pile cap	**West of station works** NLL retaining wall masonry infill construction.	**West of station works** NLL retaining wall masonry infill construction. Installation of hand rail upon wall. Installation of proposed buried duct route from GSMR compound to Up Relief Cess (in area of regrading works).	**West of station works** Regrading of embankment. Enabling works for shotcrete of NLL retaining wall.	**West of station works** Enabling works for shotcrete of NLL retaining wall.	**West of station works** Site tidy up and demobilisation for retaining wall works.							
Discipline	Civils				Civils								
Aaccess Point	OOC Station Compound				OOC Station Compound								
Possession	Weekend NBS				Weekend NBS								
duration	8hrs				8hrs								
Lines	Reliefs				Reliefs								
Resources	RRV x 3				RRV x 2								
Description	**West of the station works.** Erection of temporary works for masonry infill. Delivery of masonry.				**West of the station works.** Shotcrete piled retaining wall.								

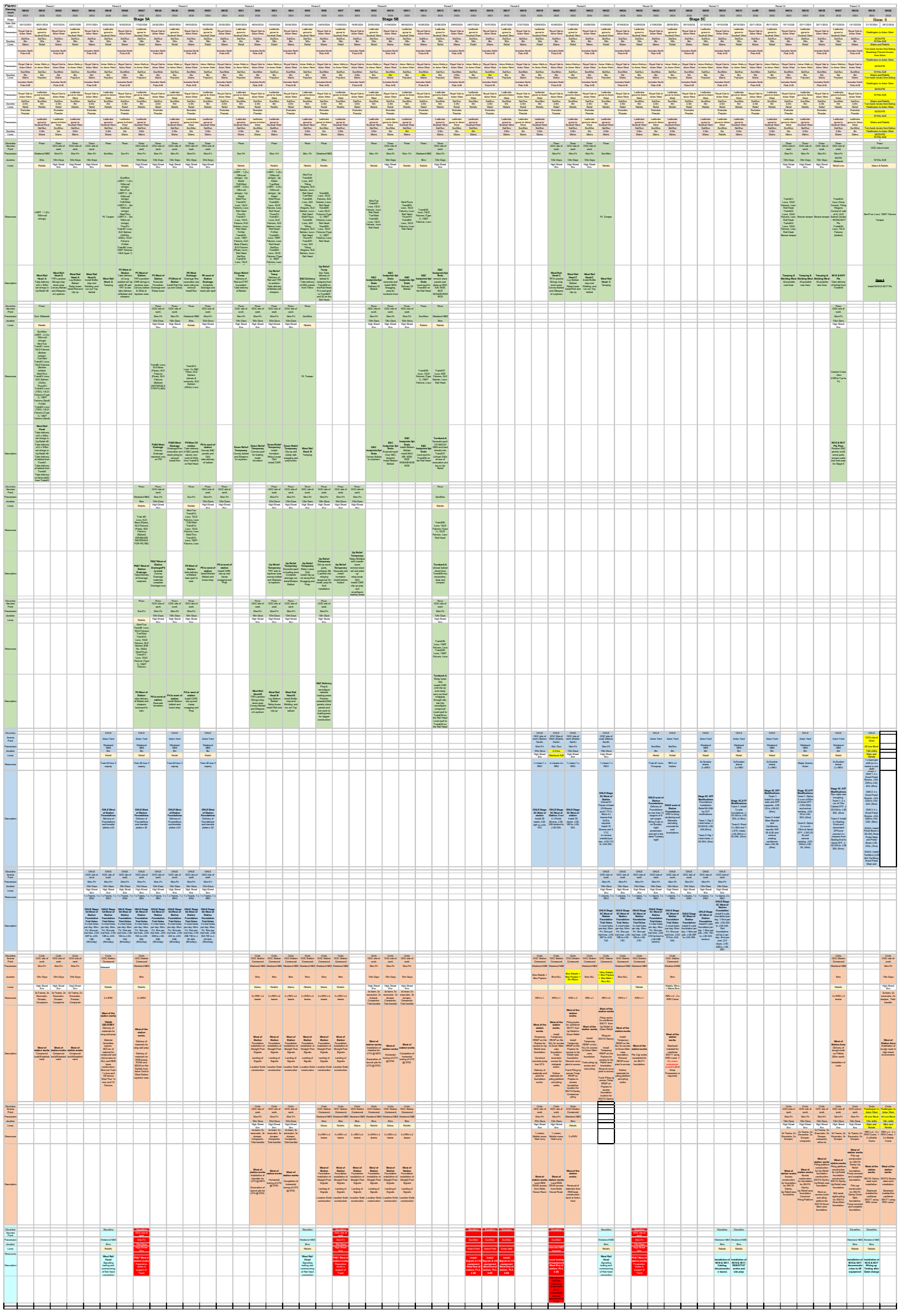
Planning period		Period 11				Period 12				Period 13				
Planning week	WK27	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37	WK38	WK39	WK40
Year	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	2022	
Stage													Stage 4	
Date (Sat WC)	01/10/2022	08/10/2022	15/10/2022	22/10/2022	29/10/2022	05/11/2022	12/11/2022	19/11/2022	26/11/2022	03/12/2022	10/12/2022	17/12/2022	24/12/2022	31/12/2022
Possession	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Royal Oak to Acton West		Paddington to Acton West	
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun		FRI -MON	
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	10hr		54Hrs ALB	
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Mains		Mains and Reliefs	
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Includes North Pole A+B		Turn back moves from Ealing Broadway Prevent Access from Acton	
Possession	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Royal Oak to Acton West			
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sun/Mon			
Duration	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	5hr			
Lines	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Mains			
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Includes North Pole A+B			
Possession	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Royal Oak to Acton West			
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sat/Sun			
Duration	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	4.5hr			
Lines	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Relief			
		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular	Excludes Popular			
Possession	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Acton West			
	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Tue/Wed			
Duration	3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		5hr			
Lines	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains			
Discipline		OHLE		OHLE		OHLE		OHLE	OHLE	OHLE			OHLE	
Aaccess Point		Hitachi/ Jewsons		Hitachi/Jewsons		Hitachi/Jewsons		Hitachi/Jewsons	Acton Yard	Hitachi/Jewsons			North Pole	
Possession		Weekend NBS		Weekend NBS		Weekend NBS		Weekend NBS	Weekend NBS	Weekend NBS			ALB	
duration		8hr		8hr		8hr		8hr	8hr	8hr			54hrs	
Lines		Mains		Mains		Mains		Mains	Relief	Mains			Mains and Relief	
Resources		2x Number teams 2 x RRV		2x Number teams 2 x RRV		2x Number teams 2 x RRV		2x Number teams 2 x RRV	2x Number teams 2 x RRV	2x Number teams 2 x RRV			8hrs shifts; 2 x teams per shift; 3 x shifts, 2 x RRV per shift	
Description		**Stage 3 Vibro Piles** in Down Main Cess. **Station.** Team 1: SN: J-04-60H, J-05-05F, J-05-07H and J-05-11A; 6hrs. **West of Station.** Team 2: SN: J-05-11D, J-05-12D, J-05-16A and J-05-16A Tie/Strut; 6hrs.		**Stage 3 Vibro Piles** in Down Main Cess. **West of Station.** Team 1: SN: J-05-19C and J-05-21B Tie/Strut, J-05-21B and J-05-22A; 6hrs. Team 2: SN: J-05-25A, J-05-25C, J-05-25C and J-05-27B; 6hrs.		**Stage 3 Vibro Piles** in Down Main Cess. **West of Station.** Team 1: SN: J-05-29B, J-05-31A, J-05-31B and J-05-32A Tie/Strut; 6hrs. Team 2: SN: J-05-32A, J-05-33A, J-05-33A and J-05-34A Tie/Strut; 6hrs.		**Stage 3 Vibro Piles** in Down Main Cess. **West of Station.** Team 1: Structure numbers: J-05-34A and J-05-36B; 3hrs.	**Stage 3 Steel Work** Up Relief Cess. **Acton Cutting.** Team 1: SN: J-06-06C, J-06-05B, J-06-04A and J-06-03A; 4hrs. Erect portal Masts. Team 2: SN: J-06-02A, J-06-02A Tie/Strut, J-06-01A and J-06-01A Tie/Strut; 3hrs. Erect Portal Masts and install Tie/Struts.	**Stage 3 Steel Work** Down Main Cess. **Acton Cutting.** Team 1: SN: J-06-06C, J-06-05B, J-06-04A and J-06-03A; 4hrs. Erect portal Masts. Team 2: SN: J-06-02A, J-06-02A Tie/Strut, J-06-01A and J-06-01A Tie/Strut; 3.5hrs. Erect Portal Masts and install Tie/Struts.			**Stage 4 East of Station: Shift 1** Team 1: Dig Trial Holes, SN: J-04-40A and J-04-40A Tie/Strut. (6hrs) Team 2: Dig Trial Holes, SN: J-04-42A and J-04-43A. (6hrs) **Shift 2** Team 1: Install Steel Pile Foundations, SN: J-04-40A to J-04-43A. (6hrs) Team 2 to follow behind Team 1 and Erect Portal Masts and Tie/Strut. (3.5hrs)	
Discipline						OHLE		OHLE		OHLE				
Aaccess Point						North Pole		Hitachi/Jewsons		Hitachi/Jewsons				
Possession						Weekend NBS		Weekend NBS		Weekend NBS				
duration						8hr		8hr		8hr				
Lines						Mains		Mains		Mains				
Resources						2x Number teams 2 x RRV		2x Number teams 2 x RRV		2x Number teams 2 x RRV				
Description						**Stage 3 Steel Work** Down Main Cess. **East of Station.** Team 1: SN: J-04-29A, J-04-32C, J-04-36A, J-04-36A Tie/Strut, J-04-43D, J-04-43D Tie/Strut and J-04-44A 6hrs. Works: Erect Portal Masts x 5 & Install Tie/Strut x 2. Team 2: SN: J-04-44B, J-04-46D, J-04-49B, J-04-49B Tie/Strut, J-04-52D, J-04-56A and J-04-60B Tie / Strut; 6hrs. Works: Erect Portal Masts x 5 and Install Tie/Strut x2.		**Stage 3 Steel Work** Down Main Cess. **East of Station:** Team 1: SN: J-04-60B; Works: Erect Portal Mast x 1, 1hr. **Station** SN: J-04-60H, J-05-05F, J-05-07H and J-05-11A; Works: Erect STC Masts x 3 and Erect SSA Mast x1. 4hrs. **West of Station** SN: J-05-11D. Works: Erect Portal Mast. 1hr. Team 1 total: 6hrs. Team 2: SN:		**Stage 3 Steel Work** in Down Main Cess. **West of Station.** Team 1: SN: J-05-25A, J-05-25C Tie/Strut, J-05-25C, J-05-27B, J-05-29B and J-05-31A; Works: Erect Portal Masts x 5 and Install Tie/Strut x 1. 5.5hrs. Team 2: SN: J-05-31B, J-05-32A Tie/Strut, J-05-32A, J-05-33A Tie/Strut, J-05-33A and J-05-34A Tie/Strut, J-05-34A and J-05-36B; Works: Erect Portal Masts x 4, Install				

Discipline	Aaccess Point	Possession	duration
Lines	Resources	Description	
Discipline	Aaccess Point	Possession	duration
Lines	Resources	Description	

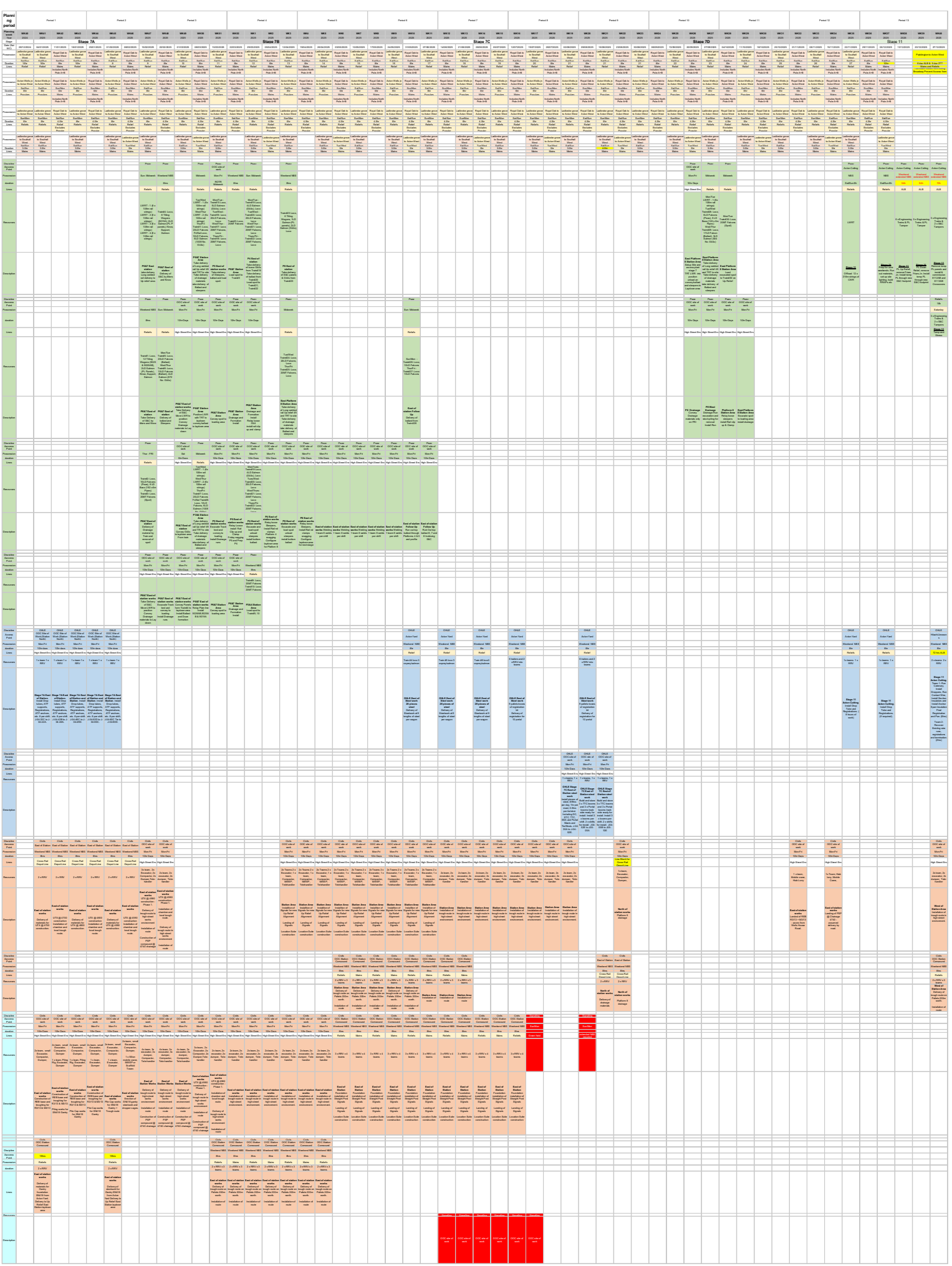
2023

Planning week	W640	W641	W642	W643	W644	W645	W646	W647	W648	W649	W650	W651	W652	W63	W62	W63	W64	W65	W66	W67	W68	W69	W610	W611	W612	W613	W614	W615	W616	W617	W618	W619	W620	W621	W622	W623	W624	W625	W626	W627	W628	W629	W630	W631	4x8R	W633	W634	W635	W636	W63F	W638	W639	W640
Year	2022	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023	2023
Stage																																																						
Date (Sat W.C)	31/12/2022	07/01/2023	14/01/2023	21/01/2023	28/01/2023	04/02/2023	11/02/2023	18/02/2023	25/02/2023	04/03/2023	11/03/2023	18/03/2023	25/03/2023	01/04/2023	08/04/2023	15/04/2023	22/04/2023	29/04/2023	06/05/2023	13/05/2023	20/05/2023	27/05/2023	03/06/2023	10/06/2023	17/06/2023	24/06/2023	01/07/2023	08/07/2023	15/07/2023	22/07/2023	29/07/2023	05/08/2023	12/08/2023	19/08/2023	26/08/2023	02/09/2023	09/09/2023	16/09/2023	23/09/2023	30/09/2023	07/10/2023	14/10/2023	21/10/2023	28/10/2023	04/11/2023	11/11/2023	18/11/2023	25/11/2023	02/12/2023	09/12/2023	16/12/2023	23/12/2023	## ###
Possession	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Paddington to Acton West
Duration	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 8hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	Sat Sun 8hr	Sat Sun 16hr	MONFR
Links	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	101Hrs AUB Mains and Reliefs
Resources	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Turn back moves from Ealing Broadway Primary Access Paddington to Acton
Possession	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	MONFR
Duration	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	Sat Sun 8hr	Sun Mon 8hr	101Hrs AUB
Links	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Paddington to Acton West Mains and Reliefs Turn back moves from Paddington to Acton
Possession	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	MONFR
Duration	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	Sat Sun 4.5hr	Ladbroke grove to Acton West	101Hrs AUB
Links	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Relief Excludes Popular	Paddington to Acton
Possession		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West	Mains and Reliefs
Duration	Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 8hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr		Sat Sun 3.5hr	Sun Mon 8hr	Sat Sun 3.5hr	Turn back moves from Paddington to Acton MONFR 101Hrs AUB
Links	Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains	
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2024

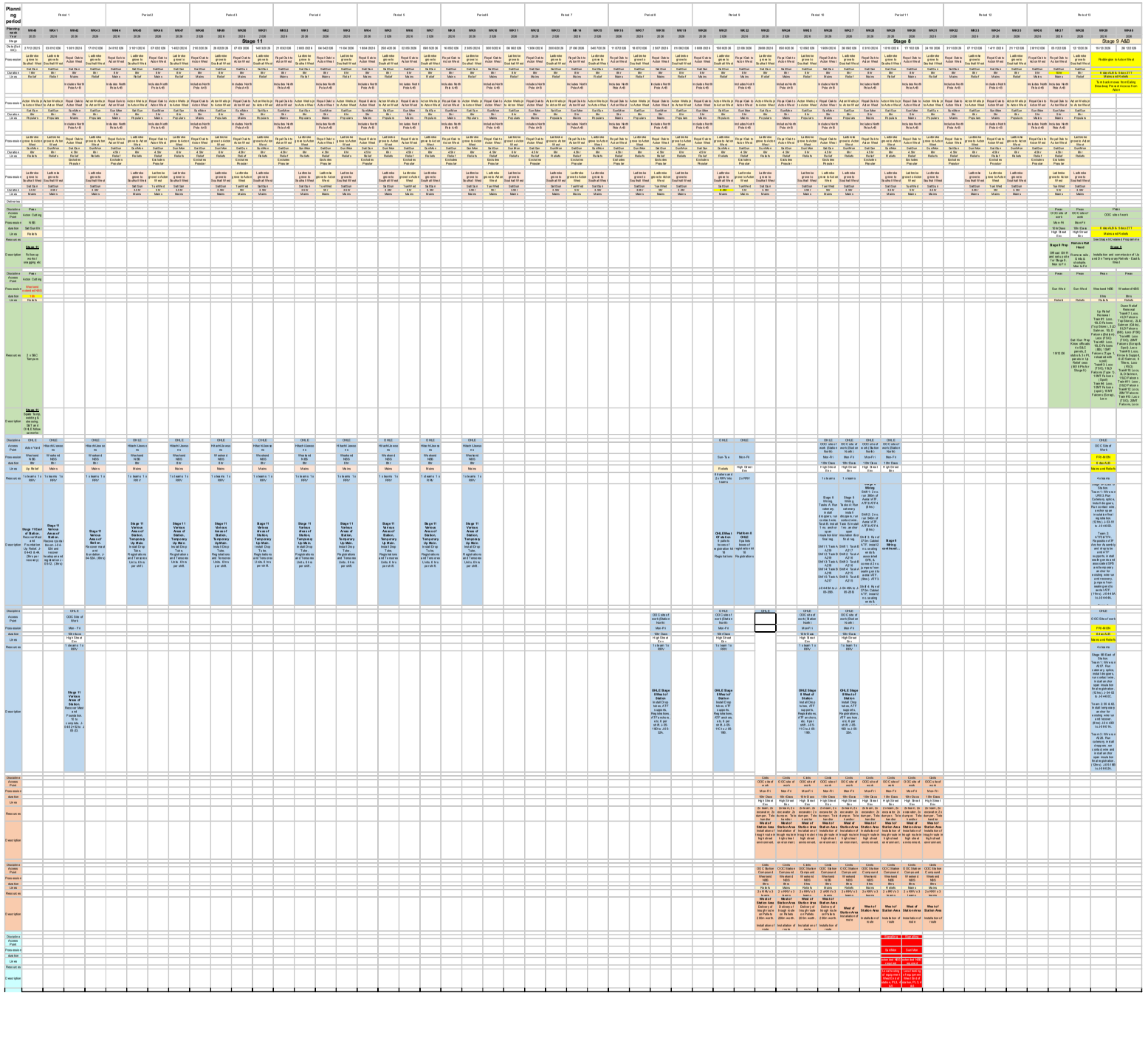


2025


Planning period
Period 1
Period 2
Period 3
Period 4
Period 5
Period 6
Period 7
Period 8
Period 9
Period 10
Period 11
Period 12
Period 13
Stage 7A
Stage 7B
Stage 7C
Stage 7D
Stage 11
Paddington to Acton West
Acton West to Tube Lines Depot
Acton West to Ealing Broadway Flyover Across Yard
Description

Construction Methodology Report

2026



2027

Planning period

Planning week	Year	Planning period	Stage	Date (Sat WC)
WK41	2027		Stage 10	02/01/2027
WK42	2027		Stage 10	09/01/2027
WK43	2027		Stage 10	16/01/2027
WK44	2027	Period 2	Stage 10	23/01/2027
WK45	2027	Period 2	Stage 10	30/01/2027
WK46	2027	Period 2	Stage 10	06/02/2027
WK47	2027	Period 2	Stage 10	13/02/2027
WK48	2027	Period 3	Stage 10	20/02/2027
WK49	2027	Period 3	Stage 10	27/02/2027
WK50	2027	Period 3	Stage 10	06/03/2027
WK51	2027	Period 3	Stage 10	13/03/2027
WK52	2027	Period 4	Stage 11	20/03/2027
WK1	2027	Period 4	Stage 11	27/03/2027
WK2	2027	Period 4	Stage 11	03/04/2027
WK3	2027	Period 4	Stage 11	10/04/2027
WK4	2027	Period 5	Stage 11	17/04/2027
WK5	2027	Period 5	Stage 11	24/04/2027
WK6	2027	Period 5	Stage 11	01/05/2027
WK7	2027	Period 5	Stage 11	08/05/2027
WK8	2027	Period 6	Stage 11	15/05/2027
WK9	2027	Period 6	Stage 11	22/05/2027
WK10	2027	Period 6	Stage 11	29/05/2027
WK11	2027	Period 6	Stage 11	05/06/2027
WK12	2027	Period 7	Stage 11	12/06/2027
WK13	2027	Period 7	Stage 11	19/06/2027
WK14	2027	Period 7	Stage 11	26/06/2027
WK15	2027	Period 7	Stage 11	03/07/2027
WK16	2027	Period 8	Stage 11	10/07/2027
WK17	2027	Period 8	Stage 11	17/07/2027
WK18	2027	Period 8	Stage 11	24/07/2027
WK19	2027	Period 8	Stage 11	31/07/2027
WK20	2027	Period 9	Stage 11	07/08/2027
WK21	2027	Period 9	Stage 11	14/08/2027
WK22	2027	Period 9	Stage 11	21/08/2027
WK23	2027	Period 9	Stage 11	28/08/2027
WK24	2027	Period 10	Stage 11	04/09/2027
WK25	2027	Period 10	Stage 11	11/09/2027
WK26	2027	Period 10	Stage 11	18/09/2027
WK27	2027	Period 10	Stage 11	25/09/2027
WK28	2027	Period 11	Stage 11	02/10/2027
WK29	2027	Period 11	Stage 11	09/10/2027
WK30	2027	Period 11	Stage 11	16/10/2027
WK31	2027	Period 11	Stage 11	23/10/2027
WK32	2027	Period 12	Stage 11	30/10/2027
WK33	2027	Period 12	Stage 11	06/11/2027
WK34	2027	Period 12	Stage 11	13/11/2027
WK35	2027	Period 12	Stage 11	20/11/2027
WK36	2027	Period 13	Stage 11	27/11/2027
WK37	2027	Period 13	Stage 11	04/12/2027
WK38	2027	Period 13	Stage 11	11/12/2027
WK39	2027	Period 13	Stage 12	18/12/2027
WK40	2027	Period 13	Stage 12	25/12/2027
WK41				#####

Possessions

Week	Possession	Days	Duration	Lines	Notes
WK41	Ladbroke grove to Southall West	Sat/Sun	16hr	Relief	
WK42	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK43	Ladbroke grove to Southall West	Sat/Sun	16hr	Relief	
WK44	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK45	Ladbroke grove to Southall West	Sat/Sun	8	Relief	
WK46	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK47	Ladbroke grove to Southall West	Sat/Sun	9	Relief	
WK48	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK49	Ladbroke grove to Southall West	Sat/Sun	10	Relief	
WK50	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK51	Ladbroke grove to Southall West	Sat/Sun	11	Relief	
WK52	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK1	Ladbroke grove to Southall West	Sat/Sun	12	Relief	
WK2	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK3	Ladbroke grove to Southall West	Sat/Sun	13	Relief	
WK4	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK5	Ladbroke grove to Southall West	Sat/Sun	14	Relief	
WK6	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK7	Ladbroke grove to Southall West	Sat/Sun	15	Relief	
WK8	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK9	Ladbroke grove to Southall West	Sat/Sun	16	Relief	
WK10	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK11	Ladbroke grove to Southall West	Sat/Sun	17	Relief	
WK12	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK13	Ladbroke grove to Southall West	Sat/Sun	18	Relief	
WK14	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK15	Ladbroke grove to Southall West	Sat/Sun	19	Relief	
WK16	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK17	Ladbroke grove to Southall West	Sat/Sun	20	Relief	
WK18	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK19	Ladbroke grove to Southall West	Sat/Sun	21	Relief	
WK20	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK21	Ladbroke grove to Southall West	Sat/Sun	21	Relief	
WK22	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK23	Ladbroke grove to Southall West	Sat/Sun	21	Relief	
WK24	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK25	Ladbroke grove to Southall West	Sat/Sun	22	Relief	
WK26	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK27	Ladbroke grove to Southall West	Sat/Sun	23	Relief	
WK28	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK29	Ladbroke grove to Southall West	Sat/Sun	24	Relief	
WK30	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK31	Ladbroke grove to Southall West	Sat/Sun	25	Relief	
WK32	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK33	Ladbroke grove to Southall West	Sat/Sun	26	Relief	
WK34	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK35	Ladbroke grove to Southall West	Sat/Sun	27	Relief	
WK36	Royal Oak to Acton West	Sat/Sun	8hr	Mains	Includes North Pole A+B
WK37	Royal Oak to Acton West	Sat/Sun	10hr	Mains	Includes North Pole A+B
WK38					
WK39–WK40	Paddington to Acton West		6 day ALB & 5 day 2TT	Mains and Reliefs	Turn back moves from Ealing Broadway Prevent Access from Acton

Week	Possession	Days	Duration	Lines	Notes
WK41	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK42	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK43	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK44	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK45	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK46	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK47	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK48	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK49	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK50	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK51	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK52	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK1	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK2	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK3	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK4	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK5	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK6	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK7	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK8	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK9	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK10	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK11	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK12	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK13	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK14	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK15	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK16	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK17	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK18	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK19	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK20	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK21	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK22	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK23	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK24	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK25	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK26	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK27	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK28	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK29	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK30	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK31	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK32	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK33	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK34	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK35	Acton Wells jn to Acton West	Sat/Sun	8hr	Populars	
WK36	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B
WK37	Royal Oak to Acton West	Sun/Mon	5hr	Mains	Includes North Pole A+B

Week	Possession	Days	Duration	Lines	Notes
WK41	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK42	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK43	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK44	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK45	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK46	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK47	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK48	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK49	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK50	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK51	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK52	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK1	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK2	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK3	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK4	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK5	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK6	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK7	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK8	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK9	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK10	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK11	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK12	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK13	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK14	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK15	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK16	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK17	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK18	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK19	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK20	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK21	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK22	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK23	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK24	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK25	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK26	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK27	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK28	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK29	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK30	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK31	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK32	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK33	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK34	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK35	Ladbroke grove to Acton West	Sun/Mon	6hr	Reliefs	
WK36	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular
WK37	Royal Oak to Acton West	Sat/Sun	4.5hr	Relief	Excludes Popular

Week	Possession	Days	Duration	Lines
WK41	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK43	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK45	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK46	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK47	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK49	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK50	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK51	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK1	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK2	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK3	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK5	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK6	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK7	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK9	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK10	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK11	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK13	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK14	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK15	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK17	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK18	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK19	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK21	Ladbroke grove to Southall West	Sat/Sun	4.5hr	Mains
WK22	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK23	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK25	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK26	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK27	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK29	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK30	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK31	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK33	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK34	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains
WK35	Ladbroke grove to Southall West	Sat/Sun	3.5hr	Mains
WK37	Ladbroke grove to Acton West	Tue/Wed	5hr	Mains

Pway

Week	Discipline	Access Point	Possession	Duration	Lines	Resources	Description
WK42	Pway	OOC site of work	Mon - Fri	8h	Reliefs	4 nights: Mon to Fri: Loco, 15MT Falcons, Loco. Each night	**Stage 10** Load Up & Dn Relief scrap to trains
WK37	Pway	OOC site of work	NBS	Sat/Sun 8h	Mains	LWRT	**Stage 12 Prep** Offload 2 x 218m strings of CWR for Dn Main West & 6 x 218m for Dn Main East
WK39–WK40	Pway	OOC site of work		6 day ALB & 5 day 2TT	Mains and Reliefs	See Stage 12 Detailed Programme for all resources	**Stage 12** Installation and commission of Up and Dn Temporary Mains - East & West

Week	Discipline	Access Point	Possession	Duration	Lines	Description
WK42	Pway	OOC site of work	Mon-Fri	10hr Days	High Street Env	**Stage 10** Burn, unclip, scrap out and stockpile old Up & Dn Reliefs to load to trains on nightshift possessions
WK37	Pway	OOC site of work	Mon-Fri	10hr Days	High Street Env	**Stage 12 Prep** Build RRAPs, run out materials, site lighting, site cabins etc

Week	Discipline	Access Point	Possession	Duration	Lines	Resources
WK42	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK43	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK44	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK45	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK46	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK47	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK48	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK49	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK50	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK51	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK52	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK1	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK2	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK3	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK4	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK5	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK6	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK7	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK8	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK9	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK10	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK11	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK12	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK13	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK14	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK15	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK16	Pway Acton Cutting	NBS	Sat/Sun 8h	Mains	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK17	Pway Acton Cutting	NBS	Sat/Sun 8h	Reliefs	Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)	**West Drainage** 60m of new drainage
WK37	Pway	OOC site of work	Mon - Wed NSB	8h	Mains	2 nights: Mon to Wed LWRT — **Stage 12 Prep** Mon NS: offload 6 x 218m strings for Up Main East. Tue NS: offload 2 x 218m strings for Up Main West
WK39–WK40	Pway	OOC site of work		6 day ALB & 5 day 2TT	Mains and Reliefs	See Stage 12 Detailed Programme for all resources

WK39–WK40 Pway resources:

Up Main East Renewal Train#1: Loco (TSO), 20MT Falcons (Scrap), Loco. Train#2: Loco, 25MT Falcons (Spoil). Train#3: Loco, 10MT Falcons (Spoil), 15LD Falcons (Bottom Ballast). Train#4: Loco, 15LD Falcons (Bottom Ballast). Train#5: Loco, 15LD Falcons (Top Ballast), 6LD Salmon (G44s), Loco (FSO)

Up Main West renewal Train#6: Loco, 5LD Falcons (Top) 2LD Salmon (G44s), 10LD Falcons (BB), Loco (FSO). Train#7: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco

Down Main East Renewal Train#8: Loco, Kirow Consist, Tilting Wagons (set of 4), 2LD Salmon. Train#9: Loco, 18LD Falcons (Top), 6LD Salmon (G44s). Train#10: Loco, 20LD Falcons (BB). Train#11: Loco, 10MT Falcons (Spoil), 10LD Falcons (BB). Train#12: Loco, 25MT Falcons (Spoil). Train#13: Loco (TSO), 20MT Falcons (Scrap), Loco

Down Main West renewal Train#14: Loco, 8LD Falcons (Top), 2LD Salmon (G44s), 12LD Falcons (BB), Loco (FSO). Train#15: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco

OHLE

Week	Discipline	Access Point	Possession	Duration	Lines	Resources	Description
WK42	OHLE (prep)	Hitachi/Jewsons	Weekend NBS	8hr	Mains	2 x teams 2 x RRV	**Stage 10 West of Station.** Team 1: 2 x dig trial hole. (6hrs) Team 2: Install Drop tube and registration, transfer existing OLE and re dropper. (6hrs)
WK44	OHLE	Hitachi/Jewsons	Weekend NBS	8hr	Mains	2 x teams 2 x RRV	**Stage 10 West of Station.** Team 1: Install pile foundations. Team 2: Install Drop tube and registration, transfer existing OLE and re dropper.
WK46	OHLE	Hitachi/Jewsons	Weekend NBS	8hr	Mains	2 x teams 2 x RRV	**Stage 10 West of Station.** Team 1: Erect TTC masts and TTC booms. Team 2: Install Drop tube and registration, transfer existing OLE and re dropper.
WK47	OHLE	Acton Yard	Weekend NBS	8hr	Reliefs	2 x teams 2 x RRV	**Stage 10 Station South.** Recover existing wire runs, registrations and termination assemblies.
WK48	OHLE	Hitachi/Jewsons	Weekend NBS	8hr	Mains	2 x teams 2 x RRV	**Stage 10 East of Station.** Team 1 and 2: Install Drop tube and registration, transfer existing OLE and re dropper.
WK51	OHLE	Acton Yard	Weekend NBS	8hr	Reliefs	1x teams 1 x RRV	**Stage 11 Acton Cutting.** Install Drop Tube and Registrations. (8 hours of work)
WK1	OHLE	Acton Yard	Weekend NBS	8hr	Reliefs	1x teams 1 x RRV	**Stage 11 Acton Cutting.** Install Drop Tube and Registrations. (If required).
WK4	OHLE	Hitachi/Jewsons	Weekend NBS	8hr	72 hrs ALB	2 x teams 2 x RRV	**Stage 11 Acton Cutting.** Team 1: Run Catenary, Install Droppers, Run Contact Wire, Install Section Insulators and Install Anchor Span Insulation Final Registration and Pan. (8hrs) Team 2: Recover Existing wire runs, registrations and termination. (2hrs)
WK39	OHLE	OOC Site of work	FRI-MON	54hrs ALB	Mains and Reliefs	4 x teams on each shift	**Stage 12** Shift 1 - Temporary Up Main and Shift 2 - Temporary Down Main: Team 1: Install temp anchor and recover from splice, Install drop tube and registration. (8hrs) Team 2: Run Catenary, install droppers, run contact wire and install anchor span insulation final registration. (8hrs) Team 3: Install drop tubes, registrations, tensorex units, mast bracket, install temporary anchor and anchor existing wire run. (10hrs) Team 4: Run catenary, install droppers, run contact wire and install anchor span insulation final registrations. (12hrs)

Week	Discipline	Access Point	Possession	Duration	Lines	Resources	Description
WK42	OHLE	Acton Yard	Weekend NBS	8hr	All existing lines	1x teams 1 x RRV	**Stage 10 West of Station.** Team 1: Recover Headspan and registration, recover mast and foundation
WK44	OHLE	Acton Yard	Weekend NBS	8hr	All existing lines	1x teams 1 x RRV	**Stage 10 West of Station.** Team 1: Recover Headspan and registration, recover mast and foundation
WK46	OHLE	Acton Yard	Weekend NBS	8hr	All existing lines	1x teams 1 x RRV	**Stage 10 West of Station.** Team 1: Recover Headspan and registration, recover mast and foundation
WK48	OHLE	Acton Yard	Weekend NBS	8hr	All existing lines	2 x teams 2 x RRV	**Stage 10 East of Station.** Team 1 and 2: Recover Headspan and registration, recover mast and foundation

Civils

Week	Discipline	Access Point	Possession	Duration	Lines	Resources	Description
WK47	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK48	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK49	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK50	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK51	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK52	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK1	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK2	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK3	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK4	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction
WK5	Civils	OOC site of work	Mon-Fri	10hr Days	High Street Env	2x Teams 2 x Excavator, 1 x team, Compactor, MWEP, Telehandler	**Station Area** Installtion of Signals for new Up Relief Alignment. Landing of Signals. Location Suite construction

Week	Discipline	Access Point	Possession	Duration	Lines	Resources	Description
WK41	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK42	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK43	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK44	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK45	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK46	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK47	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK48	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK49	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**East of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK50	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK51	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK52	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK1	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK2	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK3	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK4	Civils	OOC Station Compound	Weekend NBS	8hrs	Mains	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction
WK5	Civils	OOC Station Compound	Weekend NBS	8hrs	Reliefs	3 x RRV x 4 teams	**West of Station** Foundation installation of Straight Post Signals. Landing of Signals. Location Suite construction

Discipline

2028

Planning period				Period 2				Period 3			
Planning week	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51
Year	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028
Stage											
Date (Sat WC)	01/01/2028	08/01/2028	15/01/2028	22/01/2028	29/01/2028	05/02/2028	12/02/2028	19/02/2028	26/02/2028	04/03/2028	11/03/2028
Possession	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	16hr	8hr	16hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr
Lines	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr
Lines	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs
		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular	
Possession	Ladbroke grove to Southall West		Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West
	Sat/Sun		Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun
Duration	3.5hr		3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr
Lines	Mains		Mains		Mains	Mains	Mains		Mains	Mains	Mains
Deliveries											
Deliveries											

Planning period	Period 4				Period 5				Period 6			
Planning week	WK52	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11
Year	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028
Stage												
Date (Sat WC)	18/03/2028	25/03/2028	01/04/2028	08/04/2028	15/04/2028	22/04/2028	29/04/2028	06/05/2028	13/05/2028	20/05/2028	27/05/2028	03/06/2028
Possession	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr
Lines	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr
Lines	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs
	Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular	
Possession		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West
		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun
Duration		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr
Lines		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains
Deliveries												
Deliveries												

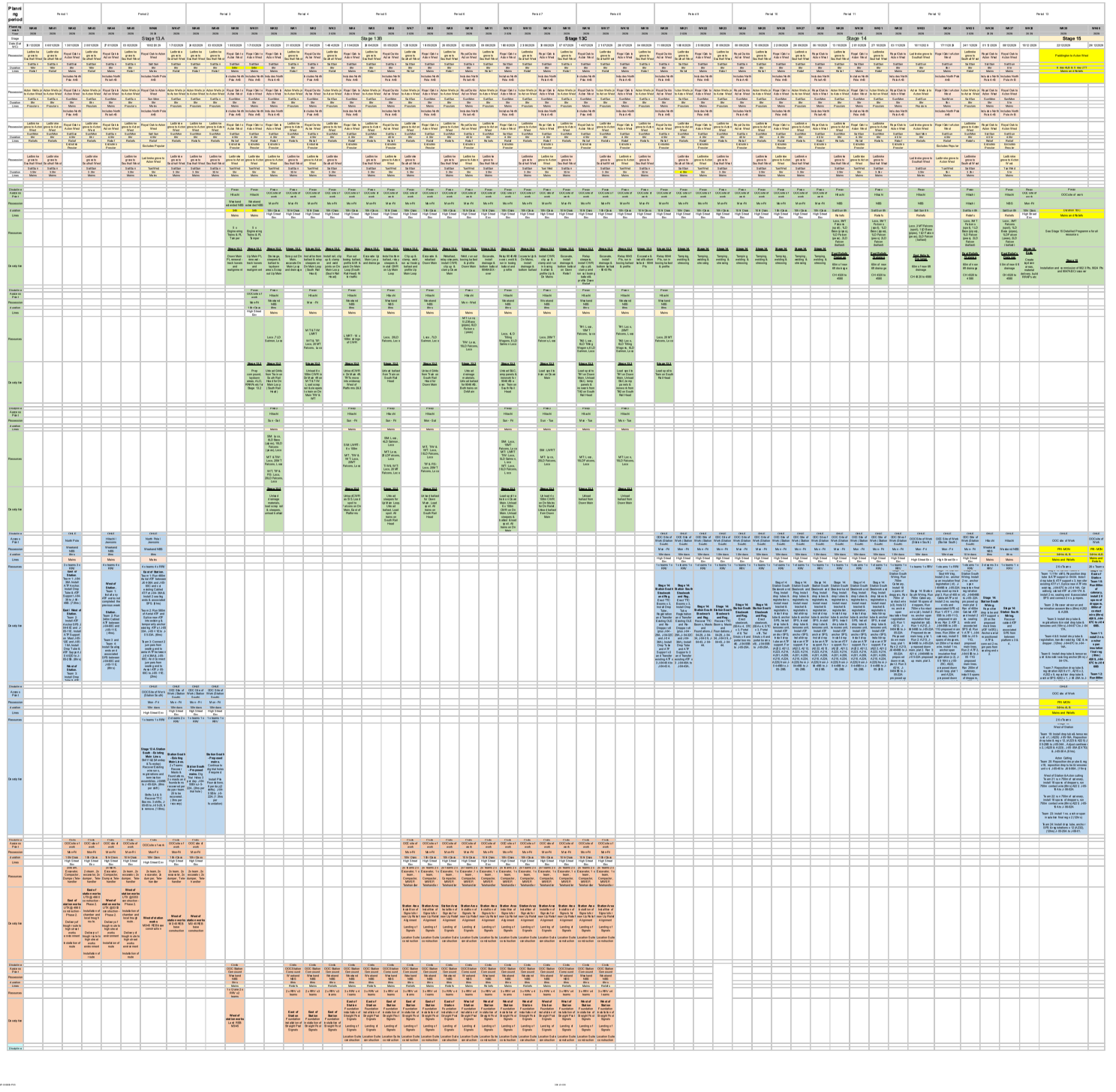
Planning period	Period 7				Period 8				Period 9				Period 10			
Planning week	WK12	WK13	WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24	WK25	WK26	WK27
Year	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028
Stage																
Date (Sat WC)	10/06/2028	17/06/2028	24/06/2028	01/07/2028	08/07/2028	15/07/2028	22/07/2028	29/07/2028	05/08/2028	12/08/2028	19/08/2028	26/08/2028	02/09/2028	09/09/2028	16/09/2028	23/09/2028
Possession	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr
Lines	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	
Possession	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr
Lines	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs
	Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular	
Possession		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West
		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun
Duration		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		4.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr
Lines		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains
Deliveries																
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Planning period	Period 11				Period 12				Period 13				
Planning week	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37	WK38	WK39	WK40
Year	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028	2028
Stage													
Date (Sat WC)	30/09/2028	07/10/2028	14/10/2028	21/10/2028	28/10/2028	04/11/2028	11/11/2028	18/11/2028	25/11/2028	02/12/2028	09/12/2028	16/12/2028	23/12/2028
Possession	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Royal Oak to Acton West			
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun			
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr			
Lines	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Mains			
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Includes North Pole A+B			
Possession	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Royal Oak to Acton West			
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sun/Mon			
Duration	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	5hr			
Lines	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Mains			
	Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Includes North Pole A+B			
Possession	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Royal Oak to Acton West			
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sat/Sun			
Duration	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	4.5hr			
Lines	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Relief			
	Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular	Excludes Popular			
Possession		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Acton West			
		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Tue/Wed			
Duration		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		5hr			
Lines		Mains	Mains	Mains		Mains	Mains	Mains		Mains			
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2031

Planning period	Planning week	Year	Stage	Date (Sat W/C)	Possession	Duration	Lines	
Period 1	WK40	2030	Stage 16A	28/12/2030	Ladbroke grove to Southall West	Sat/Sun 16hr	Relief	
Period 1	WK41	2031	Stage 16A	04/01/2031	Ladbroke grove to Southall West	Sat/Sun 16hr	Relief	
Period 1	WK42	2031	Stage 16A	11/01/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 1	WK43	2031	Stage 16A	18/01/2031	Ladbroke grove to Southall West	Sat/Sun 16hr	Relief	
Period 2	WK44	2031	Stage 16A	25/01/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 2	WK45	2031	Stage 16A	01/02/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 2	WK46	2031	Stage 16A	08/02/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 2	WK47	2031	Stage 16A	15/02/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 3	WK48	2031	Stage 16A	22/02/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 3	WK49	2031	Stage 16A	01/03/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 3	WK50	2031	Stage 16A	08/03/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 3	WK51	2031	Stage 16A	15/03/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 4	WK52	2031	Stage 16B	22/03/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 4	WK1	2031	Stage 16B	29/03/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 4	WK2	2031	Stage 16B	05/04/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 4	WK3	2031		12/04/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 5	WK4	2031		19/04/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 5	WK5	2031		26/04/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 5	WK6	2031		03/05/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 5	WK7	2031		10/05/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 6	WK8	2031		17/05/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 6	WK9	2031		24/05/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 6	WK10	2031		31/05/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 6	WK11	2031		07/06/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 7	WK12	2031	Stage 17	14/06/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 7	WK13	2031	Stage 17	21/06/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 7	WK14	2031	Stage 17	28/06/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 7	WK15	2031	Stage 17	05/07/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 8	WK16	2031	Stage 17	12/07/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 8	WK17	2031	Stage 17	19/07/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 8	WK18	2031	Stage 17	26/07/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 8	WK19	2031	Stage 17	02/08/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 9	WK20	2031	Stage 17	09/08/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 9	WK21	2031	Stage 17	16/08/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 9	WK22	2031	Stage 17	23/08/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 9	WK23	2031	Stage 17	30/08/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 10	WK24	2031	Stage 17	06/09/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 10	WK25	2031	Stage 17	13/09/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 10	WK26	2031	Stage 17	20/09/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 10	WK27	2031	Stage 17	27/09/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 11	WK28	2031	Stage 17	04/10/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 11	WK29	2031	Stage 17	11/10/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 11	WK30	2031	Stage 17	18/10/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 11	WK31	2031	Stage 17	25/10/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 12	WK32	2031	Stage 17	01/11/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 12	WK33	2031	Stage 17	08/11/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 12	WK34	2031	Stage 17	15/11/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 12	WK35	2031	Stage 17	22/11/2031	Ladbroke grove to Southall West	Sat/Sun 8Hr	Relief	
Period 13	WK36	2031	Stage 17	29/11/2031	Royal Oak to Acton West	Sat/Sun 8hr	Mains	Includes North Pole A+B
Period 13	WK37	2031	Stage 17	06/12/2031	Royal Oak to Acton West	Sat/Sun 8Hr	Mains	Includes North Pole A+B
Period 13	WK38	2031	Stage 17	13/12/2031				
Period 13	WK39	2031	Stage 18	20/12/2031	Paddington to Acton West	Duration TBC	Mains and Reliefs	
Period 13	WK40	2031	Stage 18	######				

2032

Planning period				Period 2				Period 3				Period 4
Planning week	WK41	WK42	WK43	WK44	WK45	WK46	WK47	WK48	WK49	WK50	WK51	WK52
Year	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032
Stage												
Date (Sat WC)	03/01/2032	10/01/2032	17/01/2032	24/01/2032	31/01/2032	07/02/2032	14/02/2032	21/02/2032	28/02/2032	06/03/2032	13/03/2032	20/03/2032
Possession	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	16hr	8hr	16hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr
Lines	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr
Lines	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief
		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular
Possession	Ladbroke grove to Southall West		Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West	
	Sat/Sun		Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun	
Duration	3.5hr		3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr	
Lines	Mains		Mains		Mains	Mains	Mains		Mains	Mains	Mains	
Deliveries												
Deliveries												
Discipline		Pway		Pway		Pway		Pway		Pway		Pway
Aaccess Point		Hitachi		Hitachi		Hitachi		Hitachi		Hitachi		Hitachi
Possession		NBS		NBS		NBS		NBS		NBS		NBS
duration		Sat/Sun 8h		Sat/Sun 8h		Sat/Sun 8h		Sat/Sun 8h		Sat/Sun 8h		Sat/Sun 8h
Lines		Mains		Mains		Mains		Mains		Mains		Mains
Resources		Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)		Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)		Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)		Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)		Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)		Loco, 3MT Falcons (spoil), 1LD Bass (pipes), 1LD Falcon (peas), 2LD Falcon (ballast)
Description		**East Drainage** Remaining section in 6ft between UM & DM. 6 shifts to complete		**East Drainage** Remaining section in 6ft between UM & DM. 6 shifts to complete		**East Drainage** Remaining section in 6ft between UM & DM. 6 shifts to complete		**East Drainage** Remaining section in 6ft between UM & DM. 6 shifts to complete		**East Drainage** Remaining section in 6ft between UM & DM. 6 shifts to complete		**East Drainage** Remaining section in 6ft between UM & DM. 6 shifts to complete
Discipline												
Aaccess Point												
Possession												
duration												
Lines												
Resources												
Description												

Planning period				Period 5				Period 6				Period 7
Planning week	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	WK12
Year	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032
Stage												
Date (Sat WC)	27/03/2032	03/04/2032	10/04/2032	17/04/2032	24/04/2032	01/05/2032	08/05/2032	15/05/2032	22/05/2032	29/05/2032	05/06/2032	12/06/2032
Possession	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr
Lines	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr
Lines	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief
		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular
Possession	Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West	
	Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun	
Duration	3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr	
Lines	Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains	

Planning period				Period 8				Period 9				Period 10
Planning week	WK13	WK14	WK15	WK16	WK17	WK18	WK19	WK20	WK21	WK22	WK23	WK24
Year	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032
Stage												
Date (Sat WC)	19/06/2032	26/06/2032	03/07/2032	10/07/2032	17/07/2032	24/07/2032	31/07/2032	07/08/2032	14/08/2032	21/08/2032	28/08/2032	04/09/2032
Possession	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon
Duration	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr
Lines	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B
Possession	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun
Duration	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr
Lines	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief
		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular
Possession	Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West	
	Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun	
Duration	3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		4.5hr	5hr	3.5hr	
Lines	Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains	

Planning period				Period 11				Period 12				Period 13	
Planning week	WK25	WK26	WK27	WK28	WK29	WK30	WK31	WK32	WK33	WK34	WK35	WK36	WK37
Year	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032	2032
Stage													
Date (Sat WC)	11/09/2032	18/09/2032	25/09/2032	02/10/2032	09/10/2032	16/10/2032	23/10/2032	30/10/2032	06/11/2032	13/11/2032	20/11/2032	27/11/2032	04/12/2032
Possession	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Ladbroke grove to Southall West	Royal Oak to Acton West	Royal Oak to Acton West
	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun	Sat/Sun
Duration	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr	8hr
Lines	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Relief	Mains	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Includes North Pole A+B
Possession	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Acton Wells jn to Acton West	Royal Oak to Acton West	Royal Oak to Acton West
	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sun/Mon
Duration	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	8hr	5hr	5hr
Lines	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Populars	Mains	Mains
		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B		Includes North Pole A+B	Includes North Pole A+B
Possession	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Ladbroke grove to Acton West	Royal Oak to Acton West	Royal Oak to Acton West
	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sun/Mon	Sat/Sun	Sat/Sun
Duration	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	6hr	4.5hr	4.5hr
Lines	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Reliefs	Relief	Relief
		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular		Excludes Popular	Excludes Popular
Possession	Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Southall West	Ladbroke grove to Acton West	Ladbroke grove to Southall West		Ladbroke grove to Acton West
	Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Sat/Sun	Tue/Wed	Sat/Sun		Tue/Wed
Duration	3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		3.5hr	5hr	3.5hr		5hr
Lines	Mains	Mains	Mains		Mains	Mains	Mains		Mains	Mains	Mains		Mains

APPENDIX D

Synchro Animation

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APPENDIX E

RAID Log

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RAID Constructability ID	Type	Status	Description	Additional Detail / Update	Concern (H/M/L)	Impact	Mitigation	Actions	Source
RR-001	Assumption	Active	HEX will remain as an operator on the GWML until at least 2023	The relocation of HEX from Old Oak Common to an alternative site is based on HEX continuing to operate services until at least 2023	M	Programme delay			
RR-002	Assumption	Active	• The HS2 Construction and Methodology Report (1SN02-WSP-CL-REP-SS07-000001 C03) forms the basis of the Rail Systems assumptions for the OOCRS construction and logistics plans •The Network Rail high-level staging strategy schematics (HS2 OOC GWML Staging Schematics – V6 (Option 2C)) forms the basis of the construction sequences further explored within this report.	Therefore, main works commence in 2021.	H	OOCRS constructability staging and deliverables			
RR-003	Assumption	Active	Formation will be cleared by the Station Contractor to 500mm below proposed rail level, 30m to East of Box station and 30m to West of CL under bridge, throughout the OOC site.	Trim whole site - add Type 1 level to build off and 500mm + GeoGrid. Compaction/bearing strength requirements to be confirmed by design	H	Programme delay & Logistics planning			
RR-004	Assumption	Active	Assume 30% contaminated spoil for carding		L	Logistics planning			
RR-005	Assumption	Active	It is assumed that either Westbury or Hinksey will be used for Local Distribution Centre (LDC)		M	Logistics planning			
RR-006	Assumption	Active	Assume the power station located in the triangle of land between the AWL and MLN1 will be removed in this location		L	Logistics planning			
RR-007	Assumption	Closed	Assume 60ft + flash butt weld	Assumption closed and various lengths are being used for different stages. E.g. 108m half-strings are being used for Stage 5.	L	Logistics planning			
RR-008	Assumption	Active	Wherever possible through bearers will be used		L	Track methodology			
RR-009	Assumption	Active	The conveyor to the Euro Yard is not available for use by the Rail Systems Project		L	Logistics planning			
RR-010	Assumption	Active	Down Main cess - current ATF cable suspended 1m high will be re-routed prior to Rail Systems works	Detailed discussions around the routing of all HV cables are to take place due to the risks of EMC generated.	L	Logistics planning			
RR-011	Assumption	Closed	Assume access will be available through the Hitachi/Northpole site to the proposed RRAP	This assumption has been removed. Assume access will not be possible.	M	Programme delay			
RR-012	Assumption	Active	Unless the works are being carried out during a possession, no work can be undertaken outside of the defined HS2 working hours: "Core working hours will be from 08:00 to 18:00 on weekdays (excluding bank holidays) and from 08:00 to 13:00 on Saturdays. The nominated undertaker will require that its contractors adhere to these core working hours for each site as far as is reasonably practicable or unless otherwise permitted under Section 61 of the Control of Pollution Act 1974."		M	Programme delay & Logistics planning			
RR-013	Assumption	Active	Any material delivery coming from the Up Relief will need to come with a RoR possession		M	Logistics planning			
RR-014	Assumption	Active	Assume that for the majority of the construction methodology, OLE equipment will be installed after the track construction (not including OLE foundations).		L	Logistics planning			
RR-015	Assumption	Active	The Wycombe branch is off limits to the OOCRS work		M	Programme delay			
RR-016	Assumption	Active	There will be no data changes before Xmas 2024		M	Programme delay			
RR-017	Assumption	Closed	Assume we can leave in 8078 points and use for rail head from the east	It is no longer possible to leave in the 8078 points for this railhead.	M	Logistics planning			
RR-018	Assumption	Active	Road deliveries will be reduced as much as practicable, however, road deliveries will still be integral to the OOCRS constructability piece		H	Programme delay & Logistics planning			
RR-019	Assumption	Active	Assumed OLE installation times in order to develop staging: 1hr a leg 2hr a boom		L	Logistics planning			
RR-020	Assumption	Active	Access to Mains via Jewson's yard should be included, along with using Jewson's Yard compound with a compulsary purchase.	Jewson's yard should be assumed for access to the mains. This may require powers under the TWAO - but it is our only option for the area on the mains. It is intended that the shed on site is kept.	H	Programme delay & Logistics planning			
RR-021	Assumption	Active	It is assumed that limited road haulage will be available for East access. High output trains will have to be utilised.		M	Logistics planning			

RAID Constructability ID	Type	Status	Description	Additional Detail / Update	Concern (H/M/L)	Impact	Mitigation	Actions	Source
RR-022	Assumption	Active	ASSUMPTION on Number of Wagons W&W: • Falcons - 120 • Lobster - 25 • Coalfish - 180 • Sidetippers - 40 • Autohoppers - 45 • Osprey - 23 • Salmon - 22 • Bass - 30 All other wagons are from a National Pool e.g. Mullet, Trench etc. Kirow Cranes are ordered direct from suppliers with an overview at MK		L	Logistics planning			
RR-023	Risk	Active	Due to the difficulty of integrating construction works with signalling programmes, there is a risk that Stage 18 (XMAS 2027) will slip		M	Programme delay	Ensure correct integration and understanding of required signalling works is met, in order to reduce and mitigate this risk from occuring.		
RR-024	Risk	Active	There are potential risks in the chosen order of the drainage, UTX's and formation build up. Careful considerations of construction logistics will be crucial to mitigate potential risks (contaminated ballast / crushed drainage etc…)		M	Logistics planning			
RR-025	Risk	Active	SN164 needs to be relocated to enable Part 1 of the Underbridge consruction. Currently unclear who is undertaking this work.		M	Bridge construction staging programme.	Integration needed with Civil Contractor	Integration needed with Civil Contractor	
RR-026	Risk	Active	BBVS staging of GWML station build will likely differ from WSP proposals in their Construction and Methodology Report.		M	OOCRS constructability staging and deliverables		Validate key assumptions that detail information the OOCRS deliverables should be based off. Communicate Risks to Network Rail / HS2	
RR-027	Risk	Active	Attenuation tanks are programmed to be installed towards the end of the OOC Station works. A temporary drainage solution is needed between Stage 8 and when the attenuation tanks are installed, exact dtae to be confirmed.		L	Programme delay	Temporary drainage solution to be designed.	Integration needed with the Station Contractor.	
RR-028	Risk	Active	The existing NLL wing wall foundation depth has not been confirmed, however, trial pit information at the NLL abutment was undertaken. The depth of the NLL wing wall and its geometry not known. Further investigation is required to establish this.		M	Programme delay	Establish NLL wing wall depth	Undertake further site investigation to mitigate this risk	
RR-029	Issue	Active	Piling operations from piling rig are likely to be restricted to working in a Possession and Isolation due to clearances to NLL and the Up Relief.		L	Programme delay & Logistics planning	Potential to mitigate by using specialist plant with reduced collapse radii.	Investigate the use of specialist plant	
RR-030	Issue	Active	To enable the retaining wall at the NLL bridge. Embankment strengthening works may be required to enable access for plant to construct the piled retaining wall. Additionally, monitoring of the earthworks and safe removal of the fill from site will be required.		L	Logistics planning	Carry out site investigation to determine whether embankment strengthening works are required. Monitor the earthworks and safe removal of the fill.		
RR-031	Issue	Active	To construct the foundations of signal gantry SN174-SN170-SN168 access will be required from Brunel Road and Jenner Avenue.		L	Logistics planning			
RR-032	Issue	Active	Dewiring may be requried to lift the boom of gantry SN174-SN170-SN168 into place.		L				
RR-033	Issue	Active	UTX proposed at chainage 5870 will is to be modified with the addition of a new chamber.		L			Cables in the UTX will need to be surveyed to confirm spare ducts are available and proposal is possible.	
RR-034	Issue	Active	Large volume of materials are required to come via rail for the construction of NLL retaining wall, and REB bases in the West.		L				
RR-035	Assumption	Active	OLE material will be loaded on to trains at Swindon Banana Sidings. Small materials will be delivered by road		L	Logistics planning			
RR-036	Dependency	Active	Availability of Key OLE installation plant – particularly the manipulator for installing steel		L	Programme delay & Logistics planning			
RR-037	Dependency	Active	SFI MOS changes occuring during 2020 and 2021.		L	Design and programme	Design will be integrated and MOS changes will be completed prior to OOC Rail Systems Design are completed at GRIP5.		
RR-038	Dependency	Active	The commisioning of ATS from Kensal Green and the feed to the new ATS at OOC Station.		L	Design and programme			

RAID Constructability ID	Type	Status	Description	Additional Detail / Update	Concern (H/M/L)	Impact	Mitigation	Actions	Source
RR-039	Assumption	Active	Arcadis have identified record drawings that detail 2 to 3 catch pits in the area of the S&C proposed in the Acton cutting.	If these exist these would need to be reduced down to formation level and capped. This may require additional access or a possession to dig both roads in one possession. Further investigation required at GRIP 5.	H	Design and programme	Undertake further investigation in GRIP 5 prior to construction to determine if the pits exist and where they are located.	Survey possible pit locations.	Record drawings
RR-040	Assumption	Active	Currently works between the Down Relief (P5) and the Up Relief Loop (P7) are carried out in a rail locked site with ALO restrictions.	If P7 is not comissioned until final there is an oppottunity to introduce it as an additional rail head to deliver Pway materials between Up and Down reliefs	M	Design and programme	Undertake integration with BBVS to understand oportunity	Carry on BBVS integration of programmes	Gannt chart comparison excersise and 4D visulisation
RR-041	Assumption	Active	Christmass possessions planned as 6 day all line block and 5 day two track taken	The float in the planning is limited by timeframes and as more detailed design completed the timing of events will become more accurate.	M	Logistics Planning	Keep christmas possessions in as planned and review in detailed deisgn	Undertake detailed designa nd integration with BBVS to undertsand if prepatory works could reduce the pressure on christmass possessions	Gannt Chart
RR-042	Assumption	Active	The Station Civils team will recover redundant rail assets would reduce the wagon requirements	Dates currently not agreed for recovery and road moved non preferable	L	Logistics planning	Plan for rail use and review continuously to improve effiency	Integrate with BBVS	Gannt chart comparison excersise and 4D visulisation

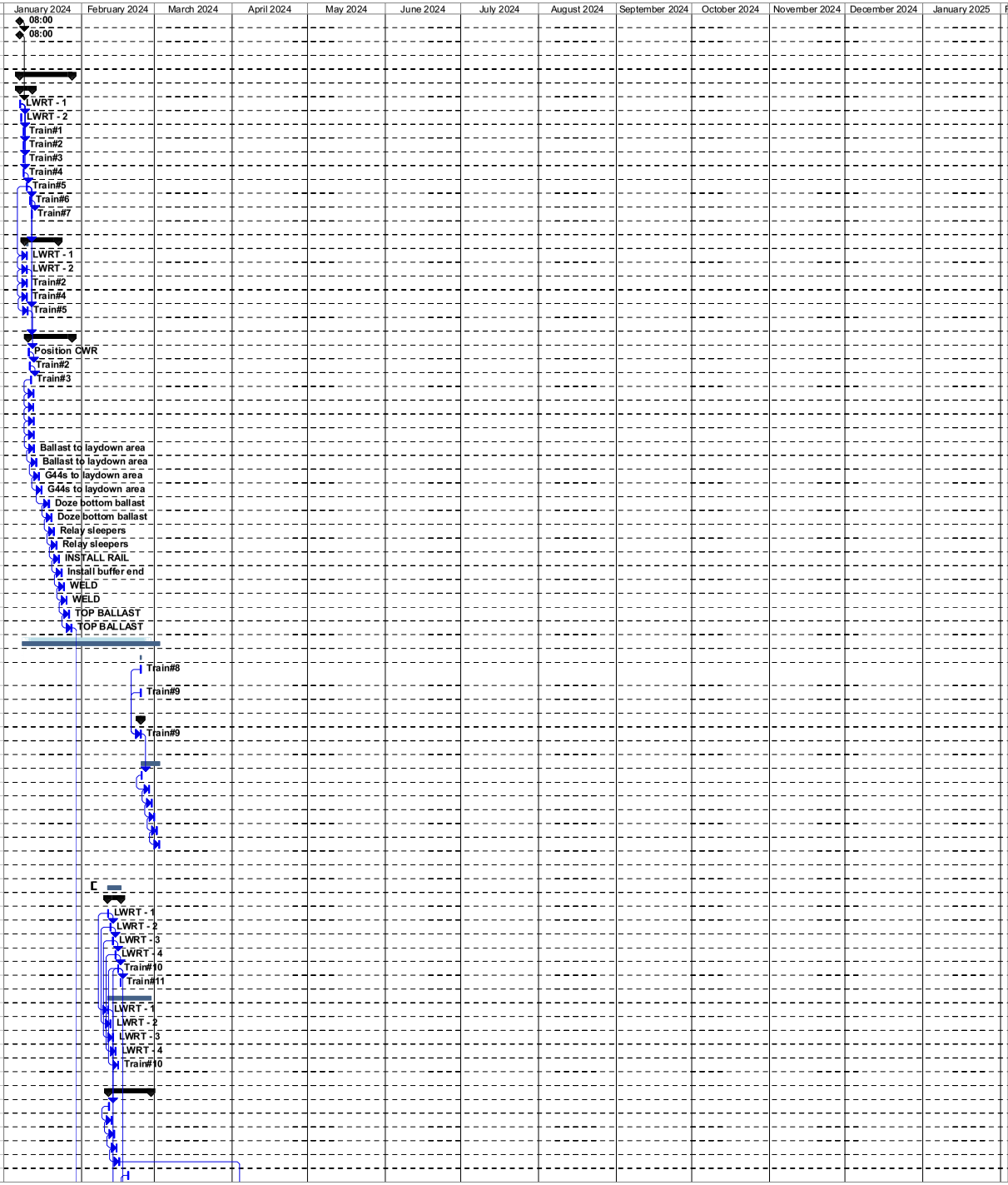
Design Decision Log ID	Cause of Decision	Document(s) affected (document reference)	Design Decision made	Date of entry	By (name)	Change to requirements (Y/N)	Notes	Status
DDL-001	The other stakeholders are progressing the OOC Scheme alongside Arcadis' Rail Systems design. Arcadis require a rigid baseline for us to centre our assumptions around and develop the constructability piece.	WSP Construction & Methodology Report (1SN02-WSP-CL-REP-SS07-000001) All constructability deliverables	Arcadis have been instructed to use the WSP Construction & Methodology Report (1SN02-WSP-CL-REP-SS07-000001) as the basis for our assumptions	17/09/2019	MH	Y		Open
DDL-002	The other stakeholders are progressing the OOC Scheme alongside Arcadis' Rail Systems design. Arcadis require a rigid baseline for us to centre our assumptions around and develop the constructability piece.	HS2 OOC GWML Staging Schematics V6C All constructability deliverables	Arcadis have been instructed to use the HS2 OOC GWML Staging Schematics V6C as the basis for our assumptions	17/09/2019	MH	Y		Open
DDL-003	A visual display of the construction logistics would be invaluable to the client	Synchro Video	Develop Synchro model alongside progression of constructability logistics	17/09/2019	MH	N		Open
DDL-004	The HS2 OOC GWML Staging Schematics V6C are not geo-spatial accurate. This creates certain risks in our assessments.	Rail Systems Constructability Report (152270-ARC-REP-EMF-000004)	Develop the staging schematics into geo-spatially accurate GA's. Include compounds and access points within these drawings	17/09/2019	MH	N		Open
DDL-009	Proposed rail head requires an operational management assessment.	Operational Management Plan / Report (152270-ARC-REP-EMG-000003 – P01)	Arcadis to produce an Operational Management Plan	25/11/2019	MH	Y		Open
DDL-010	Opportunity to reduce programme time by combining two Christmas stages.	All constructability deliverables	Arcadis to undertake an assessment of combining Stages 9 & 12	25/11/2019	MH	N		Open
DDL-011	Question around level of detail for constructability deliverables	All constructability deliverables	The level of detail for the constructability deliverables should be almost GRIP 5. Network Rail have advised the level of detail/granularity should be increased following the last instruction.	25/11/2019	MH	Y		Open
DDL-012	Arcadis/Babcock believe if the station contractor reduced their proposed site clear from 750mm to 500mm, this would result in greater efficiency and reduced waste.	All constructability deliverables	Formation Level Assumption - The station/civil engineering contractor shall provide a cleared site at a nominal 500mm below proposed rail level	17/12/2019	MH	N		Open
DDL-013	Network Rail identified that work cannot be carried out during the evening, out of possession, even if a possession was used to bring the wagons into site.	All constructability deliverables	Update assumptions regarding working hours. Unless during a possession & isolation, no work is to be undertaken outside the hours of 08:00 - 18:00.	17/12/2019	MH	N		Open
DDL-014	Material conveyor is fully utilised by WSP throughout its time on site.	All constructability deliverables	Arcadis are not permitted to utilise the WSP conveyor	17/12/2019	MH	Y		Open
DDL-015	Programming of bridge works has pushed out. Arcadis to continue following outlined assumptions.	All constructability deliverables	Arcadis plan the construction for the Railhead during August, following the completed construction of the bridges in March. NR mentioned that the bridges programme has pushed back and they would not be complete until November. Arcadis will continue working to the WSP Report and initial assumptions of March..	24/01/2020	MH	N		Open
DDL-017	A compound is required to the East of the site.	All constructability deliverables	A compound to the East of the Urban Realm Model will be available to the Rail Systems team. In the permanent case, this compound will be provided to NR as a maintenance compound.	07/02/2020	NS	N		Open
DDL-018	Various proposals are currently in development for the use of the Wycombe branch, which would change the construction order of the bridge and alter numerous assumptions.	All constructability deliverables	Arcadis to ignore the potential future use of the Wycombe branch to continue with baseline assumptions.	07/02/2020	NS	N		Open
DDL-019	Meeting with Stuart Witts - Access to Mains via Jewson's yard should be included and assumed possible.	All constructability deliverables	Jewson's yard will be used for access to the mains. Arcadis will put forward to requirement in the report for this site to be purchased to allow for the Rail Systems Construction Works.	07/02/2020	NS	N		Open
DDL-020	Diversion of ATF cable is required during the staging works.	Rail Systems Constructability Report (152270-ARC-REP-EMF-000004)	PERMANENT: Run it through the six foot to the West of NLL under the bridge - mirror what is done on the other side TEMPORARY: Run the ATF between DM and UM - 10 foot in the temporary case and then up and over (2022 - relocation of the ATF) Carry out the RW modifications and relocation of ATF on the lead up to Stage 6.	12/02/2020	MH	N		Open
DDL-021	Design constraints: 8077s not being an option	All constructability deliverables	The Up Relief will be used to unload materials and construct the Eastern Section of the Station. The requirement for an Eastern rail head has been removed due to design constraints and a lack of logistical benefits.	01/03/2020	MH	N		Open
DDL-022	NLL bridge wing retaining wall requirement	All constructability deliverables	Sheet piling was considered but not selected due to concerns with the embankment stability when vibrating or driving the sheet piles in.	15/06/2020	CP	N		Open
DDL-023	NLL bridge wing retaining wall requirement	All constructability deliverables	The installation of the contiguous pile wall section will be undertaken using Continuous Flight Auguring (CFA) techniques to benefit from minimal vibrations and low level of noise.	15/06/2020	CP	N		Open
DDL-024	NLL bridge wing retaining wall requirement	All constructability deliverables	Shotcrete has been proposed to improve the visual appearance of the piled wall.	15/06/2020	CP	N		Open
DDL-025	NLL bridge wing retaining wall requirement	All constructability deliverables	The introduction of a graded embankment will save on time and costs of constructing a longer retaining wall and eliminate hazards and risks associated with retaining features during construction, operation and maintenance.	15/06/2020	CP	N		Open

APPENDIX F

Pway Gannt Charts

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ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 5**	0 hrs	Sun 07/01/24	Sun 07/01/24
2	**JANUARY TO DECEMBER 2024**	0 hrs	Sun 07/01/24	Sun 07/01/24
3				
4	STAGE 5.1			
5	**WEST RAIL HEAD**	62.5 days	Sun 07/01/24	Sun 28/01/24
6	**TRAINS**	15.13 days	Sun 07/01/24	Fri 12/01/24
7	**LWRT - 1 (6 x 108m rail strings)**	**8 hrs**	**Sun 07/01/24**	**Sun 07/01/24**
8	**LWRT - 2 (4 x 108m rail strings)**	**8 hrs**	**Sun 07/01/24**	**Mon 08/01/24**
9	**Train#1: Loco, 15MT Falcons (Spoil), Loco**	**8 hrs**	**Mon 08/01/24**	**Tue 09/01/24**
10	**Train#2: Loco, 15LD Falcons (Bottom ballast), Loco**	**8 hrs**	**Mon 08/01/24**	**Tue 09/01/24**
11	**Train#3: Loco, 15MT Falcons (Spoil), Loco**	**8 hrs**	**Mon 08/01/24**	**Tue 09/01/24**
12	**Train#4: Loco, 15LD Falcons (Bottom ballast), Loco**	**8 hrs**	**Mon 08/01/24**	**Tue 09/01/24**
13	**Train#5: Loco, 5LD Salmon (G44s)**	**8 hrs**	**Wed 10/01/24**	**Wed 10/01/24**
14	**Train#6: Loco (TSO), 15LD Falcons (Type 1)**	**8 hrs**	**Thu 11/01/24**	**Thu 11/01/24**
15	**Train#7: Loco (TSO), 15LD Falcons (Type 1)**	**8 hrs**	**Fri 12/01/24**	**Fri 12/01/24**
16				
17	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**	40.13 days	Tue 09/01/24	Mon 22/01/24
18	Take delivery of 6 x 108m rail strings in Up Relief 4ft	8 hrs	Wed 10/01/24	Wed 10/01/24
19	Take delivery of 4 x 108m rail strings in Up Relief 4ft	8 hrs	Wed 10/01/24	Wed 10/01/24
20	Take delivery of ballast from Train#2	8 hrs	Wed 10/01/24	Wed 10/01/24
21	Take delivery of ballast from Train#4	8 hrs	Wed 10/01/24	Wed 10/01/24
22	Take delivery of G44s (840) from Train#5	8 hrs	Wed 10/01/24	Wed 10/01/24
23				
24	**SITE WORKS - DAYSHIFT**	52.38 days	Wed 10/01/24	Sun 28/01/24
25	TRTs position CWR strings in laydown area	10 hrs	Wed 10/01/24	Thu 11/01/24
26	Excavate and load train #1	10 hrs	Thu 11/01/24	Thu 11/01/24
27	Excavate and load train #3	10 hrs	Thu 11/01/24	Fri 12/01/24
28	Unload Type 1 then reload spoil to train#6	8 hrs	Fri 12/01/24	Fri 12/01/24
29	Convey Train#7 into position	0.5 hrs	Fri 12/01/24	Fri 12/01/24
30	Unload Type 1 then reload spoil to train#7	8 hrs	Fri 12/01/24	Sat 13/01/24
31	3D doze and compact reset plant for BB installation	8 hrs	Fri 12/01/24	Sat 13/01/24
32	Convey ballast to laydown area - Shift 1	10 hrs	Fri 12/01/24	Sat 13/01/24
33	Convey ballast to laydown area - Shift 2	10 hrs	Sat 13/01/24	Sun 14/01/24
34	Convey G44s to laydown area - Shift 1	10 hrs	Sun 14/01/24	Mon 15/01/24
35	Convey G44s to laydown area - Shift 2	10 hrs	Mon 15/01/24	Tue 16/01/24
36	Lay bottom ballast, doze and compact - Shift 1	10 hrs	Thu 18/01/24	Fri 19/01/24
37	Lay bottom ballast, doze and compact - Shift 2	10 hrs	Fri 19/01/24	Sat 20/01/24
38	Relay loose G44s - Shift 1	10 hrs	Sat 20/01/24	Sun 21/01/24
39	Relay loose G44s - Shift 2	10 hrs	Sun 21/01/24	Mon 22/01/24
40	Install CWR, clip up& clamp	10 hrs	Mon 22/01/24	Tue 23/01/24
41	Install buffer end	10 hrs	Tue 23/01/24	Wed 24/01/24
42	Weld - Shift 1	10 hrs	Wed 24/01/24	Thu 25/01/24
43	Weld - Shift 2	10 hrs	Thu 25/01/24	Fri 26/01/24
44	Run out top ballast& profile - Shift 1	10 hrs	Fri 26/01/24	Sat 27/01/24
45	Run out top ballast& profile - Shift 2	10 hrs	Sat 27/01/24	Sun 28/01/24
46	**PLATFORMS 4 & 5 WEST DRAINAGE (450m)**			
47	**TRAINS**			
48	**Train#8: Loco, 5LD Bass (Pipes), 5LD Falcons (Peas), 5LD Falcons (Ballast) (MATERIALS FOR P3,4&5), Loco**	**8 hrs**	**Sat 24/02/24**	**Sat 24/02/24**
49	**Train#9: Loco, 15MT (Spoil), Loco**	**8 hrs**	**Sat 24/02/24**	**Sat 24/02/24**
50				
51	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
52	Take delivery of pipes, peas and ballast from Train on Up Relief	8 hrs	Sat 24/02/24	Sat 24/02/24
53				
54	**SITE WORKS - DAYSHIFT**			
55	Convey drainage materials to laydown area	8 hrs	Sat 24/02/24	Sun 25/02/24
56	Complete drainage run (stockpiling spoil for removal) - Shift 1 of 5	8 hrs	Tue 27/02/24	Wed 28/02/24
57	Complete drainage run (stockpiling spoil for removal) - Shift 2 of 5	8 hrs	Wed 28/02/24	Thu 29/02/24
58	Complete drainage run (stockpiling spoil for removal) - Shift 3 of 5	8 hrs	Thu 29/02/24	Fri 01/03/24
59	Complete drainage run (stockpiling spoil for removal) - Shift 4 of 5	8 hrs	Fri 01/03/24	Sat 02/03/24
60	Complete drainage run (stockpiling spoil for removal) - Shift 5 of 5	8 hrs	Sat 02/03/24	Sun 03/03/24
61				
62	**STAGE 7.5**			
63	**PLATFORM 3 WEST (200m)**			
64	**TRAINS**			
65	**LWRT - 1 (6 x 108m rail strings)**	**8 hrs**	**Sun 11/02/24**	**Sun 11/02/24**
66	**LWRT - 2 (6 x 108m rail strings)**	**8 hrs**	**Mon 12/02/24**	**Mon 12/02/24**
67	**LWRT - 3 (6 x 108m rail strings)**	**8 hrs**	**Tue 13/02/24**	**Tue 13/02/24**
68	**LWRT - 4 (6 x 108m rail strings)**	**8 hrs**	**Wed 14/02/24**	**Wed 14/02/24**
69	**Train#10: Loco, 2LD Salmon (336 No. G44s), 10LD Falcons, Loco**	**8 hrs**	**Thu 15/02/24**	**Thu 15/02/24**
70	**Train#11: Loco, 15LD (Type 1), Loco**	**8 hrs**	**Fri 16/02/24**	**Fri 16/02/24**
71	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
72	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Sun 11/02/24	Sun 11/02/24
73	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Mon 12/02/24	Mon 12/02/24
74	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Tue 13/02/24	Tue 13/02/24
75	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Wed 14/02/24	Wed 14/02/24
76	Take delivery of ballast and G44s from Train#10 on Up Relief	8 hrs	Thu 15/02/24	Thu 15/02/24
77				
78	**SITE WORKS - DAYSHIFT**			
79	TRTs position CWR strings in laydown area	10 hrs	Sun 11/02/24	Mon 12/02/24
80	TRTs position CWR strings in laydown area	10 hrs	Mon 12/02/24	Tue 13/02/24
81	TRTs position CWR strings in laydown area	10 hrs	Tue 13/02/24	Wed 14/02/24
82	TRTs position CWR strings in laydown area	10 hrs	Wed 14/02/24	Thu 15/02/24
83	Convey ballast & G44s to laydown area	10 hrs	Thu 15/02/24	Fri 16/02/24
84	Excavate spoil: CH5300 to 5500 (200m). Convey spoil to loading area for Train loading - Shift 1 of 2	10 hrs	Mon 19/02/24	Mon 19/02/24

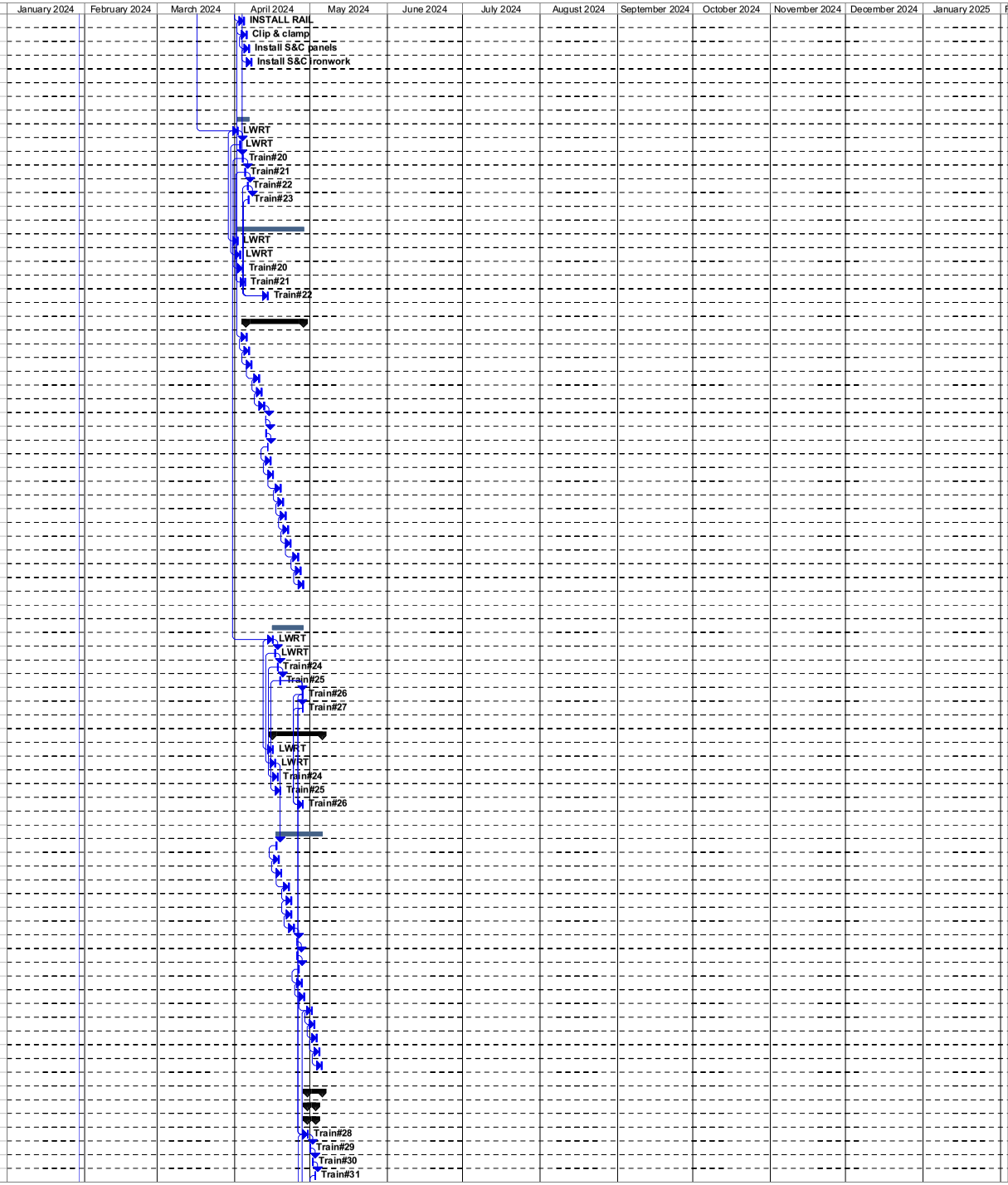


ID	Task Name	Duration	Start	Finish
85	Excavate spoil: CH5300 to 5500 (200m). Convey spoil to loading area for Train loading - Shift 2 of 2	10 hrs	Tue 20/02/24	Tue 20/02/24
86	Excavate drainage trench, install pipes & peas - Shift 1 of 2	10 hrs	Tue 20/02/24	Tue 20/02/24
87	Excavate drainage trench, install pipes & peas - Shift 2 of 2	10 hrs	Wed 21/02/24	Wed 21/02/24
88	Convey Train#11 into position	0.5 hrs	Thu 22/02/24	Thu 22/02/24
89	Unload Type 1 then reload spoil to train#11	8 hrs	Thu 22/02/24	Fri 23/02/24
90	3D doze and compact reset plant for BB installation	4 hrs	Fri 23/02/24	Fri 23/02/24
91	Install bottom ballast, doze and compact	10 hrs	Sat 24/02/24	Sat 24/02/24
92	Relay loose G44s	10 hrs	Sun 25/02/24	Sun 25/02/24
93	Install CWR, clip up and clamp	10 hrs	Wed 28/02/24	Wed 28/02/24
94	**PLATFORMS 6 & 7 WEST DRAINAGE (230m)**			
95	**TRAINS**			
96	**Train#12: Loco, 5LD Bass (Pipes), 6LD Falcons (Peas), 6LD Falcons (Ballast) (DRAINAGE MATERIALS FOR P6,7&8)**	**8 hrs**	**Sun 18/02/24**	**Sun 18/02/24**
97	**Train#13: Loco, 15LD (Type 1), Loco**	**8 hrs**	**Fri 16/02/24**	**Fri 16/02/24**
98	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
99	Take delivery of pipes, peas and ballast from Train#13 on Up Relief	8 hrs	Sun 18/02/24	Sun 18/02/24
100				
101	**SITE WORKS - DAYSHIFT**			
102	Convey drainage materials to laydown area	8 hrs	Wed 28/02/24	Wed 28/02/24
103	Complete drainage run (stockpiling spoil for removal) - Shift 1 of 2	8 hrs	Wed 28/02/24	Wed 28/02/24
104	Complete drainage run (stockpiling spoil for removal) - Shift 2 of 2	8 hrs	Wed 28/02/24	Wed 28/02/24
105	**PLATFORM 4 WEST (470m)**			
106	**TRAINS**			
107	**Train#14: Loco, 15LD Falcons (Ballast), Loco**	**8 hrs**	**Mon 19/02/24**	**Tue 20/02/24**
108	**Train#15: Loco, 10LD Falcons, 5LD Salmon (840 No. G44s), Loco**	**8 hrs**	**Tue 20/02/24**	**Wed 21/02/24**
109	**Train#16: Loco, 15LD Falcons (Type 1), Loco**	**8 hrs**	**Wed 21/02/24**	**Thu 22/02/24**
110	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
111	Take delivery of ballast from Train#14	8 hrs	Tue 20/02/24	Tue 20/02/24
112	Take delivery of ballast& sleepers from Train#15	8 hrs	Tue 20/02/24	Wed 21/02/24
113				
114	**SITE WORKS - DAYSHIFT**			
115	Convey ballast to laydown area	10 hrs	Tue 20/02/24	Tue 20/02/24
116	Convey ballast& G44s to laydown area	10 hrs	Wed 21/02/24	Wed 21/02/24
117	Excavate spoil: CH5300 to 5770 (470m). Convey spoil to loading area for Train loading - Shift 1 of 3	10 hrs	Thu 29/02/24	Thu 29/02/24
118	Excavate spoil: CH5300 to 5770 (470m). Convey spoil to loading area for Train loading - Shift 2 of 3	10 hrs	Fri 01/03/24	Sat 02/03/24
119	Excavate spoil: CH5300 to 5770 (470m). Convey spoil to loading area for Train loading - Shift 3 of 3	10 hrs	Sun 03/03/24	Sun 03/03/24
120	Convey Train#16 into position	0.5 hrs	Mon 04/03/24	Mon 04/03/24
121	Unload Type 1 then reload spoil to train#16	8 hrs	Mon 04/03/24	Mon 04/03/24
122	3D doze and compact reset plant for BB installation	4 hrs	Mon 04/03/24	Mon 04/03/24
123	Install bottom ballast, doze and compact - Shift 1 of 3	10 hrs	Wed 06/03/24	Wed 06/03/24
124	Install bottom ballast, doze and compact - Shift 2 of 3	10 hrs	Thu 07/03/24	Thu 07/03/24
125	Install bottom ballast, doze and compact - Shift 3 of 3	10 hrs	Sat 09/03/24	Sat 09/03/24
126	Relay loose G44s - Shift 1 of 2	10 hrs	Fri 08/03/24	Fri 08/03/24
127	Relay loose G44s - Shift 2 of 2	10 hrs	Sun 10/03/24	Sun 10/03/24
128	Install CWR - Shift 1 of 2	10 hrs	Mon 11/03/24	Mon 11/03/24
129	Install CWR - Shift 2 of 2	10 hrs	Tue 12/03/24	Tue 12/03/24
130	Clip up& clamp	10 hrs	Wed 13/03/24	Wed 13/03/24
131	Carry out snagging of Platform 3& 4	10 hrs	Thu 14/03/24	Thu 14/03/24
132	Prep& reconfigure material loading areas for Platform 5 West relay	10 hrs	Fri 15/03/24	Fri 15/03/24
133				
134	**PLATFORMS 8 WEST DRAINAGE (420m)**			
135	**SITE WORKS - DAYSHIFT**			
136	Complete drainage run (stockpiling spoil for removal) - Shift 1 of 3	8 hrs	Mon 11/03/24	Mon 11/03/24
137	Complete drainage run (stockpiling spoil for removal) - Shift 2 of 3	8 hrs	Tue 12/03/24	Tue 12/03/24
138	Complete drainage run (stockpiling spoil for removal) - Shift 3 of 3	8 hrs	Wed 13/03/24	Wed 13/03/24
139				
140	**PLATFORM 5 WEST (500m)**			
141	**TRAINS**			
142	**Train#17: Loco, 2 x S&C Tilters, 5LD Salmon (slaves & ironwork), 5LD Salmon (G44s), Loco**	**8 hrs**	**Sat 16/03/24**	**Sun 17/03/24**
143	**Train#18: Loco, 12LD Falcons (Ballast), Loco**	**8 hrs**	**Mon 18/03/24**	**Tue 19/03/24**
144	**Train#19: Loco, 12LD Falcons (Ballast), Loco**	**8 hrs**	**Tue 19/03/24**	**Wed 20/03/24**
145	**Train#20: Loco, 15LD Falcons (Type 1), Loco**	**8 hrs**	**Mon 18/03/24**	**Tue 19/03/24**
146				
147	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
148	Take delivery of S&C panels, slaves, iron work & G44s from Train#16 on Rail Head	8 hrs	Sat 16/03/24	Sun 17/03/24
149	Take delivery of ballast from Train#18 on the Rail Head	8 hrs	Mon 18/03/24	Tue 19/03/24
150	Take delivery of ballast from Train#19 on the Rail Head	8 hrs	Tue 19/03/24	Wed 20/03/24
151	Load Platform 6 and 7 West spoil to Train#20 on the Rail Head	8 hrs	Mon 18/03/24	Tue 19/03/24
152				
153	**SITE WORKS - DAYSHIFT**			
154	Convey S&C panels, slaves, iron work & G44s to laydown area	10 hrs	Mon 18/03/24	Mon 18/03/24
155	Convey ballast to laydown area	10 hrs	Tue 19/03/24	Tue 19/03/24
156	Convey ballast to laydown area	10 hrs	Wed 20/03/24	Wed 20/03/24
157	Excavate spoil: CH5300 to 5800 (500m). Convey spoil to loading area for Train loading - Shift 1 of 3	10 hrs	Wed 20/03/24	Wed 20/03/24
158	Excavate spoil: CH5300 to 5800 (500m). Convey spoil to loading area for Train loading - Shift 2 of 3	10 hrs	Thu 21/03/24	Thu 21/03/24
159	Excavate spoil: CH5300 to 5800 (500m). Convey spoil to loading area for Train loading - Shift 3 of 3	10 hrs	Fri 22/03/24	Fri 22/03/24
160	Convey Train#20 into position	0.5 hrs	Sat 23/03/24	Sat 23/03/24
161	Unload Type 1 then reload spoil to train#20	8 hrs	Sat 23/03/24	Sun 24/03/24
162	3D doze and compact reset plant for BB installation	4 hrs	Sun 24/03/24	Sun 24/03/24
163	Install bottom ballast, doze and compact - Shift 1 of 3	10 hrs	Wed 27/03/24	Wed 27/03/24
164	Install bottom ballast, doze and compact - Shift 2 of 3	10 hrs	Thu 28/03/24	Thu 28/03/24
165	Install bottom ballast, doze and compact - Shift 3 of 3	10 hrs	Fri 29/03/24	Fri 29/03/24
166	Relay loose G44s - Shift 1 of 2	10 hrs	Sat 30/03/24	Sat 30/03/24
167	Relay loose G44s - Shift 2 of 2	10 hrs	Sun 31/03/24	Sun 31/03/24
168	Install CWR - Shift 1 of 2	10 hrs	Wed 03/04/24	Wed 03/04/24



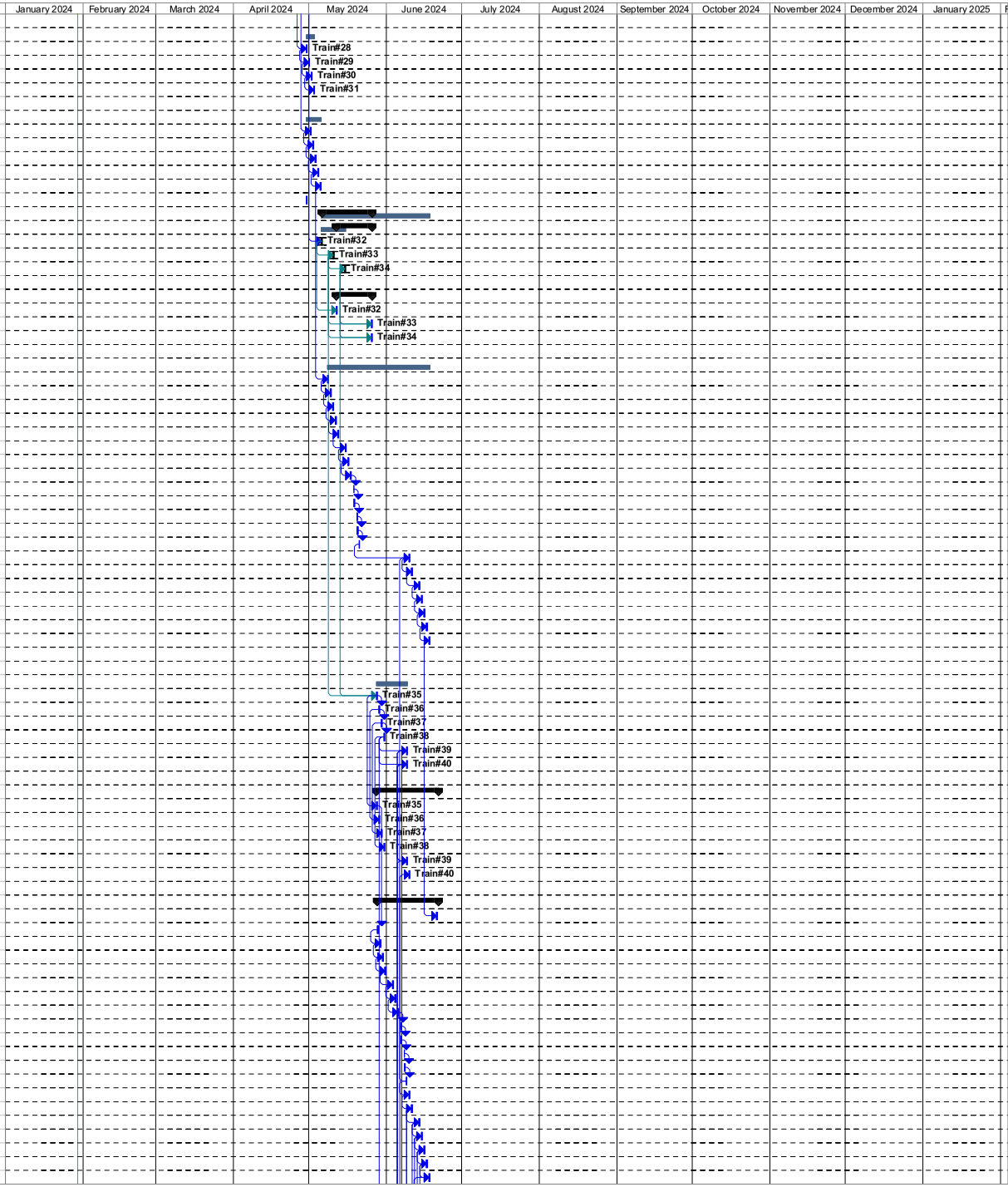
Stage 5

ID	Task Name	Duration	Start	Finish
169	Install CWR - Shift 2 of 2	10 hrs	Thu 04/04/24	Thu 04/04/24
170	Clip up & clamp	10 hrs	Fri 05/04/24	Fri 05/04/24
171	Install 9031 Pts S&C and Slave panels with Crawler Crane from laydown area	10 hrs	Sat 06/04/24	Sat 06/04/24
172	Remove slave rails and install all S&C ironwork through 9031 Pts	10 hrs	Sun 07/04/24	Sun 07/04/24
173				
174	**STAGE 5.3**			
175	**DOWN RELIEF TEMP (520m)**			
176	**TRAINS**			
177	**LWRT - 1 (6 x 108m rail strings) - Up Relief**	**8 hrs**	**Mon 01/04/24**	**Tue 02/04/24**
178	**LWRT - 2 (6 x 108m rail strings) - Up Relief**	**8 hrs**	**Tue 02/04/24**	**Wed 03/04/24**
179	**Train#20: Loco, 15LD Falcons, Loco - Rail Head**	**8 hrs**	**Wed 03/04/24**	**Thu 04/04/24**
180	**Train#21: Loco, 10LD Falcons, 5LD Salmon, Loco - Rail Head**	**8 hrs**	**Thu 04/04/24**	**Fri 05/04/24**
181	**Train#22: Loco, 10MT Falcons, 2LD Bass (Pipes), 2LD Falcons (Peas), Loco - Rail Head**	**8 hrs**	**Fri 05/04/24**	**Sat 06/04/24**
182	**Train#23: Loco, 15LD Falcons (Type 1), Loco - Rail Head**	**8 hrs**	**Sat 06/04/24**	**Sat 06/04/24**
183				
184	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
185	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Mon 01/04/24	Tue 02/04/24
186	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Tue 02/04/24	Wed 03/04/24
187	Take delivery of ballast from Train#20 on Rail Head	8 hrs	Wed 03/04/24	Thu 04/04/24
188	Take delivery of ballast & sleeprs from Train#21 on the Rail Head	8 hrs	Thu 04/04/24	Fri 05/04/24
189	Load spoil to Train#22 and offload Drainage Materials (UR West) on the Rail Head	8 hrs	Sat 13/04/24	Sun 14/04/24
190				
191	**SITE WORKS - DAYSHIFT**			
192	TRTs position CWR strings in laydown area	10 hrs	Fri 05/04/24	Fri 05/04/24
193	Convey ballast to laydown area	10 hrs	Sat 06/04/24	Sat 06/04/24
194	Convey ballast & sleepers to laydown area	10 hrs	Sun 07/04/24	Sun 07/04/24
195	Excavate spoil: CH5300 to 5820 (520m). Convey spoil to loading area for Train loading - Shift 1 of 3	10 hrs	Wed 10/04/24	Wed 10/04/24
196	Excavate spoil: CH5300 to 5820 (520m). Convey spoil to loading area for Train loading - Shift 2 of 3	10 hrs	Thu 11/04/24	Thu 11/04/24
197	Excavate spoil: CH5300 to 5820 (520m). Convey spoil to loading area for Train loading - Shift 3 of 3	10 hrs	Fri 12/04/24	Fri 12/04/24
198	Convey Train#23 into position	0.5 hrs	Sat 13/04/24	Sat 13/04/24
199	Unload Type 1 then reload spoil to train#23	8 hrs	Sat 13/04/24	Sat 13/04/24
200	3D doze and compact reset plant for BB installation	4 hrs	Sun 14/04/24	Sun 14/04/24
201	Install bottom ballast, doze and compact - Shift 1 of 3	10 hrs	Mon 15/04/24	Mon 15/04/24
202	Install bottom ballast, doze and compact - Shift 2 of 3	10 hrs	Tue 16/04/24	Tue 16/04/24
203	Install bottom ballast, doze and compact - Shift 3 of 3	10 hrs	Fri 19/04/24	Fri 19/04/24
204	Relay loose G44s - Shift 1 of 2	10 hrs	Sat 20/04/24	Sat 20/04/24
205	Relay loose G44s - Shift 2 of 2	10 hrs	Sun 21/04/24	Sun 21/04/24
206	Install CWR - Shift 1 of 2	10 hrs	Mon 22/04/24	Mon 22/04/24
207	Install CWR - Shift 2 of 2	10 hrs	Tue 23/04/24	Tue 23/04/24
208	Clip up & clamp	10 hrs	Fri 26/04/24	Fri 26/04/24
209	Carry out snagging	10 hrs	Sat 27/04/24	Sat 27/04/24
210	Prep & reconfigure material loading areas for Up Relief Temp relay	10 hrs	Sun 28/04/24	Sun 28/04/24
211				
212	**UP RELIEF TEMP (260m)**			
213	**TRAINS**			
214	**LWRT - 1 (8 x 108m rail strings) - Up Relief**	**8 hrs**	**Mon 15/04/24**	**Tue 16/04/24**
215	**LWRT - 2 (6 x 108m rail strings) - Up Relief**	**8 hrs**	**Tue 16/04/24**	**Wed 17/04/24**
216	**Train#24: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Wed 17/04/24**	**Thu 18/04/24**
217	**Train#25: Loco, 5LD Falcons, 3LD Salmon, Loco - Rail Head**	**8 hrs**	**Thu 18/04/24**	**Fri 19/04/24**
218	**Train#26: Loco, 15MT Falcons, Loco - Rail Head**	**8 hrs**	**Sat 27/04/24**	**Sun 28/04/24**
219	**Train#27: Loco, 15LD Falcons (Type 1), Loco - Rail Head**	**8 hrs**	**Sat 27/04/24**	**Sun 28/04/24**
220				
221	**PREP WORKS - ROTR POSSESSIONS**			
222	Take delivery of 8 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Mon 15/04/24	Tue 16/04/24
223	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site. All CWR delivered for Stage 7.	8 hrs	Tue 16/04/24	Wed 17/04/24
224	Take delivery of ballast from Train#24 on Rail Head	8 hrs	Wed 17/04/24	Thu 18/04/24
225	Take delivery of ballast & sleepers from Train#25 on the Rail Head	8 hrs	Thu 18/04/24	Fri 19/04/24
226	Load spoil to Train#26 on the Rail Head	8 hrs	Sat 27/04/24	Sun 28/04/24
227				
228	**SITE WORKS - DAYSHIFT**			
229	TRTs position CWR strings in laydown area	10 hrs	Wed 17/04/24	Wed 17/04/24
230	Convey ballast to laydown area	10 hrs	Thu 18/04/24	Thu 18/04/24
231	Convey ballast & sleepers to laydown area	10 hrs	Fri 19/04/24	Fri 19/04/24
232	Excavate spoil: CH5620 to 5880 (260m). Convey spoil to loading area for Train loading - Shift 1 of 2	10 hrs	Mon 22/04/24	Mon 22/04/24
233	Excavate spoil: CH5620 to 5880 (260m). Convey spoil to loading area for Train loading - Shift 2 of 2	10 hrs	Tue 23/04/24	Tue 23/04/24
234	Complete drainage run (Up Relief West - 190m) - Shift 1 of 2	10 hrs	Tue 23/04/24	Tue 23/04/24
235	Complete drainage run (Up Relief West - 190m) - Shift 2 of 2	10 hrs	Wed 24/04/24	Wed 24/04/24
236	Convey Train#27 into position	0.5 hrs	Thu 25/04/24	Thu 25/04/24
237	Unload Type 1 then reload spoil to train#27	8 hrs	Thu 25/04/24	Fri 26/04/24
238	3D doze and compact reset plant for BB installation	4 hrs	Fri 26/04/24	Fri 26/04/24
239	Install bottom ballast, doze and compact - Shift 1 of 2	10 hrs	Sat 27/04/24	Sat 27/04/24
240	Install bottom ballast, doze and compact - Shift 2 of 2	10 hrs	Sun 28/04/24	Sun 28/04/24
241	Relay loose G44s	10 hrs	Wed 01/05/24	Wed 01/05/24
242	Install CWR	10 hrs	Thu 02/05/24	Thu 02/05/24
243	Clip up & clamp	10 hrs	Fri 03/05/24	Fri 03/05/24
244	Carry out snagging	10 hrs	Sat 04/05/24	Sat 04/05/24
245	Prep & reconfigure material loading areas	10 hrs	Sun 05/05/24	Sun 05/05/24
246				
247	**STAGE 5.4**			
248	**S&C DELIVERY**			
249	**TRAINS**			
250	**Train#28: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head**	**8 hrs**	**Mon 29/04/24**	**Tue 30/04/24**
251	**Train#29: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head**	**8 hrs**	**Tue 30/04/24**	**Wed 01/05/24**
252	**Train#30: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head**	**8 hrs**	**Wed 01/05/24**	**Thu 02/05/24**
253	**Train#31: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head**	**8 hrs**	**Thu 02/05/24**	**Fri 03/05/24**



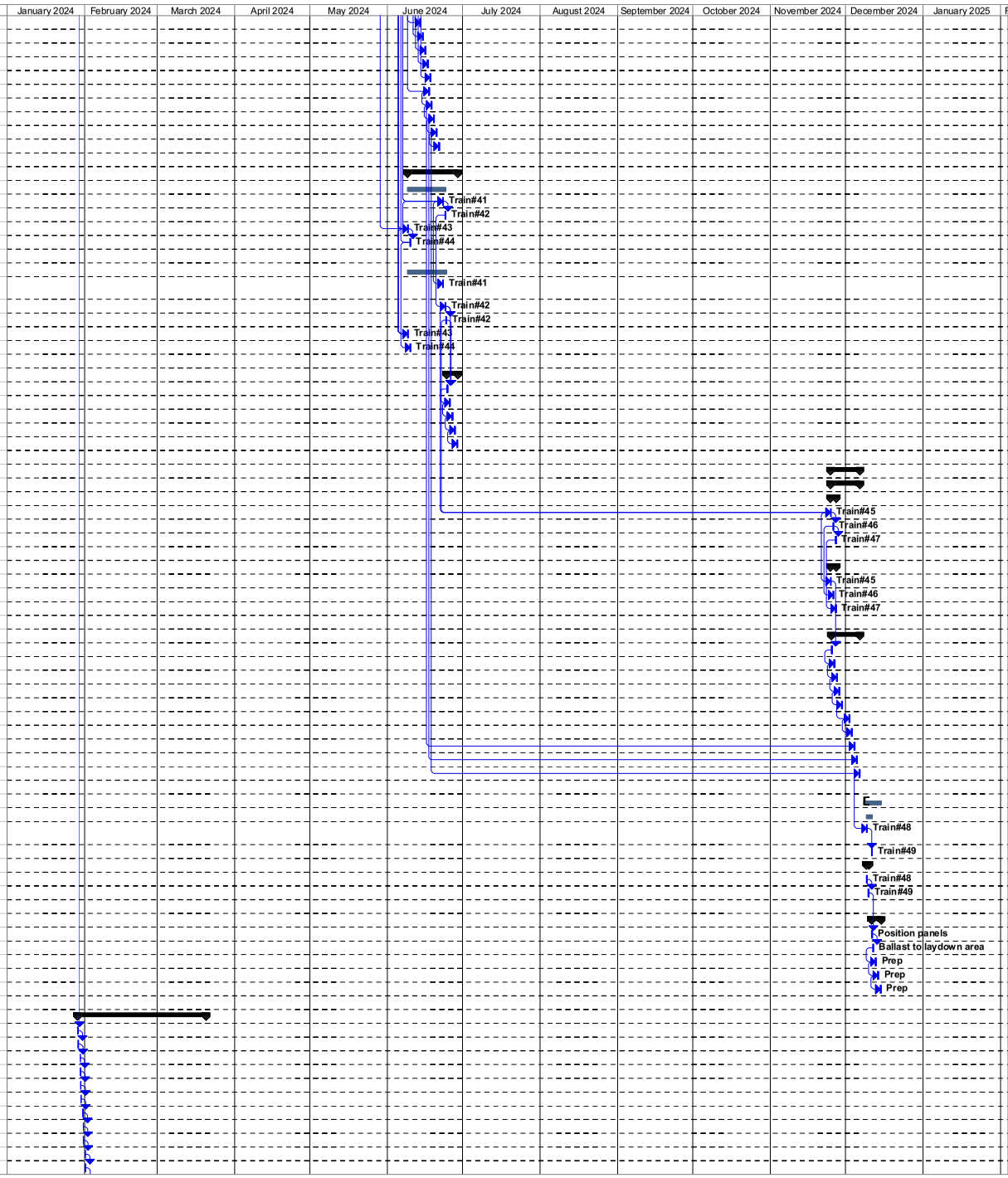
Stage 5

ID	Task Name	Duration	Start	Finish
254				
255	**PREP WORKS - ROTR POSSESSIONS**			
256	Take delivery of S&C panels, slave panels and ironwork from Train#28 on Rail Head	8 hrs	Mon 29/04/24	Tue 30/04/24
257	Take delivery of S&C panels, slave panels and ironwork from Train#29 on Rail Head	8 hrs	Tue 30/04/24	Wed 01/05/24
258	Take delivery of S&C panels, slave panels and ironwork from Train#30 on Rail Head	8 hrs	Wed 01/05/24	Thu 02/05/24
259	Take delivery of S&C panels, slave panels and ironwork from Train#31 on Rail Head	8 hrs	Thu 02/05/24	Fri 03/05/24
260				
261	**SITE WORKS - DAYSHIFT**			
262	Prep & reconfigure material loading areas	10 hrs	Wed 01/05/24	Wed 01/05/24
263	Position unloaded S&C panels, slave panels and iron work to loading area for staged construction - Shift 1 of 4	10 hrs	Thu 02/05/24	Thu 02/05/24
264	Position unloaded S&C panels, slave panels and iron work to loading area for staged construction - Shift 2 of 4	10 hrs	Fri 03/05/24	Fri 03/05/24
265	Position unloaded S&C panels, slave panels and iron work to loading area for staged construction - Shift 3 of 4	10 hrs	Sat 04/05/24	Sat 04/05/24
266	Position unloaded S&C panels, slave panels and iron work to loading area for staged construction - Shift 4 of 4	10 hrs	Sun 05/05/24	Sun 05/05/24
267		1 day?	Mon 29/04/24	Tue 30/04/24
268	**UP RELIEF TEMP (240m)**			
269	**TRAINS**			
270	**Train#32: Loco, 12LD Falcons, 2LD Salmon, Loco - Rail Head**	**8 hrs**	**Sun 05/05/24**	**Mon 06/05/24**
271	**Train#33: Loco, 15LD Falcons (Type 1), Loco - Rail Head**	**8 hrs**	**Fri 10/05/24**	**Fri 10/05/24**
272	**Train#34: Loco, 15LD Falcons (Type 1), Loco - Rail Head**	**8 hrs**	**Wed 15/05/24**	**Wed 15/05/24**
273				
274	**ROTR POSSESSIONS**			
275	Take delivery of ballast & sleepers from Train#32 on the Rail Head	8 hrs	Sat 11/05/24	Sun 12/05/24
276	Load spoil to Train#33 on the Rail Head	8 hrs	Sat 25/05/24	Sun 26/05/24
277	Load spoil to Train#34 on the Rail Head	8 hrs	Sat 25/05/24	Sun 26/05/24
278				
279	**SITE WORKS - DAYSHIFT**			
280	Set up crane pads, configure S&C panels into relaying sequence for install, prep for final installation	10 hrs	Wed 08/05/24	Wed 08/05/24
281	Set up crane pads, configure S&C panels into relaying sequence for install, prep for final installation	10 hrs	Thu 09/05/24	Thu 09/05/24
282	Set up crane pads, configure S&C panels into relaying sequence for install, prep for final installation	10 hrs	Fri 10/05/24	Fri 10/05/24
283	Set up crane pads, configure S&C panels into relaying sequence for install, prep for final installation	10 hrs	Sat 11/05/24	Sat 11/05/24
284	Set up crane pads, configure S&C panels into relaying sequence for install, prep for final installation	10 hrs	Sun 12/05/24	Sun 12/05/24
285	Convey ballast & sleepers to laydown area	10 hrs	Wed 15/05/24	Wed 15/05/24
286	Excavate spoil: CH5380 to 5620 (240m). Convey spoil to loading area for Train loading - Shift 1 of 2	10 hrs	Thu 16/05/24	Thu 16/05/24
287	Excavate spoil: CH5380 to 5620 (240m). Convey spoil to loading area for Train loading - Shift 2 of 2	10 hrs	Fri 17/05/24	Fri 17/05/24
288	Convey Train#33 into position	0.5 hrs	Sat 18/05/24	Sat 18/05/24
289	Unload Type 1 then reload spoil to train#33	8 hrs	Sat 18/05/24	Sun 19/05/24
290	Convey Train#34 into position	0.5 hrs	Mon 20/05/24	Mon 20/05/24
291	Unload Type 1 then reload spoil to train#34	8 hrs	Mon 20/05/24	Mon 20/05/24
292	3D doze and compact reset plant for BB installation	4 hrs	Tue 21/05/24	Tue 21/05/24
293	Install bottom ballast, doze and compact - Shift 1 of 2	10 hrs	Sun 09/06/24	Mon 10/06/24
294	Install bottom ballast, doze and compact - Shift 2 of 2	10 hrs	Mon 10/06/24	Tue 11/06/24
295	Relay 9040 Pts S&C panels with Crawler Crane	10 hrs	Thu 13/06/24	Fri 14/06/24
296	Remove slave rails, install all S&C ironwork and plate up	10 hrs	Fri 14/06/24	Sat 15/06/24
297	Relay loose G44s	10 hrs	Sat 15/06/24	Sun 16/06/24
298	Install CWR. Prep & reconfigure loading areas	10 hrs	Sun 16/06/24	Mon 17/06/24
299	Clip up & clamp. Prep & reconfigure loading areas	10 hrs	Mon 17/06/24	Tue 18/06/24
300				
301	**REMAINING S&C FOOTPRINT - 9 PT ENDS**			
302	**TRAINS**			
303	**Train#35: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Mon 27/05/24**	**Tue 28/05/24**
304	**Train#36: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Tue 28/05/24**	**Wed 29/05/24**
305	**Train#37: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Wed 29/05/24**	**Thu 30/05/24**
306	**Train#38: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Thu 30/05/24**	**Fri 31/05/24**
307	**Train#39: Loco, 15MT Falcons (Spoil), Loco**	**8 hrs**	**Sat 08/06/24**	**Sun 09/06/24**
308	**Train#40: Loco, 15MT Falcons (Spoil), Loco**	**8 hrs**	**Sat 08/06/24**	**Sun 09/06/24**
309				
310	**ROTR POSSESSIONS**			
311	Take delivery of ballast from Train#35 on the Rail Head	8 hrs	Mon 27/05/24	Tue 28/05/24
312	Take delivery of ballast from Train#36 on the Rail Head	8 hrs	Tue 28/05/24	Wed 29/05/24
313	Take delivery of ballast from Train#37 on the Rail Head	8 hrs	Wed 29/05/24	Thu 30/05/24
314	Take delivery of ballast from Train#38 on the Rail Head	8 hrs	Thu 30/05/24	Fri 31/05/24
315	Load spoil to Train#39 on the Rail Head	8 hrs	Sat 08/06/24	Sun 09/06/24
316	Load spoil to Train#40 on the Rail Head	8 hrs	Sun 09/06/24	Mon 10/06/24
317				
318	**SITE WORKS - DAYSHIFT**			
319	Prep & reconfigure loading areas for next stage	10 hrs	Thu 20/06/24	Fri 21/06/24
320	Convey ballast to laydown area	10 hrs	Tue 28/05/24	Tue 28/05/24
321	Convey ballast to laydown area	10 hrs	Wed 29/05/24	Wed 29/05/24
322	Convey ballast to laydown area	10 hrs	Thu 30/05/24	Thu 30/05/24
323	Convey ballast to laydown area	10 hrs	Fri 31/05/24	Fri 31/05/24
324	Excavate spoil over S&C Footprint (700m). Working from P7 to OOC UB. Stockpile spoil for loading - Shift 1 of 3	10 hrs	Mon 03/06/24	Mon 03/06/24
325	Excavate spoil over S&C Footprint (700m). Working from P7 to OOC UB. Stockpile spoil for loading - Shift 2 of 3	10 hrs	Tue 04/06/24	Tue 04/06/24
326	Excavate spoil over S&C Footprint (700m). Working from P7 to OOC UB. Stockpile spoil for loading - Shift 3 of 3	10 hrs	Wed 05/06/24	Wed 05/06/24
327	Convey Train#39 into position	0.5 hrs	Thu 06/06/24	Thu 06/06/24
328	Load spoil to train#39	8 hrs	Thu 06/06/24	Fri 07/06/24
329	Convey Train#40 into position	0.5 hrs	Sat 08/06/24	Sat 08/06/24
330	Load spoil to train#40	8 hrs	Sat 08/06/24	Sat 08/06/24
331	3D doze and compact reset plant for BB installation	4 hrs	Sat 08/06/24	Sun 09/06/24
332	Install bottom ballast, doze and compact - Shift 1 of 3	10 hrs	Sun 09/06/24	Mon 10/06/24
333	Install bottom ballast, doze and compact - Shift 2 of 3	10 hrs	Mon 10/06/24	Tue 11/06/24
334	Install bottom ballast, doze and compact - Shift 3 of 3	10 hrs	Thu 13/06/24	Fri 14/06/24
335	Crawler Crane installs S&C panels - 9041AB X-over	10 hrs	Fri 14/06/24	Sat 15/06/24
336	Crawler Crane installs S&C panels - 9036 & 9037 Pts	10 hrs	Sat 15/06/24	Sun 16/06/24
337	Crawler Crane installs S&C panels - 9034A & 9035 Pts	10 hrs	Sun 16/06/24	Mon 17/06/24
338	Crawler Crane installs S&C panels - 9034B & 9032 Pts	10 hrs	Mon 17/06/24	Tue 18/06/24



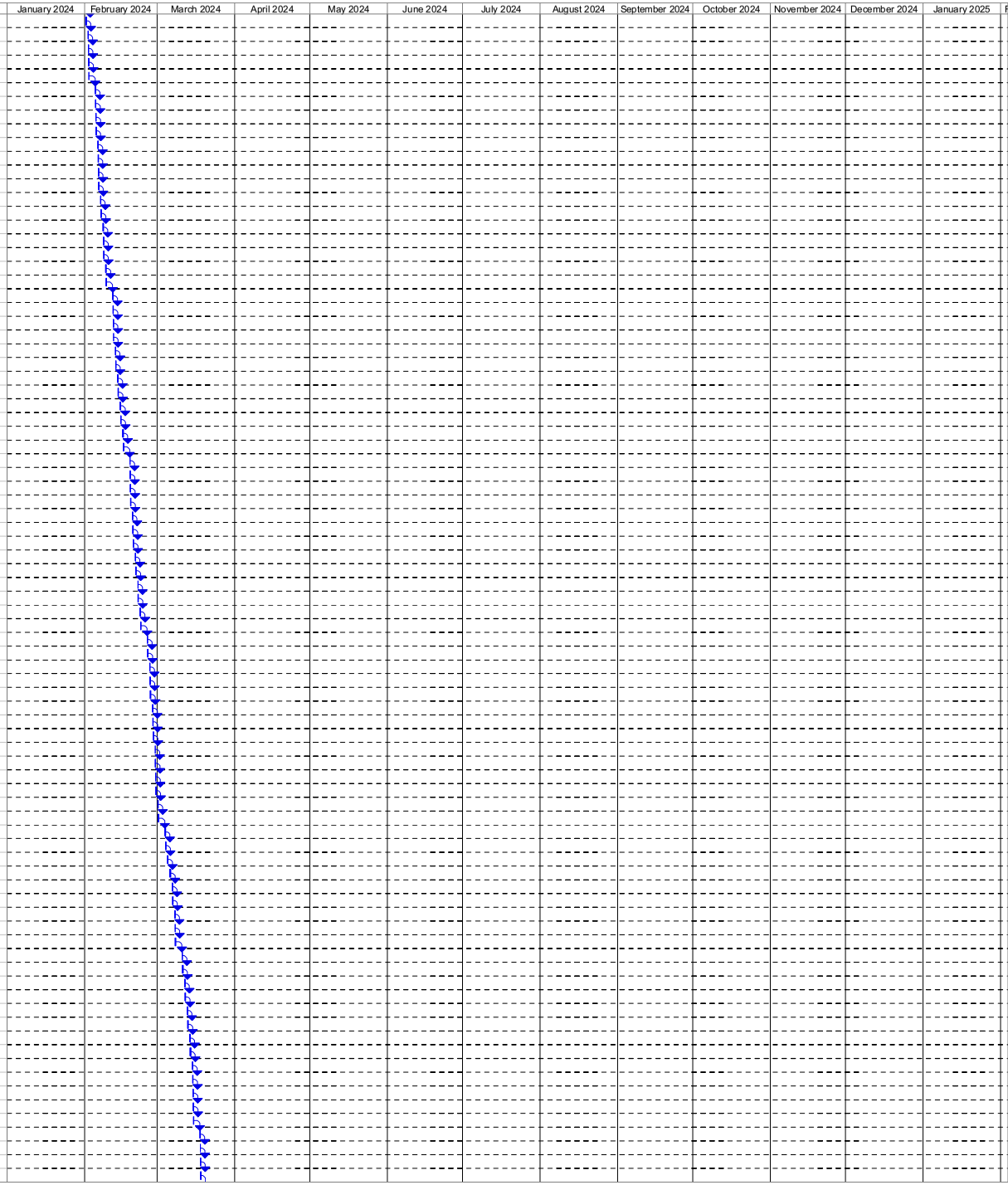
Stage 5

ID	Task Name	Duration	Start	Finish
339	Remove slave rails, install all S&C ironwork and plate up - 9041AB X-over	10 hrs	Thu 13/06/24	Fri 14/06/24
340	Remove slave rails, install all S&C ironwork and plate up - 9036 & 9037 Pts	10 hrs	Fri 14/06/24	Sat 15/06/24
341	Remove slave rails, install all S&C ironwork and plate up - 9034A & 9035 Pts	10 hrs	Sat 15/06/24	Sun 16/06/24
342	Remove slave rails, install all S&C ironwork and plate up - 9034B & 9032 Pts	10 hrs	Sun 16/06/24	Mon 17/06/24
343	Reconfgure laydown area and prep for remaining S&C install: 9030 Pts	10 hrs	Mon 17/06/24	Tue 18/06/24
344	Excavate & reballast 9030 Pts footprint (stockpile spoil in wide 6ft between Up Relief and Platform 7 - 150T)	10 hrs	Mon 17/06/24	Mon 17/06/24
345	Crawler Crane installs final S&C panels (9030 Pts) and PL panels to close gaps	10 hrs	Tue 18/06/24	Tue 18/06/24
346	Remove slave rails, install all S&C ironwork and plate up - 9030 Pts	10 hrs	Wed 19/06/24	Wed 19/06/24
347	Snagging, loading area reconfigure & tidy	10 hrs	Thu 20/06/24	Thu 20/06/24
348	Position CWR and build ballast RRAPs for Turnback 'A' section	10 hrs	Fri 21/06/24	Fri 21/06/24
349				
350	**TURNBACK 'A' (180m)**			
351	**TRAINS**			
352	**Train#41: Loco, 5MT Falcons, 2LD Salmon, Loco - Rail Head**	**8 hrs**	**Sat 22/06/24**	**Sun 23/06/24**
353	**Train#42: Loco, 15LD Falcons (Type 1), Loco - Rail Head**	**8 hrs**	**Sun 23/06/24**	**Mon 24/06/24**
354	**Train#43: Loco, 15MT Falcons, Loco**	**8 hrs**	**Sat 08/06/24**	**Sun 09/06/24**
355	**Train44: Loco, 15MT Falcons, Loco**	**8 hrs**	**Sun 09/06/24**	**Mon 10/06/24**
356				
357	**SROTR POSSESSIONS**			
358	Excavate spoil: CH 5620 to 5800 and load directly into Train#41. Unload G44s at rear of excavation and lay on Up Relief	8 hrs	Sat 22/06/24	Sun 23/06/24
359	Unload Type 1 direct from Train#42 into excavation	8 hrs	Sun 23/06/24	Mon 24/06/24
360	Unload ballast direct from Train#42 into excavation, doze and compact	8 hrs	Mon 24/06/24	Mon 24/06/24
361	Load spoil to Train#43 on the Rail Head	8 hrs	Sat 08/06/24	Sun 09/06/24
362	Load spoil to Train#44 on the Rail Head	8 hrs	Sun 09/06/24	Mon 10/06/24
363				
364	**SITE WORKS - DAYSHIFT**			
365	Relay loose G44s from Up Relief and connect onto 9041A Pts	10 hrs	Mon 24/06/24	Tue 25/06/24
366	Install CWR, clip up& clamp	10 hrs	Tue 25/06/24	Wed 26/06/24
367	Carry out final snagging through Stage 7.4 as required, site tidy and compound reconfigure	10 hrs	Wed 26/06/24	Thu 27/06/24
368	Carry out final snagging through Stage 7.4 as required, site tidy and compound reconfigure	10 hrs	Thu 27/06/24	Fri 28/06/24
369	Carry out final snagging through Stage 7.4 as required, site tidy and compound reconfigure	10 hrs	Fri 28/06/24	Sat 29/06/24
370				
371	**STAGE 5.5**			
372	**TEMP RELIEF FOLLOW UP (DECEMBER)**			
373	**TRAINS**			
374	**Train#45: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Sun 24/11/24**	**Mon 25/11/24**
375	**Train#46: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Mon 25/11/24**	**Tue 26/11/24**
376	**Train#47: Loco, 10LD Falcons, Loco - Rail Head**	**8 hrs**	**Tue 26/11/24**	**Wed 27/11/24**
377				
378	**ROTR POSSESSIONS**			
379	Unload Top Ballast from Train#45 and run out / stock pile as required	8 hrs	Sun 24/11/24	Mon 25/11/24
380	Unload Top Ballast from Train#46 and run out / stock pile as required	8 hrs	Mon 25/11/24	Tue 26/11/24
381	Unload Top Ballast from Train#47 and run out / stock pile as required	8 hrs	Tue 26/11/24	Wed 27/11/24
382				
383	**SITE WORKS - DAYSHIFT**			
384	Unload boxing ballast on Up & Dn Reliefs and profile for Tamping. Weld joints as required	10 hrs	Mon 25/11/24	Mon 25/11/24
385	Unload boxing ballast on Up & Dn Reliefs and profile for Tamping. Weld joints as required	10 hrs	Tue 26/11/24	Tue 26/11/24
386	Unload boxing ballast on Up & Dn Reliefs and profile for Tamping. Weld joints as required	10 hrs	Wed 27/11/24	Wed 27/11/24
387	Unload boxing ballast on Up & Dn Reliefs and profile for Tamping. Weld joints as required	10 hrs	Thu 28/11/24	Thu 28/11/24
388	Unload boxing ballast on Up & Dn Reliefs and profile for Tamping. Weld joints as required	10 hrs	Fri 29/11/24	Fri 29/11/24
389	Tamp Up and Dn Temp Reliefs with Beaver Tamper	10 hrs	Mon 02/12/24	Mon 02/12/24
390	Tamp Up and Dn Temp Reliefs with Beaver Tamper	10 hrs	Tue 03/12/24	Tue 03/12/24
391	Tamp Up and Dn Temp Reliefs with Beaver Tamper	10 hrs	Wed 04/12/24	Wed 04/12/24
392	Tamp Up and Dn Temp Reliefs with Beaver Tamper	10 hrs	Thu 05/12/24	Thu 05/12/24
393	Tamp Up and Dn Temp Reliefs with Beaver Tamper	10 hrs	Fri 06/12/24	Fri 06/12/24
394				
395	**STAGE 6 PREP**		**Sun 08/12/24**	
396	**TRAINS**			
397	**Train#48: Loco, Kirow Consist, Tilting Wagons Consist (2 sets of 4), 4LD Salmon (stubs) - 9016& 9017 Pts, loco**	**8 hrs**	**Mon 09/12/24**	**Mon 09/12/24**
398	**Train#49: Loco, 10LD Falcons (ballast), Loco**	**8 hrs**	**Wed 11/12/24**	**Wed 11/12/24**
399	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
400	Train#48 onto Down Relief, Kirow on Up Relief lifts panels from Train#1 onto Up Relief Cess	8 hrs	Mon 09/12/24	Mon 09/12/24
401	Take delivery of ballast from Train#49	8 hrs	Tue 10/12/24	Tue 10/12/24
402				
403	**SITE WORKS - DAYSHIFT**			
404	Crawler crane positions 9016& 9017 Pts panels from Up Relief to laydown area for Stage 6 install	10 hrs	Wed 11/12/24	Wed 11/12/24
405	Convey ballast to laydown area for Stage 6 install	10 hrs	Wed 11/12/24	Thu 12/12/24
406	Final prep for Stage 6 - access roads for RRVs, crane pads, site mobilisation etc	10 hrs	Thu 12/12/24	Fri 13/12/24
407	Final prep for Stage 6 - access roads for RRVs, crane pads, site mobilisation etc	10 hrs	Fri 13/12/24	Sat 14/12/24
408	Final prep for Stage 6 - access roads for RRVs, crane pads, site mobilisation etc	1.25 days	Sat 14/12/24	Sun 15/12/24
409				
410	**OLE Works 5A**	**154 days**	**Mon 29/01/24**	**Wed 20/03/24**
411	J-05-09F - Dig Trial Hole	3 hrs	Mon 29/01/24	Mon 29/01/24
412	J-05-11C - Dig Trial Hole (both Mast A & B)	6 hrs	Mon 29/01/24	Mon 29/01/24
413	J-05-09F - Install Pile Foundation	1.5 hrs	Tue 30/01/24	Tue 30/01/24
414	J-05-11C - Install Pile Foundation (both Mast A & B)	3 hrs	Tue 30/01/24	Tue 30/01/24
415	J-05-11B - Dig Trial Hole	3 hrs	Tue 30/01/24	Tue 30/01/24
416	J-05-11B - Install Pile Foundation	1.5 hrs	Tue 30/01/24	Tue 30/01/24
417	J-05-11F - Dig Trial Hole	3 hrs	Wed 31/01/24	Wed 31/01/24
418	J-05-11F - Install Pile Foundation	1.5 hrs	Wed 31/01/24	Wed 31/01/24
419	J-05-11D - Dig Trial Hole	3 hrs	Wed 31/01/24	Wed 31/01/24
420	J-05-11D - Install Pile Foundation	1.5 hrs	Thu 01/02/24	Thu 01/02/24
421	J-05-11E - Dig Trial Hole	3 hrs	Thu 01/02/24	Thu 01/02/24



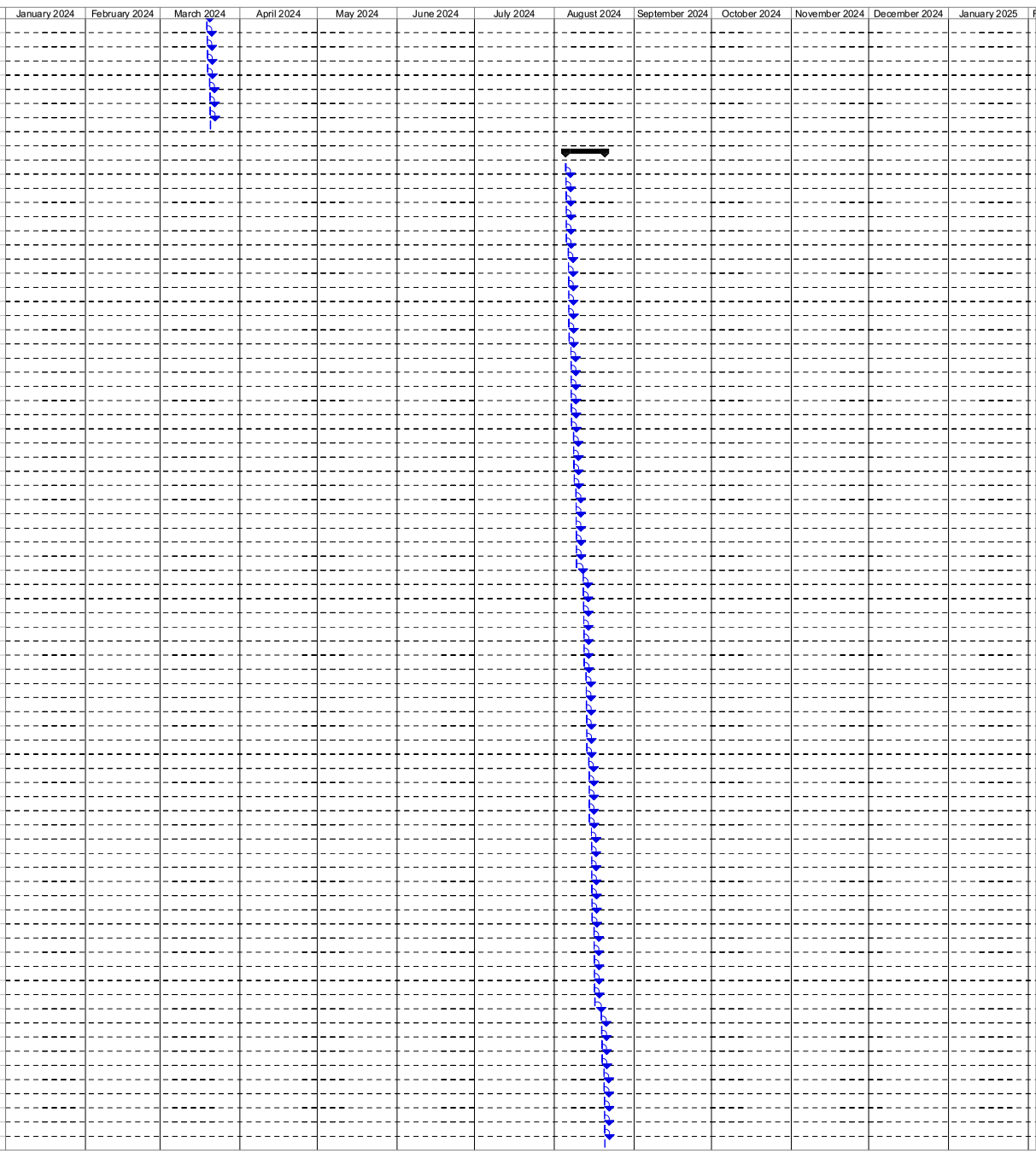
Stage 5

ID	Task Name	Duration	Start	Finish
422	J-05-12A - Dig Trial Hole (both Mast A & B)	6 hrs	Thu 01/02/24	Thu 01/02/24
423	J-05-11E - Install Pile Foundation	1.5 hrs	Fri 02/02/24	Fri 02/02/24
424	J-05-12A - Install Pile Foundation (both Mast A & B)	3 hrs	Fri 02/02/24	Fri 02/02/24
425	J-05-12B - Dig Trial Hole	3 hrs	Fri 02/02/24	Fri 02/02/24
426	J-05-12B - Install Pile Foundation	1.5 hrs	Fri 02/02/24	Fri 02/02/24
427	J-05-12C - Dig Trial Hole	3 hrs	Mon 05/02/24	Mon 05/02/24
428	J-05-12C - Install Pile Foundation	1.5 hrs	Mon 05/02/24	Mon 05/02/24
429	J-05-12D - Dig Trial Hole	3 hrs	Mon 05/02/24	Mon 05/02/24
430	J-05-12D - Install Pile Foundation	1.5 hrs	Mon 05/02/24	Mon 05/02/24
431	J-05-12E - Dig Trial Hole	3 hrs	Tue 06/02/24	Tue 06/02/24
432	J-05-12E - Install Pile Foundation	1.5 hrs	Tue 06/02/24	Tue 06/02/24
433	J-05-13A - Dig Trial Hole	3 hrs	Tue 06/02/24	Tue 06/02/24
434	J-05-13A - Install Pile Foundation	1.5 hrs	Tue 06/02/24	Tue 06/02/24
435	J-05-18C - Install Pile Foundation (both Mast A & B)	3 hrs	Wed 07/02/24	Wed 07/02/24
436	J-05-13B - Dig Trial Hole (both Mast A & B)	6 hrs	Wed 07/02/24	Wed 07/02/24
437	J-05-13B - Install Pile Foundation (both Mast A & B)	3 hrs	Thu 08/02/24	Thu 08/02/24
438	J-05-15A - Dig Trial Hole	3 hrs	Thu 08/02/24	Thu 08/02/24
439	J-05-15A - Install Pile Foundation	1.5 hrs	Thu 08/02/24	Thu 08/02/24
440	J-05-15B - Dig Trial Hole (both Mast A & B)	6 hrs	Fri 09/02/24	Fri 09/02/24
441	J-05-15B - Install Pile Foundation (both Mast A & B)	3 hrs	Fri 09/02/24	Fri 09/02/24
442	J-05-16A - Dig Trial Hole	3 hrs	Mon 12/02/24	Mon 12/02/24
443	J-05-16A Tie/Strut - Dig Trial Hole	3 hrs	Mon 12/02/24	Mon 12/02/24
444	J-05-16A - Install Pile Foundation	1.5 hrs	Mon 12/02/24	Mon 12/02/24
445	J-05-16A Tie/Strut - Install Pile Foundation	1.5 hrs	Mon 12/02/24	Mon 12/02/24
446	J-05-18A - Dig Trial Hole	3 hrs	Tue 13/02/24	Tue 13/02/24
447	J-05-18A - Install Pile Foundation	1.5 hrs	Tue 13/02/24	Tue 13/02/24
448	J-05-18B - Dig Trial Hole (both Mast A & B)	6 hrs	Wed 14/02/24	Wed 14/02/24
449	J-05-18B - Install Pile Foundation (both Mast A & B)	3 hrs	Wed 14/02/24	Wed 14/02/24
450	J-05-18B Tie/Strut - Dig Trial Hole (both Mast A & B)	6 hrs	Thu 15/02/24	Thu 15/02/24
451	J-05-18B Tie/Strut - Install Pile Foundation (both Mast A & B)	3 hrs	Thu 15/02/24	Thu 15/02/24
452	J-05-18C - Dig Trial Hole (both Mast A & B)	6 hrs	Fri 16/02/24	Fri 16/02/24
453	J-05-19A - Dig Trial Hole	3 hrs	Fri 16/02/24	Fri 16/02/24
454	J-05-19A - Install Pile Foundation	1.5 hrs	Mon 19/02/24	Mon 19/02/24
455	J-05-19B - Dig Trial Hole	3 hrs	Mon 19/02/24	Mon 19/02/24
456	J-05-19B - Install Pile Foundation	1.5 hrs	Mon 19/02/24	Mon 19/02/24
457	J-05-19C - Dig Trial Hole	3 hrs	Mon 19/02/24	Mon 19/02/24
458	J-05-19C - Install Pile Foundation	1.5 hrs	Tue 20/02/24	Tue 20/02/24
459	J-05-19D - Dig Trial Hole (both Mast A & B)	6 hrs	Tue 20/02/24	Tue 20/02/24
460	J-05-19D - Install Pile Foundation (both Mast A & B)	3 hrs	Tue 20/02/24	Tue 20/02/24
461	J-05-19E - Dig Trial Hole	3 hrs	Wed 21/02/24	Wed 21/02/24
462	J-05-20A - Dig Trial Hole (both Mast A & B)	6 hrs	Wed 21/02/24	Wed 21/02/24
463	J-05-19E - Install Pile Foundation	1.5 hrs	Thu 22/02/24	Thu 22/02/24
464	J-05-20A - Install Pile Foundation (both Mast A & B)	3 hrs	Thu 22/02/24	Thu 22/02/24
465	J-05-20A Tie/Strut - Dig Trial Hole (both Mast A & B)	6 hrs	Fri 23/02/24	Fri 23/02/24
466	J-05-20A Tie/Strut - Install Pile Foundation (both Mast A & B)	3 hrs	Fri 23/02/24	Fri 23/02/24
467	J-05-20B - Dig Trial Hole	3 hrs	Sun 25/02/24	Mon 26/02/24
468	J-05-21C - Dig Trial Hole (both Mast A & B)	6 hrs	Mon 26/02/24	Mon 26/02/24
469	J-05-20B - Install Pile Foundation	1.5 hrs	Tue 27/02/24	Tue 27/02/24
470	J-05-21C - Install Pile Foundation (both Mast A & B)	3 hrs	Tue 27/02/24	Tue 27/02/24
471	J-05-21D - Dig Trial Hole (both Mast A & B)	6 hrs	Tue 27/02/24	Tue 27/02/24
472	J-05-21D - Install Pile Foundation (both Mast A & B)	3 hrs	Wed 28/02/24	Wed 28/02/24
473	J-05-21D Tie/Strut - Dig Trial Hole	3 hrs	Wed 28/02/24	Wed 28/02/24
474	J-05-21E - Dig Trial Hole	3 hrs	Wed 28/02/24	Wed 28/02/24
475	J-05-21D Tie/Strut - Install Steel Pile Foundation	1.5 hrs	Thu 29/02/24	Thu 29/02/24
476	J-05-21E - Install Pile Foundation	1.5 hrs	Thu 29/02/24	Thu 29/02/24
477	J-05-22B - Dig Trial Hole	3 hrs	Thu 29/02/24	Thu 29/02/24
478	J-05-22B - Install Pad Foundation	4 hrs	Thu 29/02/24	Thu 29/02/24
479	J-05-22B Tie/Strut - Dig Trial Hole	3 hrs	Fri 01/03/24	Fri 01/03/24
480	J-05-22B Tie/Strut - Install Pad Foundation	4 hrs	Fri 01/03/24	Fri 01/03/24
481	J-05-22C Tie/Strut - Dig Trial Hole (both Mast A & B)	6 hrs	Mon 04/03/24	Mon 04/03/24
482	J-05-22C Tie/Strut - Install Pile Foundation (both Mast A & B)	3 hrs	Mon 04/03/24	Mon 04/03/24
483	J-05-22C - Dig Trial Hole (both Mast A & B)	6 hrs	Tue 05/03/24	Tue 05/03/24
484	J-05-22C - Install Pad Foundation (both Mast A & B)	8 hrs	Tue 05/03/24	Wed 06/03/24
485	J-05-22D - Dig Trial Hole	3 hrs	Wed 06/03/24	Thu 07/03/24
486	J-05-22D - Install Pad Foundation	4 hrs	Thu 07/03/24	Thu 07/03/24
487	J-05-25A - Dig Trial Hole	3 hrs	Thu 07/03/24	Fri 08/03/24
488	J-05-25A - Install Pile Foundation	1.5 hrs	Fri 08/03/24	Fri 08/03/24
489	J-05-25B - Dig Trial Hole (both Mast A & B)	6 hrs	Fri 08/03/24	Fri 08/03/24
490	J-05-25B - Install Pile Foundation (both Mast A & B)	3 hrs	Sun 10/03/24	Mon 11/03/24
491	J-05-25B Tie/Strut - Dig Trial Hole (both Mast A & B)	6 hrs	Mon 11/03/24	Mon 11/03/24
492	J-05-25B Tie/Strut - Install Pile Foundation (both Mast A & B)	3 hrs	Mon 11/03/24	Tue 12/03/24
493	J-05-27A - Dig Trial Hole (both Mast A & B)	6 hrs	Tue 12/03/24	Tue 12/03/24
494	J-05-27A - Install Pile Foundation (both Mast A & B)	3 hrs	Tue 12/03/24	Wed 13/03/24
495	J-05-29A - Dig Trial Hole (both Mast A & B)	6 hrs	Wed 13/03/24	Wed 13/03/24
496	J-05-29A - Install Pile Foundation (both Mast A & B)	3 hrs	Thu 14/03/24	Thu 14/03/24
497	J-05-29C - Dig Trial Hole (both Mast A & B)	6 hrs	Thu 14/03/24	Thu 14/03/24
498	J-05-29C - Install Pile Foundation (both Mast A & B)	3 hrs	Fri 15/03/24	Fri 15/03/24
499	J-05-31A - Dig Trial Hole	3 hrs	Fri 15/03/24	Fri 15/03/24
500	J-05-31A - Install Pile Foundation	1.5 hrs	Fri 15/03/24	Fri 15/03/24
501	J-05-31B - Dig Trial Hole	3 hrs	Fri 15/03/24	Fri 15/03/24
502	J-05-31B - Install Pile Foundation	1.5 hrs	Fri 15/03/24	Fri 15/03/24
503	J-05-32A Tie/Strut - Dig Trial Hole	3 hrs	Mon 18/03/24	Mon 18/03/24
504	J-05-32A Tie/Strut - Install Pile Foundation	1.5 hrs	Mon 18/03/24	Mon 18/03/24
505	J-05-32A - Dig Trial Hole	3 hrs	Mon 18/03/24	Mon 18/03/24
506	J-05-32A - Install Pile Foundation	1.5 hrs	Mon 18/03/24	Mon 18/03/24



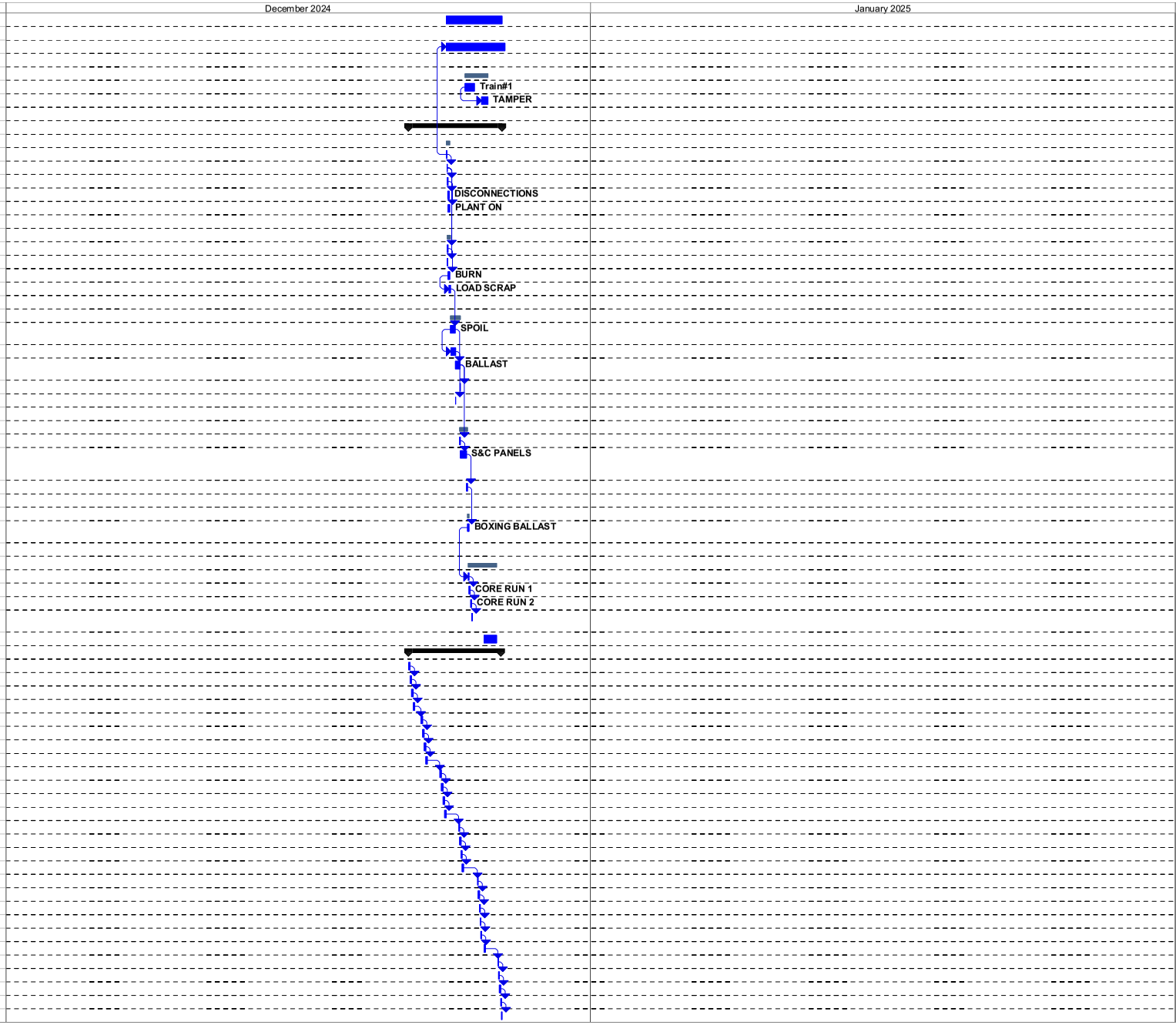
Stage 5

ID	Task Name	Duration	Start	Finish
507	J-05-33A Tie/Strut - Dig Trial Hole	3 hrs	Tue 19/03/24	Tue 19/03/24
508	J-05-33A Tie/Strut - Install Pile Foundation	1.5 hrs	Tue 19/03/24	Tue 19/03/24
509	J-05-33A - Dig Trial Hole	3 hrs	Tue 19/03/24	Tue 19/03/24
510	J-05-33A - Install Pile Foundation	1.5 hrs	Tue 19/03/24	Tue 19/03/24
511	J-05-34A Tie/Strut - Dig Trial Hole	3 hrs	Wed 20/03/24	Wed 20/03/24
512	J-05-34A Tie/Strut - Install Pile Foundation	1.5 hrs	Wed 20/03/24	Wed 20/03/24
513	J-05-34A - Dig Trial Hole	3 hrs	Wed 20/03/24	Wed 20/03/24
514	J-05-34A - Install Pile Foundation	1.5 hrs	Wed 20/03/24	Wed 20/03/24
515				
516	**OLE Stage 5C**	**45.75 days**	**Mon 05/08/24**	**Tue 20/08/24**
517	J-05-11C - Erect Portal Mast (both Mast A & B)	2 hrs	Mon 05/08/24	Mon 05/08/24
518	J-05-11C - Erect Portal Boom	2 hrs	Mon 05/08/24	Mon 05/08/24
519	J-05-11B - Erect DC Mast	1 hr	Mon 05/08/24	Mon 05/08/24
520	J-05-11F - Erect SSA Mast	1 hr	Mon 05/08/24	Mon 05/08/24
521	J-05-11D - Erect Portal Mast	1 hr	Mon 05/08/24	Mon 05/08/24
522	J-05-11E - Erect SSA Mast	1 hr	Mon 05/08/24	Mon 05/08/24
523	J-05-12A - Erect Portal Mast (both Mast A & B)	2 hrs	Tue 06/08/24	Tue 06/08/24
524	J-05-12A - Erect Portal Boom	2 hrs	Tue 06/08/24	Tue 06/08/24
525	J-05-12B - Erect STC Mast	1 hr	Tue 06/08/24	Tue 06/08/24
526	J-05-12C - Erect STC Mast	1 hr	Tue 06/08/24	Tue 06/08/24
527	J-05-12D - Erect Portal Mast	1 hr	Tue 06/08/24	Tue 06/08/24
528	J-05-12E - Erect STC Mast	1 hr	Tue 06/08/24	Tue 06/08/24
529	J-05-13A - Erect STC Mast	1 hr	Tue 06/08/24	Tue 06/08/24
530	J-05-32A - Erect Portal Mast	1 hr	Wed 07/08/24	Wed 07/08/24
531	J-05-32A - Erect Portal Boom (ALB Required)	2 hrs	Wed 07/08/24	Wed 07/08/24
532	J-05-33A Tie/Strut - Install Tie/Strut	0.5 hrs	Wed 07/08/24	Wed 07/08/24
533	J-05-33A - Erect Portal Mast	1 hr	Wed 07/08/24	Wed 07/08/24
534	J-05-33A - Erect Portal Boom (ALB Required)	2 hrs	Wed 07/08/24	Wed 07/08/24
535	J-05-13B - Erect Portal Mast (both Mast A & B)	2 hrs	Wed 07/08/24	Wed 07/08/24
536	J-05-13B - Erect Portal Boom	2 hrs	Thu 08/08/24	Thu 08/08/24
537	J-05-15A - Erect SSA Mast	1 hr	Thu 08/08/24	Thu 08/08/24
538	J-05-15B - Erect Portal Mast (both Mast A & B)	2 hrs	Thu 08/08/24	Thu 08/08/24
539	J-05-15B - Erect Portal Boom	2 hrs	Thu 08/08/24	Thu 08/08/24
540	J-05-16A - Erect Portal Mast	1 hr	Fri 09/08/24	Fri 09/08/24
541	J-05-16A Tie/Strut - Install Tie/Strut	0.5 hrs	Fri 09/08/24	Fri 09/08/24
542	J-05-18A - Erect SSA Mast	1 hr	Fri 09/08/24	Fri 09/08/24
543	J-05-18B - Erect Portal Mast (both Mast A & B)	2 hrs	Fri 09/08/24	Fri 09/08/24
544	J-05-18B Tie/Strut - Install Tie/Strut	0.5 hrs	Fri 09/08/24	Fri 09/08/24
545	J-05-18B - Erect Portal Boom	2 hrs	Fri 09/08/24	Fri 09/08/24
546	J-05-18C - Erect Portal Mast (both Mast A & B)	2 hrs	Mon 12/08/24	Mon 12/08/24
547	J-05-18C - Erect Portal Boom	2 hrs	Mon 12/08/24	Mon 12/08/24
548	J-05-19A - Erect DC Mast	1 hr	Mon 12/08/24	Mon 12/08/24
549	J-05-19B - Erect TTC Mast	1 hr	Mon 12/08/24	Mon 12/08/24
550	J-05-19B - Erect TTC Boom	2 hrs	Mon 12/08/24	Mon 12/08/24
551	J-05-19C - Erect Portal Mast	1 hr	Mon 12/08/24	Mon 12/08/24
552	J-05-19D - Erect Portal Mast (both Mast A & B)	2 hrs	Mon 12/08/24	Mon 12/08/24
553	J-05-19D - Erect Portal Boom	2 hrs	Tue 13/08/24	Tue 13/08/24
554	J-05-19E - Erect DC Mast	1 hr	Tue 13/08/24	Tue 13/08/24
555	J-05-20A - Erect Portal Mast (both Mast A & B)	2 hrs	Tue 13/08/24	Tue 13/08/24
556	J-05-20A - Erect Portal Boom	2 hrs	Tue 13/08/24	Tue 13/08/24
557	J-05-20A Tie/Strut - Install Tie/Strut (both Mast A & B)	0.5 hrs	Tue 13/08/24	Tue 13/08/24
558	J-05-21A - Erect DC Mast	1 hr	Tue 13/08/24	Tue 13/08/24
559	J-05-21C - Erect Portal Mast (both Mast A & B)	2 hrs	Wed 14/08/24	Wed 14/08/24
560	J-05-21C - Erect Portal Boom	2 hrs	Wed 14/08/24	Wed 14/08/24
561	J-05-21D - Erect Portal Mast (both Mast A & B)	2 hrs	Wed 14/08/24	Wed 14/08/24
562	J-05-21D Tie/Strut - Install Tie/Strut	0.5 hrs	Wed 14/08/24	Wed 14/08/24
563	J-05-21D - Erect Portal Boom	2 hrs	Wed 14/08/24	Wed 14/08/24
564	J-05-21E - Erect SSA Mast	1 hr	Thu 15/08/24	Thu 15/08/24
565	J-05-22B - Erect TTC Mast	1 hr	Thu 15/08/24	Thu 15/08/24
566	J-05-22B Tie/Strut - Install Tie/Strut	0.5 hrs	Thu 15/08/24	Thu 15/08/24
567	J-05-22B - Erect TTC Boom	2 hrs	Thu 15/08/24	Thu 15/08/24
568	J-05-22C Tie/Strut - Install Tie/Strut	0.5 hrs	Thu 15/08/24	Thu 15/08/24
569	J-05-22C - Erect Portal Mast (both Mast A & B)	2 hrs	Thu 15/08/24	Thu 15/08/24
570	J-05-22C - Erect Portal Boom	2 hrs	Thu 15/08/24	Thu 15/08/24
571	J-05-22D - Erect DC Mast	1 hr	Fri 16/08/24	Fri 16/08/24
572	J-05-25A - Erect Portal Mast	1 hr	Fri 16/08/24	Fri 16/08/24
573	J-05-25B - Erect Portal Mast (both Mast A & B)	2 hrs	Fri 16/08/24	Fri 16/08/24
574	J-05-25B Tie/Strut - Install Tie/Strut (both Mast A & B)	1 hr	Fri 16/08/24	Fri 16/08/24
575	J-05-25B - Erect Portal Boom	2 hrs	Fri 16/08/24	Fri 16/08/24
576	J-05-27A - Erect Portal Mast (both Mast A & B)	2 hrs	Fri 16/08/24	Fri 16/08/24
577	J-05-27A - Erect Portal Boom	2 hrs	Mon 19/08/24	Mon 19/08/24
578	J-05-29A - Erect Portal Mast (both Mast A & B)	2 hrs	Mon 19/08/24	Mon 19/08/24
579	J-05-29A - Erect Portal Boom	2 hrs	Mon 19/08/24	Mon 19/08/24
580	J-05-29C - Erect Portal Mast (both Mast A & B)	2 hrs	Mon 19/08/24	Mon 19/08/24
581	J-05-29C - Erect Portal Boom	2 hrs	Tue 20/08/24	Tue 20/08/24
582	J-05-31A - Erect Portal Mast	1 hr	Tue 20/08/24	Tue 20/08/24
583	J-05-31A - Erect Portal Boom (ALB Required)	2 hrs	Tue 20/08/24	Tue 20/08/24
584	J-05-31B - Erect Portal Mast	1 hr	Tue 20/08/24	Tue 20/08/24
585	J-05-31B - Erect Portal Boom (ALB Required)	2 hrs	Tue 20/08/24	Tue 20/08/24
586	J-05-32A Tie/Strut - Install Tie/Strut	0.5 hrs	Tue 20/08/24	Tue 20/08/24



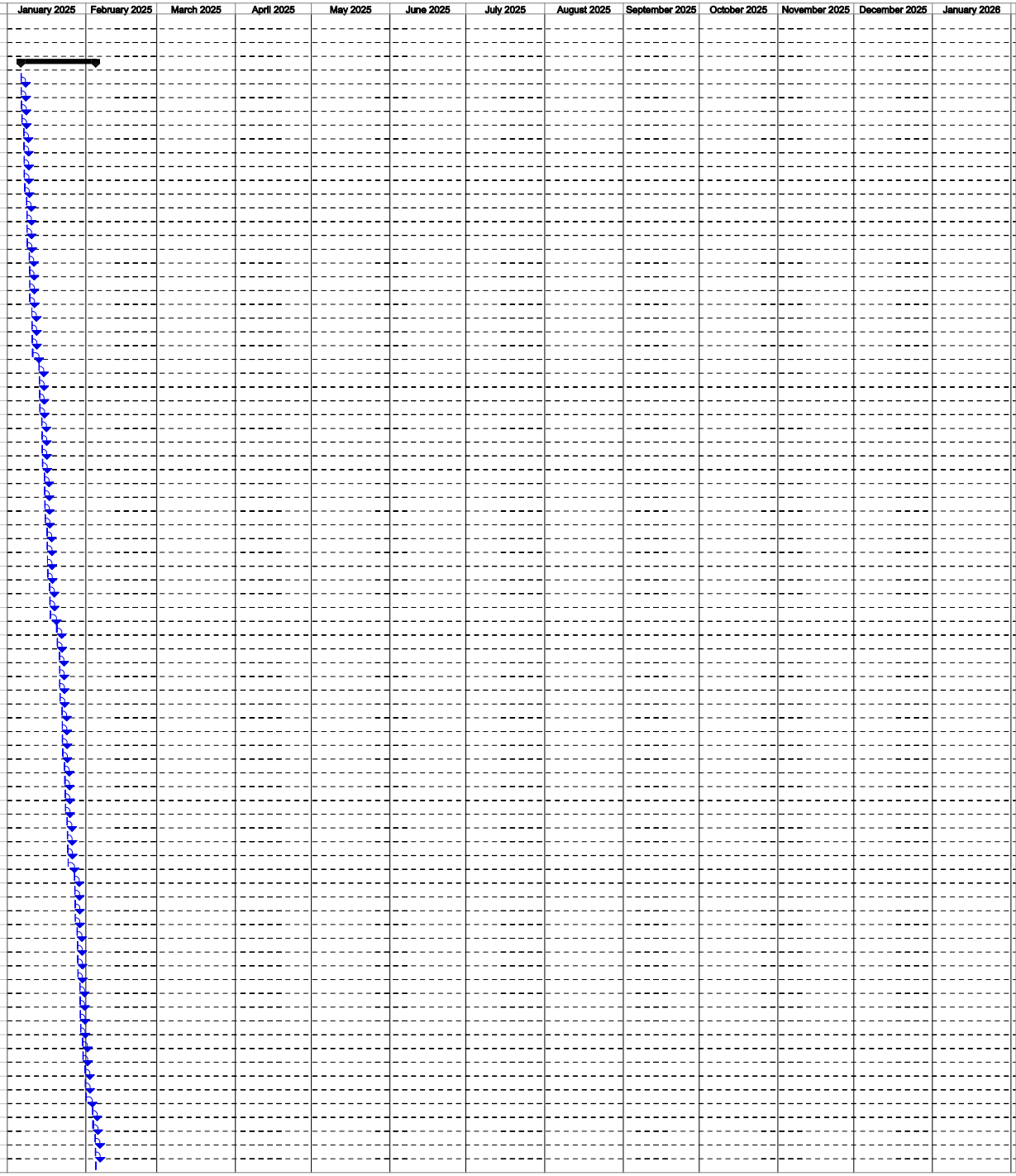
Stage 6 - Xmas 2024

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 6 - 9016 & 9017 PTS**	71.17 hrs	Tue 24/12/24	Fri 27/12/24
2				
3	**POSSESSION - XMAS BLOCKADE 2024**	74.92 hrs	Tue 24/12/24	Fri 27/12/24
4				
5	**TRAINS**			
6	**Train#1: Loco, 25MT Falcons (TPAT on Up Relief), Loco**	**12 hrs**	**Wed 25/12/24**	**Wed 25/12/24**
7	**Tamper**	**8 hrs**	**Thu 26/12/24**	**Thu 26/12/24**
8				
9	**9016 & 9017 PTS**	**14.88 days?**	**Sun 22/12/24**	**Fri 27/12/24**
10	**SITE MOBILISATION / PREP WORKS**			
11	Brief staff, check tools etc.	1 hr	Tue 24/12/24	Tue 24/12/24
12	Take possession & set up worksite	30 mins	Tue 24/12/24	Tue 24/12/24
13	Take Isolation & issue C Permits	1 hr	Tue 24/12/24	Tue 24/12/24
14	S&T disconnections	2 hrs	Tue 24/12/24	Tue 24/12/24
15	On-track plant	2 hrs	Tue 24/12/24	Tue 24/12/24
16				
17	**BURN / LIFT OUT**			
18	Convey Train#1 into position for loading scrap. Run Loco round.	1 hr	Tue 24/12/24	Tue 24/12/24
19	On-track burners & manpower	30 mins	Tue 24/12/24	Tue 24/12/24
20	Burn existing track in 20fts and unclip rails	2 hrs	Tue 24/12/24	Tue 24/12/24
21	Lift out loose rails and sleepers, loading to front 5 wagons on Train#1	2 hrs	Tue 24/12/24	Tue 24/12/24
22				
23	**EXCAVATE / BOTTOM BALLAST**			
24	Excavate working E to W, conveying spoil into wideway for loading (approx 1200T)	6 hrs	Tue 24/12/24	Tue 24/12/24
25	Run & load spoil from stockpile to rear 20 wagons on Train#1	6 hrs	Tue 24/12/24	Tue 24/12/24
26	Install Geocell and Sand, Run ballast from stockpile into excavation, 3D doze & compact working E to W	6 hrs	Tue 24/12/24	Wed 25/12/24
27	Off track excavation plant and set up area for relaying panels	15 mins	Wed 25/12/24	Wed 25/12/24
28	Convey Train#1 to marker boards	15 mins	Tue 24/12/24	Tue 24/12/24
29				
30	**RELAY - S&C**			
31	Set up Crawler Crane	1 hr	Wed 25/12/24	Wed 25/12/24
32	Crawler Crane relays 9016 & 9017 Pts working E to W. (9016 fully installed, 9017 partially installed and partially plain lined for later installation)	8 hrs	Wed 25/12/24	Wed 25/12/24
33	De-rig crane and off track to compound	1 hr	Wed 25/12/24	Wed 25/12/24
34				
35	**TOP BALLAST**			
36	Run out boxing / top ballast from stockpile, fill in beds & profile for Tamper	2 hrs	Wed 25/12/24	Wed 25/12/24
37				
38	**TAMPING**			
39	Convey Tampers into site onto Back Line and set up to Tamp	1 hr	Wed 25/12/24	Wed 25/12/24
40	Tamp full renewal - Run 1	90 mins	Wed 25/12/24	Wed 25/12/24
41	Tamp full renewal - Run 2	90 mins	Wed 25/12/24	Wed 25/12/24
42	Tie up Tamper, complete Phires forms and convey to West marker boards	1 hr	Wed 25/12/24	Wed 25/12/24
43	Welding.	16 hrs	Thu 26/12/24	Fri 27/12/24
44	**OHL Works**	**14.69 days**	**Sun 22/12/24**	**Fri 27/12/24**
45	J-04-29A Erect Portal Boom (ALB Required)	2 hrs	Sun 22/12/24	Sun 22/12/24
46	J-04-32C Erect Portal Boom (ALB Required)	2 hrs	Sun 22/12/24	Sun 22/12/24
47	J-04-36A Erect Portal Boom (ALB Required)	2 hrs	Sun 22/12/24	Sun 22/12/24
48	J-04-40A Erect Portal Boom (ALB Required)	2 hrs	Sun 22/12/24	Sun 22/12/24
49	J-04-42A Erect Portal Boom (ALB Required)	2 hrs	Mon 23/12/24	Mon 23/12/24
50	J-04-43A Erect Portal Boom (ALB Required)	2 hrs	Mon 23/12/24	Mon 23/12/24
51	J-04-43D Erect Portal Boom (ALB Required)	2 hrs	Mon 23/12/24	Mon 23/12/24
52	J-04-44A Erect Portal Boom (ALB Required)	2 hrs	Mon 23/12/24	Mon 23/12/24
53	J-04-44B Erect Portal Boom (ALB Required)	2 hrs	Tue 24/12/24	Tue 24/12/24
54	J-04-46D Erect Portal Boom (ALB Required)	2 hrs	Tue 24/12/24	Tue 24/12/24
55	J-04-49B Erect Portal Boom (ALB Required)	2 hrs	Tue 24/12/24	Tue 24/12/24
56	J-04-52D Erect Portal Boom (ALB Required)	2 hrs	Tue 24/12/24	Tue 24/12/24
57	J-05-31A Erect Portal Mast	1 hr	Wed 25/12/24	Wed 25/12/24
58	J-05-31A Erect Portal Boom (ALB Required)	2 hrs	Wed 25/12/24	Wed 25/12/24
59	J-05-31B Erect Portal Mast	1 hr	Wed 25/12/24	Wed 25/12/24
60	J-05-31B Erect Portal Boom (ALB Required)	2 hrs	Wed 25/12/24	Wed 25/12/24
61	J-05-32A Tie/Strut Install Tie/Strut	0.5 hrs	Thu 26/12/24	Thu 26/12/24
62	J-05-32A Erect Portal Boom (ALB Required)	2 hrs	Thu 26/12/24	Thu 26/12/24
63	J-05-32A Erect Portal Mast	1 hr	Thu 26/12/24	Thu 26/12/24
64	J-05-33A Tie/Strut Install Tie/Strut	0.5 hrs	Thu 26/12/24	Thu 26/12/24
65	J-05-33A Erect Portal Mast	1 hr	Thu 26/12/24	Thu 26/12/24
66	J-05-33A Erect Portal Boom (ALB Required)	2 hrs	Thu 26/12/24	Thu 26/12/24
67	J-05-34A Tie/Strut Install Tie/Strut	0.5 hrs	Fri 27/12/24	Fri 27/12/24
68	J-05-34A Erect Portal Mast	1 hr	Fri 27/12/24	Fri 27/12/24
69	J-05-34A Erect Portal Boom (ALB Required)	2 hrs	Fri 27/12/24	Fri 27/12/24
70	Give up isolation	1 hr	Fri 27/12/24	Fri 27/12/24
71	Give up worksite & possession	30 mins	Fri 27/12/24	Fri 27/12/24



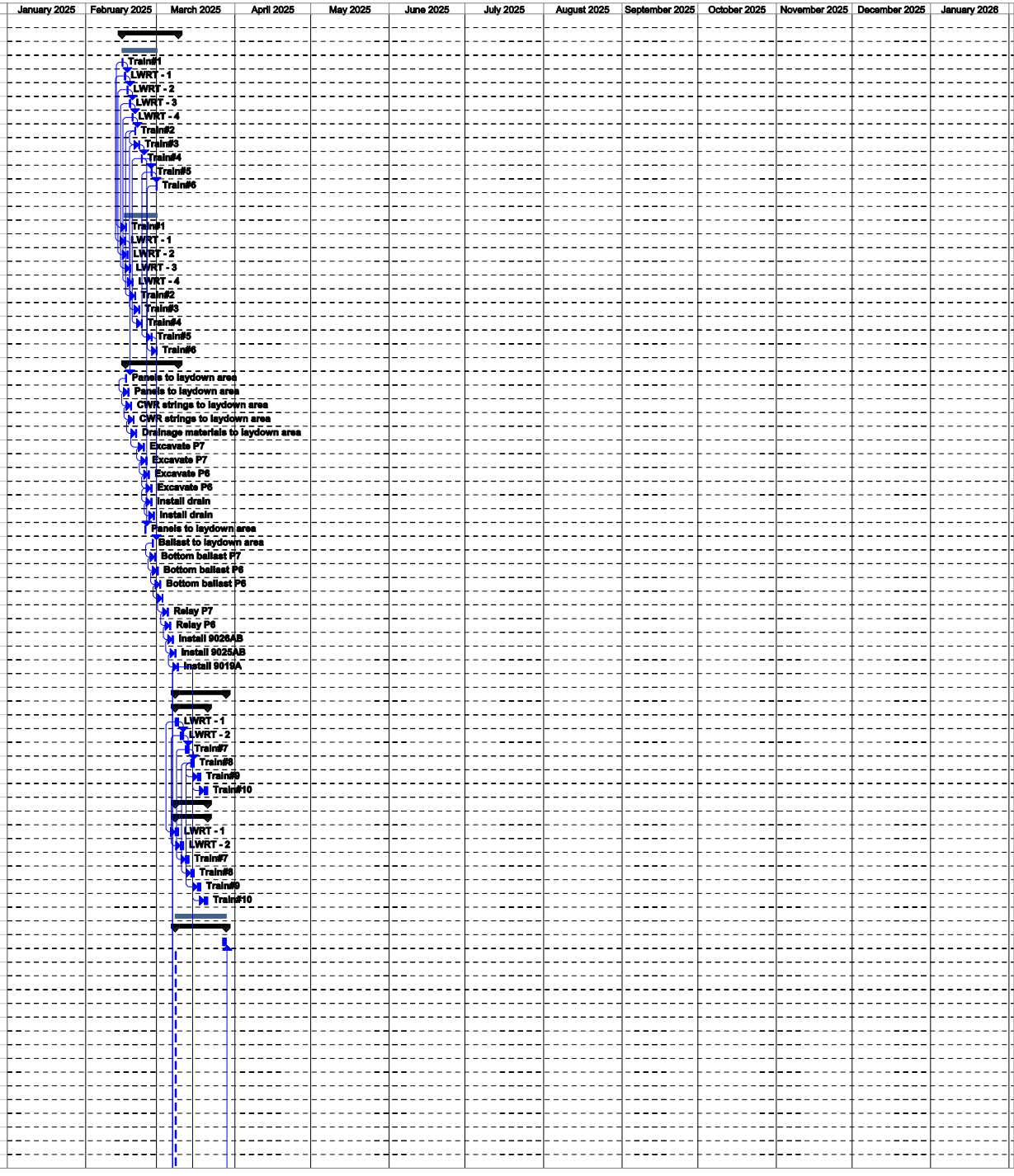
Stage 7

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 7**			
2	**JANUARY TO DECEMBER 2025**			
3				
4	**OLE Works Stage 7A**	88.75 days?	Mon 06/01/25	Tue 04/02/25
5	J-04-32C - Dig Trial Hole	3 hrs	Mon 06/01/25	Mon 06/01/25
6	J-04-32C - Install Pile Foundation	1.5 hrs	Mon 06/01/25	Mon 06/01/25
7	J-04-35A - Dig Trial Hole	3 hrs	Mon 06/01/25	Mon 06/01/25
8	J-04-36A - Dig Trial Hole	3 hrs	Mon 06/01/25	Mon 06/01/25
9	J-04-36A - Install Pile Foundation	1.5 hrs	Tue 07/01/25	Tue 07/01/25
10	J-04-36A Tie/Strut - Dig Trial Hole	3 hrs	Tue 07/01/25	Tue 07/01/25
11	J-04-35A - Install Pile Foundation	1.5 hrs	Tue 07/01/25	Tue 07/01/25
12	J-04-36A Tie/Strut - Install Pile Foundation	1.5 hrs	Tue 07/01/25	Tue 07/01/25
13	J-04-36B - Dig Trial Hole	3 hrs	Tue 07/01/25	Tue 07/01/25
14	J-04-36B - Install Pile Foundation	1.5 hrs	Wed 08/01/25	Wed 08/01/25
15	J-04-36C - Dig Trial Hole	3 hrs	Wed 08/01/25	Wed 08/01/25
16	J-04-36C - Install Pile Foundation	1.5 hrs	Wed 08/01/25	Wed 08/01/25
17	J-04-36D - Dig Trial Hole	3 hrs	Wed 08/01/25	Wed 08/01/25
18	J-04-36D - Install Pile Foundation	1.5 hrs	Thu 09/01/25	Thu 09/01/25
19	J-04-40A - Dig Trial Hole	3 hrs	Thu 09/01/25	Thu 09/01/25
20	J-04-40A - Install Pile Foundation	1.5 hrs	Thu 09/01/25	Thu 09/01/25
21	J-04-40A Tie/Strut - Dig Trial Hole	3 hrs	Thu 09/01/25	Thu 09/01/25
22	J-04-40A Tie/Strut - Install Pile Foundation	1.5 hrs	Fri 10/01/25	Fri 10/01/25
23	J-04-40B - Dig Trial Hole	3 hrs	Fri 10/01/25	Fri 10/01/25
24	J-04-40B - Install Pile Foundation	1.5 hrs	Fri 10/01/25	Fri 10/01/25
25	J-04-42A - Dig Trial Hole	3 hrs	Fri 10/01/25	Sat 11/01/25
26	J-04-42A - Install Pile Foundation	1.5 hrs	Mon 13/01/25	Mon 13/01/25
27	J-04-42B - Dig Trial Hole	3 hrs	Mon 13/01/25	Mon 13/01/25
28	J-04-42B - Install Pile Foundation	1.5 hrs	Mon 13/01/25	Mon 13/01/25
29	J-04-43A - Dig Trial Hole	3 hrs	Mon 13/01/25	Mon 13/01/25
30	J-04-43A - Install Pile Foundation	1.5 hrs	Tue 14/01/25	Tue 14/01/25
31	J-04-43B - Dig Trial Hole	3 hrs	Tue 14/01/25	Tue 14/01/25
32	J-04-43B - Install Pile Foundation	1.5 hrs	Tue 14/01/25	Tue 14/01/25
33	J-04-43C - Dig Trial Hole	3 hrs	Tue 14/01/25	Tue 14/01/25
34	J-04-43C - Install Pile Foundation	1.5 hrs	Wed 15/01/25	Wed 15/01/25
35	J-04-43D - Dig Trial Hole	3 hrs	Wed 15/01/25	Wed 15/01/25
36	J-04-43D - Install Pile Foundation	1.5 hrs	Wed 15/01/25	Wed 15/01/25
37	J-04-43D Tie/Strut - Dig Trial Hole	3 hrs	Wed 15/01/25	Wed 15/01/25
38	J-04-43D Tie/Strut - Install Pile Foundation	1.5 hrs	Thu 16/01/25	Thu 16/01/25
39	J-04-44A - Dig Trial Hole	3 hrs	Thu 16/01/25	Thu 16/01/25
40	J-04-44A - Install Pile Foundation	1.5 hrs	Thu 16/01/25	Thu 16/01/25
41	J-04-44B - Dig Trial Hole	3 hrs	Thu 16/01/25	Fri 17/01/25
42	J-04-44B - Install Pile Foundation	1.5 hrs	Fri 17/01/25	Fri 17/01/25
43	J-04-46A - Dig Trial Hole	3 hrs	Fri 17/01/25	Fri 17/01/25
44	J-04-46A - Install Pile Foundation	1.5 hrs	Fri 17/01/25	Fri 17/01/25
45	J-04-46C - Dig Trial Hole (both Mast A & B)	6 hrs	Mon 20/01/25	Mon 20/01/25
46	J-04-46C - Install Pile Foundation (both Mast A & B)	3 hrs	Mon 20/01/25	Mon 20/01/25
47	J-04-46D - Dig Trial Hole	3 hrs	Tue 21/01/25	Tue 21/01/25
48	J-04-46D - Install Pile Foundation	1.5 hrs	Tue 21/01/25	Tue 21/01/25
49	J-04-46E - Dig Trial Hole	3 hrs	Tue 21/01/25	Tue 21/01/25
50	J-04-46E - Install Pile Foundation	1.5 hrs	Tue 21/01/25	Tue 21/01/25
51	J-04-48A - Dig Trial Hole	3 hrs	Wed 22/01/25	Wed 22/01/25
52	J-04-48A - Install Pile Foundation	1.5 hrs	Wed 22/01/25	Wed 22/01/25
53	J-04-49A - Dig Trial Hole	3 hrs	Wed 22/01/25	Wed 22/01/25
54	J-04-49A - Install Pile Foundation	1.5 hrs	Wed 22/01/25	Wed 22/01/25
55	J-04-49B - Dig Trial Hole	3 hrs	Thu 23/01/25	Thu 23/01/25
56	J-04-49B - Install Pile Foundation	1.5 hrs	Thu 23/01/25	Thu 23/01/25
57	J-04-49B Tie/Strut - Dig Trial Hole	3 hrs	Thu 23/01/25	Thu 23/01/25
58	J-04-49B Tie/Strut - Install Pile Foundation	1.5 hrs	Thu 23/01/25	Thu 23/01/25
59	J-04-49C - Dig Trial Hole	3 hrs	Fri 24/01/25	Fri 24/01/25
60	J-04-49C - Install Pile Foundation	1.5 hrs	Fri 24/01/25	Fri 24/01/25
61	J-04-49D - Dig Trial Hole	3 hrs	Fri 24/01/25	Fri 24/01/25
62	J-04-49D - Install Pile Foundation	1.5 hrs	Fri 24/01/25	Fri 24/01/25
63	J-04-52B - Dig Trial Hole	3 hrs	Mon 27/01/25	Mon 27/01/25
64	J-04-52B - Install Pile Foundation	1.5 hrs	Mon 27/01/25	Mon 27/01/25
65	J-04-52D - Dig Trial Hole	3 hrs	Mon 27/01/25	Mon 27/01/25
66	J-04-52D - Install Pile Foundation	1.5 hrs	Mon 27/01/25	Mon 27/01/25
67	J-04-52E - Dig Trial Hole	3 hrs	Tue 28/01/25	Tue 28/01/25
68	J-04-52E - Install Pile Foundation	1.5 hrs	Tue 28/01/25	Tue 28/01/25
69	J-04-52G - Dig Trial Hole	3 hrs	Tue 28/01/25	Tue 28/01/25
70	J-04-52G - Install Pile Foundation	1.5 hrs	Tue 28/01/25	Tue 28/01/25
71	J-04-55A - Dig Trial Hole	3 hrs	Wed 29/01/25	Wed 29/01/25
72	J-04-55A - Install Pile Foundation	1.5 hrs	Wed 29/01/25	Wed 29/01/25
73	J-04-55C - Dig Trial Hole	3 hrs	Wed 29/01/25	Wed 29/01/25
74	J-04-55C - Install Pile Foundation	1.5 hrs	Wed 29/01/25	Wed 29/01/25
75	J-04-56B - Dig Trial Hole (both Mast A & B)	6 hrs	Thu 30/01/25	Thu 30/01/25
76	J-04-56B - Install Pile Foundation (both Mast A & B)	3 hrs	Thu 30/01/25	Thu 30/01/25
77	J-04-56C - Dig Trial Hole	3 hrs	Fri 31/01/25	Fri 31/01/25
78	J-04-56C - Install Pile Foundation	1.5 hrs	Fri 31/01/25	Fri 31/01/25
79	J-04-60C Tie/Strut - Dig Trial Hole (both Mast A & B)	6 hrs	Fri 31/01/25	Sat 01/02/25
80	J-04-60C Tie/Strut - Install Pile Foundation (both Mast A & B)	3 hrs	Mon 03/02/25	Mon 03/02/25
81	J-04-60C - Dig Trial Hole (both Mast A & B)	6 hrs	Mon 03/02/25	Mon 03/02/25
82	J-04-60C - Install Pile Foundation (both Mast A & B)	3 hrs	Tue 04/02/25	Tue 04/02/25
83	J-04-60D - Dig Trial Hole	3 hrs	Tue 04/02/25	Tue 04/02/25
84	J-04-60D - Install Pile Foundation	1.5 hrs	Tue 04/02/25	Tue 04/02/25



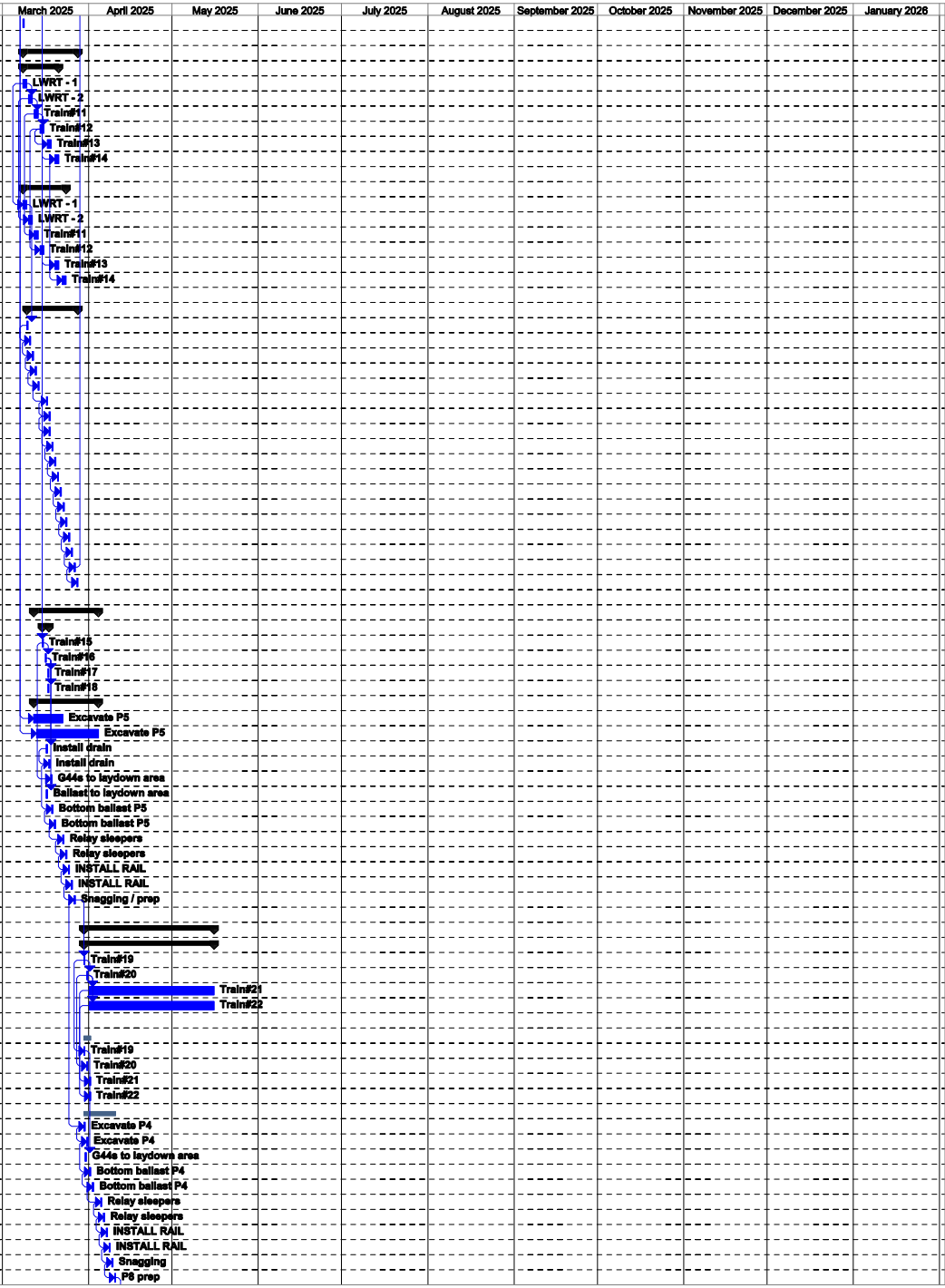
Stage 7

ID	Task Name	Duration	Start	Finish
85				
86	PLATFORM 6 & 7: EAST	66.88 days?	Sat 15/02/25	Sun 09/03/25
87	TRAINS			
88	Train#1: Loco, 12 Tilting Wagons (9025 & 9026AB), 2LD Salmon (PL Panels), Kirow, Support, Salmon	8 hrs	Sat 15/02/25	Sat 15/02/25
89	LWRT - 1 (8 x 108m rail strings)	8 hrs	Sun 16/02/25	Sun 16/02/25
90	LWRT - 2 (8 x 108m rail strings)	8 hrs	Mon 17/02/25	Mon 17/02/25
91	LWRT - 3 (8 x 108m rail strings)	8 hrs	Tue 18/02/25	Tue 18/02/25
92	LWRT - 4 (8 x 108m rail strings)	8 hrs	Wed 19/02/25	Wed 19/02/25
93	Train#2: Loco, 10LD Falcons (Peas), 8 LD Bass (192 x 6m Pipes)	8 hrs	Thu 20/02/25	Thu 20/02/25
94	Train#3: Loco, 20MT Falcons (Spoil)	8 hrs	Fri 21/02/25	Sat 22/02/25
95	Train#4: Loco, 8 Tilting Wagons (9018A), 2LD Salmon (PL Panels), Kirow, Support, Salmon	8 hrs	Sat 22/02/25	Sun 23/02/25
96	Train#5: Loco, 20LD Falcons (Ballast)	8 hrs	Wed 26/02/25	Thu 27/02/25
97	Train#6: Loco, 15LD Falcons (Ballast), 4LD Salmon (672 No. G44s)	8 hrs	Fri 28/02/25	Sat 01/03/25
98				
99	SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS			
100	Take delivery of S&C & PL panels & from Train#1. Kirow unloads onto Up Relief Cess	8 hrs	Sun 16/02/25	Mon 17/02/25
101	Take delivery of 8 x 108m rail strings in Up Relief 4ft (2 sections of 4 strings per shift)	8 hrs	Sun 16/02/25	Sun 16/02/25
102	Take delivery of 8 x 108m rail strings in Up Relief 4ft (2 sections of 4 strings per shift)	8 hrs	Mon 17/02/25	Mon 17/02/25
103	Take delivery of 8 x 108m rail strings in Up Relief 4ft (2 sections of 4 strings per shift)	8 hrs	Tue 18/02/25	Tue 18/02/25
104	Take delivery of 8 x 108m rail strings in Up Relief 4ft (2 sections of 4 strings per shift)	8 hrs	Wed 19/02/25	Wed 19/02/25
105	Take delivery of peas and drainage pipes from Train#2	8 hrs	Thu 20/02/25	Thu 20/02/25
106	Load spoil to Train#3	8 hrs	Fri 21/02/25	Sat 22/02/25
107	Take delivery of S&C & PL panels from Train#4. Kirow unloads onto Up Relief Cess	8 hrs	Sat 22/02/25	Sun 23/02/25
108	Take delivery of ballast from Train#5	8 hrs	Wed 26/02/25	Thu 27/02/25
109	Take delivery of ballast & sleepers from Train#6	8 hrs	Fri 28/02/25	Sat 01/03/25
110	SITE WORKS - DAYSHIFT	62.75 days?	Sun 16/02/25	Sun 09/03/25
111	Convey unloaded S&C and PL panels from Train#1 to laydown area - Shift 1	10 hrs	Sun 16/02/25	Mon 17/02/25
112	Convey unloaded S&C and PL panels from Train#1 to laydown area - Shift 2	10 hrs	Mon 17/02/25	Tue 18/02/25
113	TRTs position CWR strings in laydown area - Shift 1	10 hrs	Tue 18/02/25	Wed 19/02/25
114	TRTs position CWR strings in laydown area - Shift 2	10 hrs	Wed 19/02/25	Thu 20/02/25
115	Convey drainage materials to laydown area	10 hrs	Thu 20/02/25	Fri 21/02/25
116	Excavate spoil Platform 7: CH4640 to CH5000 (360m). Convey spoil to loading area for Train loading - Shift 1	10 hrs	Sun 23/02/25	Mon 24/02/25
117	Excavate spoil Platform 7: CH4640 to CH5000 (360m). Convey spoil to loading area for Train loading - Shift 2	10 hrs	Mon 24/02/25	Tue 25/02/25
118	Excavate spoil Platform 6: CH4750 to CH5000 (250m). Convey spoil to loading area for Train loading - Shift 1	10 hrs	Tue 25/02/25	Wed 26/02/25
119	Excavate spoil Platform 6: CH4750 to CH5000 (250m). Convey spoil to loading area for Train loading - Shift 2	10 hrs	Wed 26/02/25	Thu 27/02/25
120	Excavate drainage trench, install pipes & peas - Shift 1	10 hrs	Wed 26/02/25	Thu 27/02/25
121	Excavate drainage trench, install pipes & peas - Shift 2	10 hrs	Thu 27/02/25	Fri 28/02/25
122	Convey unloaded panels from Train#4 to laydown area	10 hrs	Mon 24/02/25	Mon 24/02/25
123	Install bottom ballast, doze and compact Platform 7. Shift 1	10 hrs	Thu 27/02/25	Thu 27/02/25
124	Install bottom ballast, doze and compact Platform 7. Shift 2	10 hrs	Fri 28/02/25	Fri 28/02/25
125	Install bottom ballast, doze and compact Platform 6. Shift 1	10 hrs	Sat 01/03/25	Sat 01/03/25
126	Install bottom ballast, doze and compact Platform 6. Shift 2	10 hrs	Sun 02/03/25	Sun 02/03/25
127	Convey G44s to laydown area	5 hrs	Mon 03/03/25	Mon 03/03/25
128	Relay 3 x PL sections, install rail & clip up - Platform 7 (160m)	10 hrs	Wed 05/03/25	Wed 05/03/25
129	Relay 3 x PL sections, install rail & clip up - Platform 6 (150m)	10 hrs	Thu 06/03/25	Thu 06/03/25
130	Install S&C panels (9026 AB Crossover)	10 hrs	Fri 07/03/25	Fri 07/03/25
131	Install S&C panels (9025 AB Crossover)	10 hrs	Sat 08/03/25	Sat 08/03/25
132	Install S&C panels (9019A Pts Turnout)	10 hrs	Sun 09/03/25	Sun 09/03/25
133		1 day?		
134	PLATFORMS 3 & 4	60.63 days?		
135	TRAINS	38.5 days?	Sat 08/03/25	Fri 21/03/25
136	LWRT - 1 (8 x 108m rail strings)	4.13 days?	Sat 08/03/25	Sun 09/03/25
137	LWRT - 2 (8 x 108m rail strings)	4.13 days?	Mon 10/03/25	Tue 11/03/25
138	Train#7: Loco, 20LD Falcons	4.13 days?	Wed 12/03/25	Thu 13/03/25
139	Train#8: Loco, 12LD Falcons, 6LD Salmon (1008 No. G44s)	4.13 days?	Fri 14/03/25	Sat 15/03/25
140	Train#9: Loco, 20MT Falcons	4.13 days?	Mon 17/03/25	Tue 18/03/25
141	Train#10: Loco, 20MT Falcons	4.13 days?	Wed 19/03/25	Fri 21/03/25
142		38.5 days?	Sat 08/03/25	Fri 21/03/25
143	SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS	38.5 days?	Sat 08/03/25	Fri 21/03/25
144	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	4.13 days?	Sat 08/03/25	Sun 09/03/25
145	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	4.13 days?	Mon 10/03/25	Tue 11/03/25
146	Take delivery of ballast from Train#7 from Up Relief	4.13 days?	Wed 12/03/25	Thu 13/03/25
147	Take delivery of ballast&G44s from Train#8	4.13 days?	Fri 14/03/25	Sat 15/03/25
148	Load spoil to Train#9	4.13 days?	Mon 17/03/25	Tue 18/03/25
149	Load spoil to Train#10	4.13 days?	Wed 19/03/25	Fri 21/03/25
150				
151	SITE WORKS - DAYSHIFT	60.63 days?	Sat 08/03/25	Fri 28/03/25
152	TRTs position CWR strings in laydown area	4.13 days?	Thu 27/03/25	Fri 28/03/25
153	TRTs position CWR strings in laydown area	1.13 days?	Sat 08/03/25	Sat 08/03/25
154	Convey ballast to laydown area	1.13 days?	Sat 08/03/25	Sat 08/03/25
155	Convey ballast&G44s to laydown area	1.13 days?	Sat 08/03/25	Sat 08/03/25
156	Excavate spoil Platform 7: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 1 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
157	Excavate spoil Platform 7: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 2 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
158	Excavate spoil Platform 6: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 1 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
159	Excavate spoil Platform 6: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 2 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
160	Excavate drainage trench, install pipes&peas - Shift 1 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
161	Excavate drainage trench, install pipes&peas - Shift 2 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
162	Install bottom ballast, doze and compact Platform 7 - Shift 1 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
163	Install bottom ballast, doze and compact Platform 7 - Shift 2 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
164	Install bottom ballast, doze and compact Platform 6 - Shift 1 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
165	Install bottom ballast, doze and compact Platform 6 - Shift 2 of 2	1.13 days?	Sat 08/03/25	Sat 08/03/25
166	Relay loose G44s - Platform 7	1.13 days?	Sat 08/03/25	Sat 08/03/25
167	Install CWR, clip up&clamp - Platform 7	1.13 days?	Sat 08/03/25	Sat 08/03/25
168	Relay loose G44s - Platform 6	1.13 days?	Sat 08/03/25	Sat 08/03/25



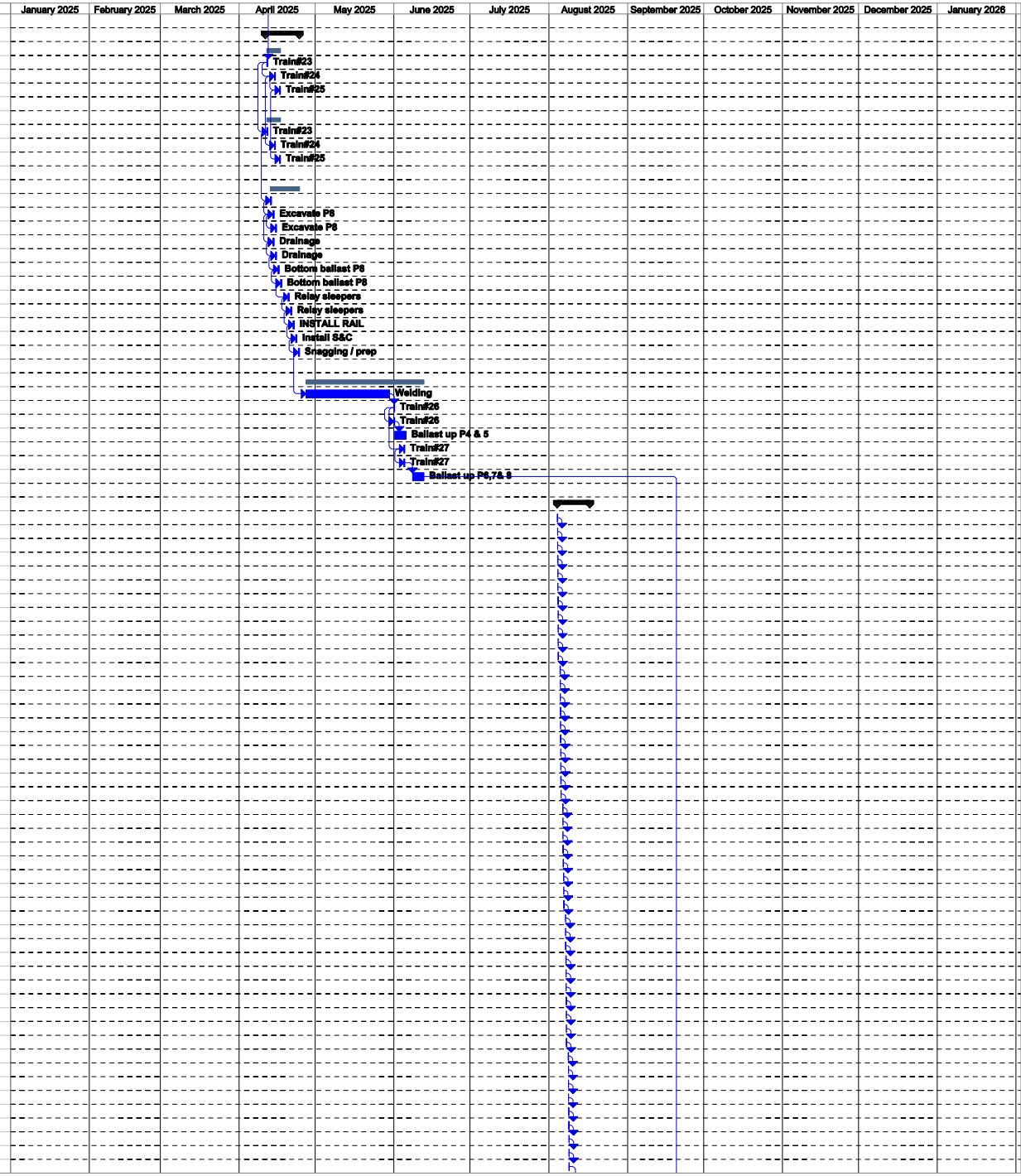
Stage 7

ID	Task Name	Duration	Start	Finish
169	Install CWR, clip up&clamp - Platform 6	1.13 days?	Sat 08/03/25	Sat 08/03/25
170				
171	**PLATFORMS 6 & 7**	**59.38 days?**		
172	**TRAINS**	**38.5 days?**	**Sat 08/03/25**	**Fri 21/03/25**
173	**LWRT - 1 (6 x 108m rail strings)**	4.13 days?	**Sat 08/03/25**	**Sun 09/03/25**
174	**LWRT - 2 (6 x 108m rail strings)**	4.13 days?	**Mon 10/03/25**	**Tue 11/03/25**
175	**Train#11: Loco, 20LD Falcons**	4.13 days?	**Wed 12/03/25**	**Thu 13/03/25**
176	**Train#12: Loco, 12LD Falcons, 6LD Salmon (1008 No. G44s)**	4.13 days?	**Fri 14/03/25**	**Sat 15/03/25**
177	**Train#13: Loco, 20MT Falcons**	4.13 days?	**Mon 17/03/25**	**Tue 18/03/25**
178	**Train#14: Loco, 20MT Falcons**	4.13 days?	**Wed 19/03/25**	**Fri 21/03/25**
179				
180	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**	**46.5 days?**	**Sat 08/03/25**	**Sun 23/03/25**
181	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	4.13 days?	Sat 08/03/25	Sun 09/03/25
182	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	4.13 days?	Mon 10/03/25	Tue 11/03/25
183	Take delivery of ballast from Train#11 from Up Relief	4.13 days?	Wed 12/03/25	Thu 13/03/25
184	Take delivery of ballast&G44s from Train#12	4.13 days?	Fri 14/03/25	Sat 15/03/25
185	Load spoil to Train#13	4.13 days?	Wed 19/03/25	Fri 21/03/25
186	Load spoil to Train#14	4.13 days?	Sat 22/03/25	Sun 23/03/25
187				
188	**SITE WORKS - DAYSHIFT**	**55.13 days?**	**Sun 09/03/25**	**Fri 28/03/25**
189	TRTs position CWR strings in laydown area	1.13 days?	Sun 09/03/25	Mon 10/03/25
190	TRTs position CWR strings in laydown area	1.13 days?	Mon 10/03/25	Tue 11/03/25
191	Convey ballast to laydown area	1.13 days?	Tue 11/03/25	Wed 12/03/25
192	Convey ballast& G44s to laydown area	1.13 days?	Wed 12/03/25	Thu 13/03/25
193	Excavate spoil Platform 7: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 1 of 2	1.13 days?	Thu 13/03/25	Fri 14/03/25
194	Excavate spoil Platform 7: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 2 of 2	1.13 days?	Sun 16/03/25	Mon 17/03/25
195	Excavate spoil Platform 6: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 1 of 2	1.13 days?	Mon 17/03/25	Tue 18/03/25
196	Excavate spoil Platform 6: CH5000 to 5300 (300m). Convey spoil to loading area for Train loading - Shift 2 of 2	1.13 days?	Mon 17/03/25	Tue 18/03/25
197	Excavate drainage trench, install pipes& peas - Shift 1 of 2	1.13 days?	Tue 18/03/25	Wed 19/03/25
198	Excavate drainage trench, install pipes& peas - Shift 2 of 2	1.13 days?	Wed 19/03/25	Thu 20/03/25
199	Install bottom ballast, doze and compact Platform 7 - Shift 1 of 2	1.13 days?	Thu 20/03/25	Fri 21/03/25
200	Install bottom ballast, doze and compact Platform 7 - Shift 2 of 2	1.13 days?	Fri 21/03/25	Sat 22/03/25
201	Install bottom ballast, doze and compact Platform 6 - Shift 1 of 2	1.13 days?	Sat 22/03/25	Sun 23/03/25
202	Install bottom ballast, doze and compact Platform 6 - Shift 2 of 2	1.13 days?	Sun 23/03/25	Mon 24/03/25
203	Relay loose G44s - Platform 7	1.13 days?	Mon 24/03/25	Tue 25/03/25
204	Install CWR, clip up& clamp - Platform 7	1.13 days?	Tue 25/03/25	Wed 26/03/25
205	Relay loose G44s - Platform 6	1.13 days?	Wed 26/03/25	Thu 27/03/25
206	Install CWR, clip up& clamp - Platform 6	1.13 days?	Thu 27/03/25	Fri 28/03/25
207				
208	**PLATFORM 5: EAST**	**69.88 days**	**Wed 12/03/25**	**Fri 04/04/25**
209	**TRAINS**	**7 days**	**Sat 15/03/25**	**Mon 17/03/25**
210	**Train#15 Loco, 5LD Salmon (G44s), Loco**	**8 hrs**	**Sat 15/03/25**	**Sat 15/03/25**
211	**Train#16: Loco, 20LD Falcons, Loco**	**8 hrs**	**Sun 16/03/25**	**Sun 16/03/25**
212	**Train#17: Loco, 20MT Falcons, Loco**	**8 hrs**	**Mon 17/03/25**	**Mon 17/03/25**
213	**Train#18: Loco, 20MT Falcons, Loco**	**8 hrs**	**Mon 17/03/25**	**Mon 17/03/25**
214	**Site Works**	**69.88 days**	**Wed 12/03/25**	**Fri 04/04/25**
215	Excavate spoil Platform 5: CH4840 to 53000 (460m). Convey spoil to loading area for Train loading. Shift 1	250 hrs	Wed 12/03/25	Sat 22/03/25
216	Excavate spoil Platform 5: CH4840 to 53000 (460m). Convey spoil to loading area for Train loading. Shift 2	535 hrs		
217	Excavate drainage trench, install pipes & peas - Shift 1	10 hrs	Sun 16/03/25	Mon 17/03/25
218	Excavate drainage trench, install pipes & peas - Shift 2	10 hrs	Mon 17/03/25	Tue 18/03/25
219	Convey unloaded G44s to laydown area	10 hrs	Tue 18/03/25	Tue 18/03/25
220	Convey ballast to laydown area	10 hrs	Sun 16/03/25	Mon 17/03/25
221	Install bottom ballast, doze and compact Platform 5. Shift 1	10 hrs	Tue 18/03/25	Wed 19/03/25
222	Install bottom ballast, doze and compact Platform 5. Shift 2	10 hrs	Wed 19/03/25	Thu 20/03/25
223	Relay loose G44s - Shift 1	10 hrs	Sat 22/03/25	Sun 23/03/25
224	Relay loose G44s - Shift 2	10 hrs	Sun 23/03/25	Mon 24/03/25
225	Install CWR, clip up & clamp - Shift 1	10 hrs	Mon 24/03/25	Tue 25/03/25
226	Install CWR, clip up & clamp - Shift 2	10 hrs	Tue 25/03/25	Wed 26/03/25
227	P5 snagging, P4 prep	10 hrs	Wed 26/03/25	Thu 27/03/25
228				
229	**PLATFORM 4: EAST**	**140.38 days?**	Sun 30/03/25	Fri 16/05/25
230	**TRAINS**	**140.38 days**	**Sun 30/03/25**	**Fri 16/05/25**
231	**Train#19 Loco, 4LD Salmon (G44s), Loco**	**8 hrs**	**Sun 30/03/25**	**Sun 30/03/25**
232	**Train#20: Loco, 20LD Falcons, Loco**	**8 hrs**	**Mon 31/03/25**	**Mon 31/03/25**
233	**Train#21: Loco, 20MT Falcons, Loco**	**1075 hrs**	**Tue 01/04/25**	**Fri 16/05/25**
234	**Train#22: Loco, 20MT Falcons, Loco**	**1075 hrs**	**Tue 01/04/25**	**Fri 16/05/25**
235				
236	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
237	Take delivery of loose G44s from Train#19	8 hrs	Sun 30/03/25	Sun 30/03/25
238	Take delivery of ballast from Train#20	8 hrs	Mon 31/03/25	Mon 31/03/25
239	Load spoil to Train#21	8 hrs	Tue 01/04/25	Tue 01/04/25
240	Load spoil to Train#22	8 hrs	Tue 01/04/25	Tue 01/04/25
241	**SITE WORKS - DAYSHIFT**			
242	Excavate spoil Platform 4: CH4880 to 5300 (420m). Convey spoil to loading area for Train loading. Shift 1	10 hrs	Sun 30/03/25	Sun 30/03/25
243	Excavate spoil Platform 4: CH4880 to 5300 (420m). Convey spoil to loading area for Train loading. Shift 2	10 hrs	Mon 31/03/25	Mon 31/03/25
244	Convey unloaded G44s to laydown area	10 hrs	Sun 30/03/25	Mon 31/03/25
245	Install bottom ballast, doze and compact Platform 4. Shift 1	10 hrs	Tue 01/04/25	Tue 01/04/25
246	Install bottom ballast, doze and compact Platform 4. Shift 2	10 hrs	Wed 02/04/25	Wed 02/04/25
247	Relay loose G44s - Shift 1	10 hrs	Sat 05/04/25	Sat 05/04/25
248	Relay loose G44s - Shift 2	10 hrs	Sun 06/04/25	Sun 06/04/25
249	Install CWR, clip up & clamp - Shift 1	10 hrs	Mon 07/04/25	Mon 07/04/25
250	Install CWR, clip up & clamp - Shift 2	10 hrs	Tue 08/04/25	Tue 08/04/25
251	Platform 4 snagging	10 hrs	Wed 09/04/25	Wed 09/04/25
252	Reconfigure laydown area and materials for Platform 8	10 hrs	Thu 10/04/25	Thu 10/04/25



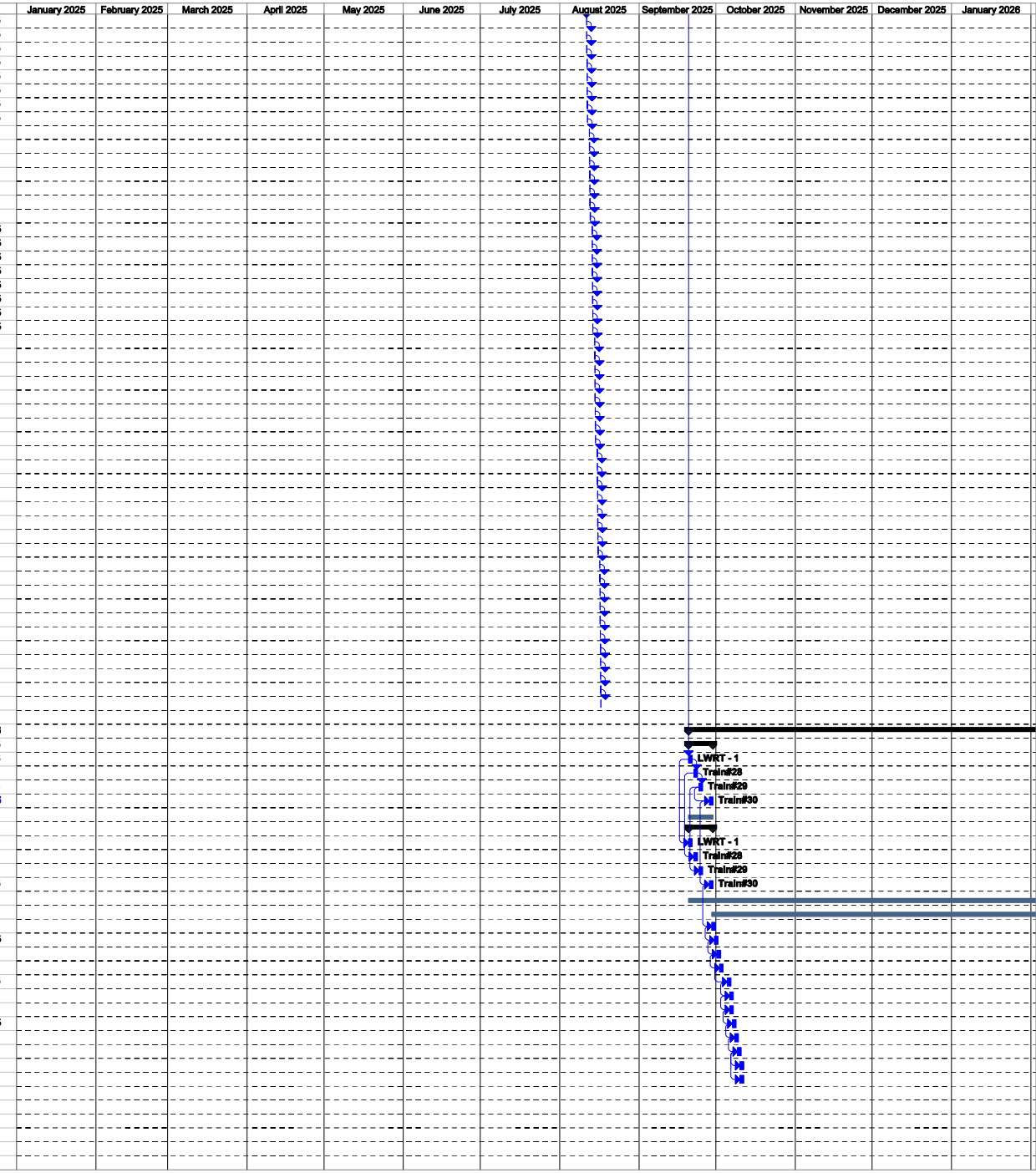
Stage 7

ID	Task Name	Duration	Start	Finish
253				
254	**PLATFORM 8: EAST**	**40.13 days**	**Fri 11/04/25**	**Thu 24/04/25**
255	**TRAINS**			
256	**Train#23 Loco, 6 Tilting Wagons, 1LD Salmon (PL panels), 2LD Salmon (G44s), Loco**	**8 hrs**	**Fri 11/04/25**	**Sat 12/04/25**
257	**Train#24: Loco, 20LD Falcons, Loco**	**8 hrs**	**Mon 14/04/25**	**Tue 15/04/25**
258	**Train#25: Loco, 20MT Falcons, Loco**	**8 hrs**	**Wed 16/04/25**	**Thu 17/04/25**
259				
260	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
261	Take delivery of S&C panels & G44s from Train#23	8 hrs	Fri 11/04/25	Sat 12/04/25
262	Take delivery of ballast from Train#24	8 hrs	Mon 14/04/25	Tue 15/04/25
263	Load spoil to Train#25	8 hrs	Wed 16/04/25	Thu 17/04/25
264				
265	**SITE WORKS - DAYSHIFT**			
266	Convey panels and sleepers to laydown area	10 hrs	Sun 13/04/25	Sun 13/04/25
267	Excavate spoil Platform 8: CH4700 to 5000 (300m) - Shift 1	10 hrs	Mon 14/04/25	Mon 14/04/25
268	Excavate spoil Platform 8: CH4700 to 5000 (300m) - Shift 2	10 hrs	Tue 15/04/25	Tue 15/04/25
269	Excavate drainage trench, install pipes & peas - Shift 1	10 hrs	Mon 14/04/25	Mon 14/04/25
270	Excavate drainage trench, install pipes & peas - Shift 2	10 hrs	Tue 15/04/25	Tue 15/04/25
271	Install bottom ballast, doze and compact - Shift 1	10 hrs	Wed 16/04/25	Wed 16/04/25
272	Install bottom ballast, doze and compact - Shift 2	10 hrs	Thu 17/04/25	Thu 17/04/25
273	Relay loose G44s - Shift 1	10 hrs	Sun 20/04/25	Sun 20/04/25
274	Relay loose G44s - Shift 2	10 hrs	Mon 21/04/25	Mon 21/04/25
275	Install CWR, clip up and clamp	10 hrs	Tue 22/04/25	Tue 22/04/25
276	Install S&C panels (9022Pts)	10 hrs	Wed 23/04/25	Wed 23/04/25
277	Snagging / Reconfigure material laydown area for next Stage	10 hrs	Thu 24/04/25	Thu 24/04/25
278				
279	**FOLLOW UP WORKS**			
280	Welding - Circa 150 welds - 1 team: 6 welds per shift = 5 working weeks	99 days	Sun 27/04/25	Fri 30/05/25
281	**Train#26: Loco, 15LD Falcons**	**8 hrs**	**Sat 31/05/25**	**Sun 01/06/25**
282	Take delivery of ballast from Train#26	8 hrs	Sat 31/05/25	Sun 01/06/25
283	Run out top ballast through Platforms 4 & 5 and profile - 5 days	106 hrs	Sun 01/06/25	Thu 05/06/25
284	**Train#27: Loco: 15LD Falcons**	**8 hrs**	**Wed 04/06/25**	**Thu 05/06/25**
285	Take delivery of ballast from Train#27	8 hrs	Wed 04/06/25	Thu 05/06/25
286	Run out top ballast through Platforms 6, 7 & 8 including S&C	106 hrs	Sun 08/06/25	Thu 12/06/25
287				
288	**OLE Works Stage 7C**	**38.31 days**	**Mon 04/08/25**	**Sun 17/08/25**
289	J-04-35A - Erect DC Mast	1 hr	Mon 04/08/25	Mon 04/08/25
290	J-04-36A - Erect Portal Mast	1 hr	Mon 04/08/25	Mon 04/08/25
291	J-04-36A Tie/Strut - Install Tie/Strut	0.5 hrs	Mon 04/08/25	Mon 04/08/25
292	J-04-36B - Erect STC Mast	1 hr	Mon 04/08/25	Mon 04/08/25
293	J-04-36C - Erect DC Mast	1 hr	Mon 04/08/25	Mon 04/08/25
294	J-04-36D - Erect STC Mast	1 hr	Mon 04/08/25	Mon 04/08/25
295	J-04-40A - Erect Portal Mast	1 hr	Mon 04/08/25	Mon 04/08/25
296	J-04-40A Tie/Strut - Install Tie/Strut	0.5 hrs	Mon 04/08/25	Mon 04/08/25
297	J-04-40A - Install ATF Anchor SPS	0.5 hrs	Mon 04/08/25	Mon 04/08/25
298	J-04-40B - Erect STC Mast	1 hr	Mon 04/08/25	Mon 04/08/25
299	J-04-42A - Erect Portal Mast	1 hr	Mon 04/08/25	Mon 04/08/25
300	J-04-42A - Install Drop Tube & ATF Support	1 hr	Tue 05/08/25	Tue 05/08/25
301	J-04-42B - Erect STC Mast	1 hr	Tue 05/08/25	Tue 05/08/25
302	J-04-43A - Erect Portal Mast	1 hr	Tue 05/08/25	Tue 05/08/25
303	J-04-43A - Install Drop Tube & ATF Support	1 hr	Tue 05/08/25	Tue 05/08/25
304	J-04-43B - Erect STC Mast	1 hr	Tue 05/08/25	Tue 05/08/25
305	J-04-43C - Erect DC Mast	1 hr	Tue 05/08/25	Tue 05/08/25
306	J-04-43D - Erect Portal Mast	1 hr	Tue 05/08/25	Tue 05/08/25
307	J-04-43D - Install Drop Tube & ATF Support	1 hr	Tue 05/08/25	Tue 05/08/25
308	J-04-43D Tie/Strut - Install Tie/Strut	0.5 hrs	Tue 05/08/25	Tue 05/08/25
309	J-04-44A - Erect Portal Mast	1 hr	Tue 05/08/25	Tue 05/08/25
310	J-04-44A - Install Drop Tube & ATF Support	1 hr	Wed 06/08/25	Wed 06/08/25
311	J-04-44B - Erect Portal Mast	1 hr	Wed 06/08/25	Wed 06/08/25
312	J-04-44B - Install Drop Tube & ATF Support	1 hr	Wed 06/08/25	Wed 06/08/25
313	J-04-46A - Erect DC Mast	1 hr	Wed 06/08/25	Wed 06/08/25
314	J-04-46C - Erect Portal Mast (both Mast A & B)	2 hrs	Wed 06/08/25	Wed 06/08/25
315	J-04-46C - Erect Portal Boom	2 hrs	Wed 06/08/25	Wed 06/08/25
316	J-04-46C - Install Drop Tube & ATF Support	1 hr	Wed 06/08/25	Wed 06/08/25
317	J-04-46D - Erect Portal Mast	1 hr	Wed 06/08/25	Wed 06/08/25
318	J-04-46E - Erect DC Mast	1 hr	Thu 07/08/25	Thu 07/08/25
319	J-04-48A - Erect TTC Mast	1 hr	Thu 07/08/25	Thu 07/08/25
320	J-04-48A - Erect TTC Boom	2 hrs	Thu 07/08/25	Thu 07/08/25
321	J-04-48A - Install Drop Tube & ATF Support	1 hr	Thu 07/08/25	Thu 07/08/25
322	J-04-49A - Erect SSA Mast	1 hr	Thu 07/08/25	Thu 07/08/25
323	J-04-49A - Install Anchor SPS (A219)	0.5 hrs	Thu 07/08/25	Thu 07/08/25
324	J-04-49B - Erect Portal Mast	1 hr	Thu 07/08/25	Thu 07/08/25
325	J-04-49B Tie/Strut - Install Tie/Strut	0.5 hrs	Thu 07/08/25	Thu 07/08/25
326	J-04-49B - Install Drop Tube & Anchor SPS (A215)	1 hr	Thu 07/08/25	Thu 07/08/25
327	J-04-49C - Erect SSA Mast	1 hr	Thu 07/08/25	Thu 07/08/25
328	J-04-49C - Install Anchor SPS (A218)	0.5 hrs	Fri 08/08/25	Fri 08/08/25
329	J-04-49D - Erect SSA Mast	1 hr	Fri 08/08/25	Fri 08/08/25
330	J-04-49D - Install Anchor SPS (A217)	0.5 hrs	Fri 08/08/25	Fri 08/08/25
331	J-04-52B - Erect TTC Mast	1 hr	Fri 08/08/25	Fri 08/08/25
332	J-04-52B - Erect TTC Boom	2 hrs	Fri 08/08/25	Fri 08/08/25
333	J-04-52B - Install Drop Tube & ATF Support	1 hr	Fri 08/08/25	Fri 08/08/25
334	J-04-52D - Erect Portal Mast	1 hr	Fri 08/08/25	Fri 08/08/25
335	J-04-52D - Install Drop Tube & Registration (A215)	1 hr	Fri 08/08/25	Fri 08/08/25
336	J-04-52E - Erect DC Mast	1 hr	Fri 08/08/25	Sat 09/08/25



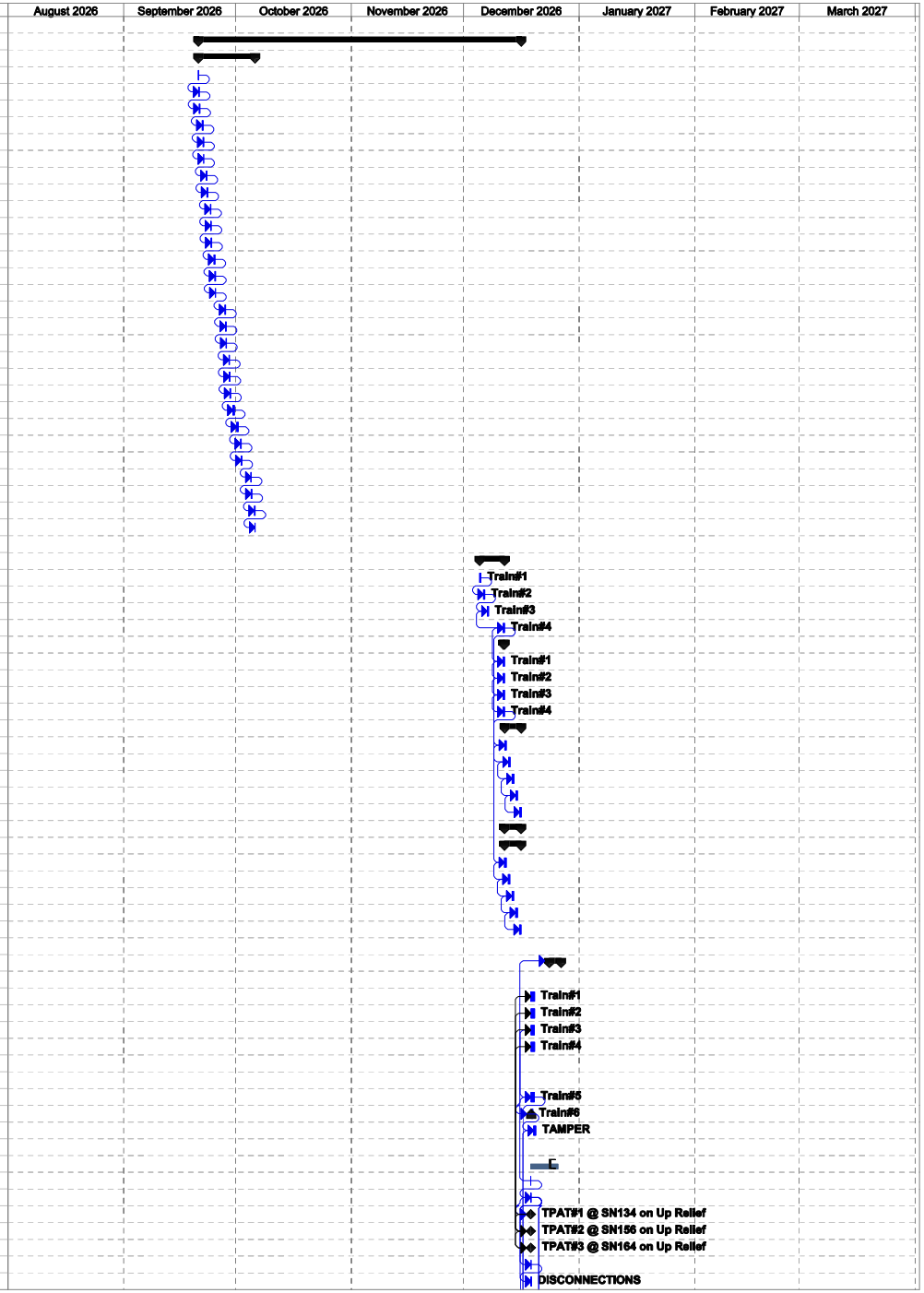
Stage 7

ID	Task Name	Duration	Start	Finish
337	J-04-52E - Install Mast Bracket & Registration (A219)	1 hr	Mon 11/08/25	Mon 11/08/25
338	J-04-52G - Erect TTC Mast	1 hr	Mon 11/08/25	Mon 11/08/25
339	J-04-52G - Erect TTC Boom	2 hrs	Mon 11/08/25	Mon 11/08/25
340	J-04-52G - Install Drop Tube & Registration (A217)	1 hr	Mon 11/08/25	Mon 11/08/25
341	J-04-55A - Erect SSA Mast	1 hr	Mon 11/08/25	Mon 11/08/25
342	J-04-55C - Erect SSA Mast	1 hr	Mon 11/08/25	Mon 11/08/25
343	J-04-55C - Install ATF Anchor SPS	0.5 hrs	Mon 11/08/25	Mon 11/08/25
344	J-04-56B - Erect Portal Mast (both Mast A & B)	2 hrs	Mon 11/08/25	Mon 11/08/25
345	J-04-56B - Install Drop Tube & Registration (A215)	1 hr	Tue 12/08/25	Tue 12/08/25
346	J-04-56B - Erect Portal Boom	2 hrs	Tue 12/08/25	Tue 12/08/25
347	J-04-58C - Erect DC Mast	1 hr	Tue 12/08/25	Tue 12/08/25
348	J-04-58C - Install Mast Bracket & Registration (A219)	1 hr	Tue 12/08/25	Tue 12/08/25
349	J-04-60C Tie/Strut - Install Tie/Strut (both Mast A & B)	1 hr	Tue 12/08/25	Tue 12/08/25
350	J-04-60C - Erect Portal Mast (both Mast A & B)	2 hrs	Tue 12/08/25	Tue 12/08/25
351	J-04-60C - Erect Portal Boom	2 hrs	Tue 12/08/25	Tue 12/08/25
352	J-04-60C - Install Drop Tube & Registration (A215)	1 hr	Wed 13/08/25	Wed 13/08/25
353	J-04-60D - Erect SSA Mast	1 hr	Wed 13/08/25	Wed 13/08/25
354	J-04-60D - Install Mast Bracket & Registration (A219)	1 hr	Wed 13/08/25	Wed 13/08/25
355	J-04-61B - Install O/B Drop Tube & Registration (A218)	1 hr	Wed 13/08/25	Wed 13/08/25
356	J-04-61C - Install O/B Drop Tube & Registration (A217)	1 hr	Wed 13/08/25	Wed 13/08/25
357	J-04-61D - Install O/B Drop Tube & Registration (A216)	1 hr	Wed 13/08/25	Wed 13/08/25
358	J-04-61E - Install O/B Drop Tube & Registration (A215)	1 hr	Wed 13/08/25	Wed 13/08/25
359	J-04-64B - Install Drop Tube & Registration (A218)	1 hr	Wed 13/08/25	Wed 13/08/25
360	J-04-64B - Install Drop Tube & Registration (A217)	1 hr	Thu 14/08/25	Thu 14/08/25
361	J-04-64C - Install Drop Tube & Registration (A216)	1 hr	Thu 14/08/25	Thu 14/08/25
362	J-04-64C - Install Drop Tube & Registration (A215)	1 hr	Thu 14/08/25	Thu 14/08/25
363	J-04-65B - Install Drop Tube & Registration (A218)	1 hr	Thu 14/08/25	Thu 14/08/25
364	J-04-65B - Install Drop Tube & Registration (A217)	1 hr	Thu 14/08/25	Thu 14/08/25
365	J-04-65C - Install Drop Tube & Registration (A216)	1 hr	Thu 14/08/25	Thu 14/08/25
366	J-04-65C - Install Drop Tube & Registration (A215)	1 hr	Thu 14/08/25	Thu 14/08/25
367	J-05-04B - Install Drop Tube & Registration (A218)	1 hr	Thu 14/08/25	Thu 14/08/25
368	J-05-04B - Install Drop Tube & Registration (A217)	1 hr	Fri 15/08/25	Fri 15/08/25
369	J-05-04C - Install Drop Tube & Registration (A216)	1 hr	Fri 15/08/25	Fri 15/08/25
370	J-05-04C - Install Drop Tube & Registration (A215)	1 hr	Fri 15/08/25	Fri 15/08/25
371	J-05-05A - Install O/B Drop Tube & Registration (A219)	1 hr	Fri 15/08/25	Fri 15/08/25
372	J-05-05C - Install O/B Drop Tube & Registration (A217)	1 hr	Fri 15/08/25	Fri 15/08/25
373	J-05-05D - Install O/B Drop Tube & Registration (A216)	1 hr	Fri 15/08/25	Fri 15/08/25
374	J-05-05E - Install O/B Drop Tube & Registration (A215)	1 hr	Fri 15/08/25	Fri 15/08/25
375	J-05-07B - Install O/B Drop Tube & Registration (A218)	1 hr	Fri 15/08/25	Fri 15/08/25
376	J-05-07C - Install O/B Drop Tube & Registration (A217)	1 hr	Sat 16/08/25	Sat 16/08/25
377	J-05-07D - Install O/B Drop Tube & Registration (A216)	1 hr	Sat 16/08/25	Sat 16/08/25
378	J-05-07E - Install O/B Drop Tube & Registration (A215)	1 hr	Sat 16/08/25	Sat 16/08/25
379	J-05-08B - Install Drop Tube & Registration (A218)	1 hr	Sat 16/08/25	Sat 16/08/25
380	J-05-08C - Install Drop Tube & Registration (A216)	1 hr	Sat 16/08/25	Sat 16/08/25
381	J-05-09B - Install Drop Tube & Registration (A218)	1 hr	Sat 16/08/25	Sat 16/08/25
382	J-05-09C - Install Drop Tube & Registration (A216)	1 hr	Sat 16/08/25	Sat 16/08/25
383	J-05-10B - Install O/B Drop Tube & Registration (A218)	1 hr	Sat 16/08/25	Sat 16/08/25
384	J-05-10C - Install O/B Drop Tube & Registration (A217)	1 hr	Sat 16/08/25	Sun 17/08/25
385	J-05-10D - Install O/B Drop Tube & Registration (A216)	1 hr	Sun 17/08/25	Sun 17/08/25
386	J-05-10E - Install O/B Drop Tube & Registration (A215)	1 hr	Sun 17/08/25	Sun 17/08/25
387				
388	PLATFORM 8	1356.38 days?	Sat 20/09/25	Wed 16/12/26
389	TRAINS	28.38 days?	Sat 20/09/25	Mon 29/09/25
390	LWRT (6 x 108m rail strings)	4.13 days?	Sat 20/09/25	Sun 21/09/25
391	Train#28: Loco, 6LD Falcons (Peas), 5 LD Bass (120 x 6m Pipes)	4.13 days?	Mon 22/09/25	Tue 23/09/25
392	Train#29: Loco, 17LD Falcon (Ballast), 3LD Salmon (504 No. G44s)	4.13 days?	Wed 24/09/25	Thu 25/09/25
393	Train#30: Loco, 20MT Falcons (Spoil)	4.13 days?	Sun 28/09/25	Mon 29/09/25
394				
395	SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS	28.38 days?		
396	Take delivery of 6 x 108m rail strings in Up Relief 4ft. TRTs position on site	4.13 days?	Sat 20/09/25	Sun 21/09/25
397	Take delivery of peas and drainage pipes from Train#28 on Up Relief	4.13 days?	Mon 22/09/25	Tue 23/09/25
398	Take delivery of ballast&sleepers from Train#29 on Up relief	4.13 days?	Wed 24/09/25	Thu 25/09/25
399	Load excavated spoil to Train#30 on Up Relief	4.13 days?	Sun 28/09/25	Mon 29/09/25
400				
401	SITE WORKS - DAYSHIFT			
402	TRTs position CWR strings in laydown area	4.13 days?	Mon 29/09/25	Tue 30/09/25
403	Convey unloaded drainage materials to laydown area	4.13 days?	Tue 30/09/25	Wed 01/10/25
404	Convey unloaded ballast& sleepers to laydown area - Shift 1 of 2	4.13 days?	Wed 01/10/25	Thu 02/10/25
405	Convey unloaded ballast& sleepers to laydown area - Shift 2 of 2	4.13 days?	Thu 02/10/25	Fri 03/10/25
406	Excavate spoil Platform 8: CH5000 to CH5300 (300m). Convey spoil to loading area for Train loading - Shift 1 of 2	4.13 days?	Sun 05/10/25	Mon 06/10/25
407	Excavate spoil Platform 8: CH5000 to CH5300 (300m). Convey spoil to loading area for Train loading - Shift 2 of 2	4.13 days?	Mon 06/10/25	Tue 07/10/25
408	Excavate drainage trench, Install pipes& peas - Shift 1 of 2	4.13 days?	Mon 06/10/25	Tue 07/10/25
409	Excavate drainage trench, Install pipes& peas - Shift 2 of 2	4.13 days?	Tue 07/10/25	Wed 08/10/25
410	Install bottom ballast, doze and compact Platform 8 - Shift 1 of 2	4.13 days?	Wed 08/10/25	Thu 09/10/25
411	Install bottom ballast, doze and compact Platform 8 - Shift 2 of 2	4.13 days?	Thu 09/10/25	Fri 10/10/25
412	Relay loose G44s	4.13 days?	Fri 10/10/25	Sat 11/10/25
413	Install rail, clip up& clamp	4.13 days?	Fri 10/10/25	Sat 11/10/25
414				
415				
416				
417				
418				
419	Stage 9 Prep			



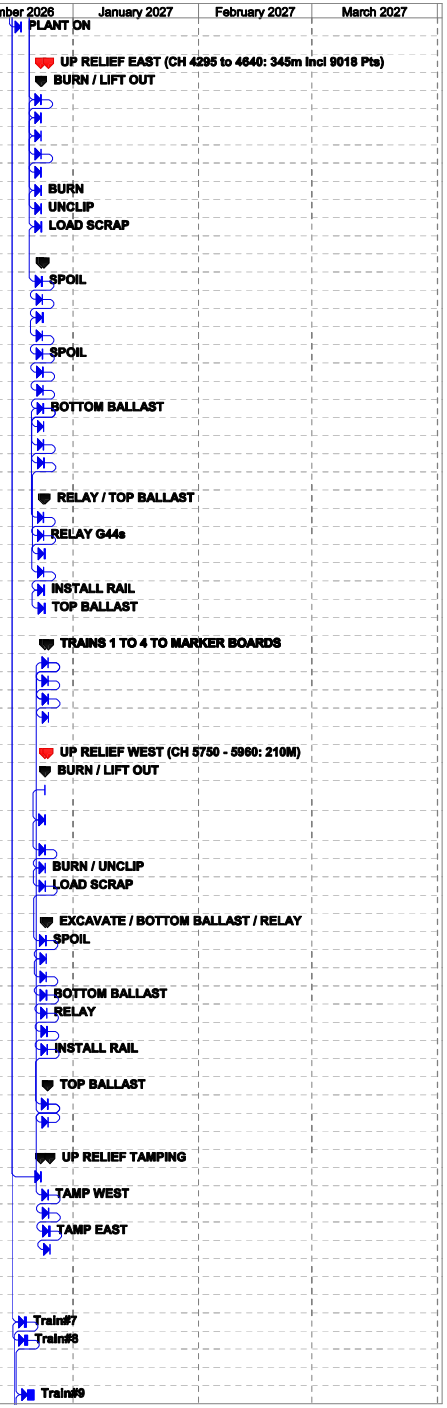
Stage 9 - Xmas 2026

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 8 & 9**	24 hrs?	Wed 23/12/26	Thu 24/12/26
2	**STAGE 8 - PREP Works**	2074.92 hrs	Mon 21/09/26	Wed 16/12/26
3	**OLE Works**	364 hrs	Mon 21/09/26	Tue 06/10/26
4	A219 Run 700m of Catenary	2 hrs	Mon 21/09/26	Mon 21/09/26
5	A219 Install 20 Spans of Droppers	2 hrs	Mon 21/09/26	Mon 21/09/26
6	A219 Run 700m of Contact Wire	4 hrs	Mon 21/09/26	Mon 21/09/26
7	A219 Install 2 No. Anchor Span Insulation Final Registration	6 hrs	Tue 22/09/26	Tue 22/09/26
8	A218 Run 780m of Catenary	2 hrs	Tue 22/09/26	Tue 22/09/26
9	A218 Install 22 Spans of Droppers	2 hrs	Tue 22/09/26	Tue 22/09/26
10	A218 Run 780m of Contact Wire	4 hrs	Wed 23/09/26	Wed 23/09/26
11	A218 Install 1 No. Anchor Span Insulation Final Registration	6 hrs	Wed 23/09/26	Wed 23/09/26
12	A217 Run 780m of Catenary	2 hrs	Thu 24/09/26	Thu 24/09/26
13	A217 Install 22 Spans of Droppers	2 hrs	Thu 24/09/26	Thu 24/09/26
14	A217 Run 780m of Contact Wire	4 hrs	Thu 24/09/26	Thu 24/09/26
15	A217 Install 1 No. Anchor Span Insulation Final Registration	6 hrs	Fri 25/09/26	Fri 25/09/26
16	A216 Run 800m of Catenary	2 hrs	Fri 25/09/26	Fri 25/09/26
17	A216 Install 19 Spans of Droppers	2 hrs	Fri 25/09/26	Fri 25/09/26
18	A216 Run 800m of Contact Wire	4 hrs	Mon 28/09/26	Mon 28/09/26
19	A216 Final Registration	4 hrs	Mon 28/09/26	Mon 28/09/26
20	A215 Run 800m of Catenary	2 hrs	Mon 28/09/26	Mon 28/09/26
21	A215 Install 19 Spans of Droppers	2 hrs	Tue 29/09/26	Tue 29/09/26
22	A215 Run 800m of Contact Wire	4 hrs	Tue 29/09/26	Tue 29/09/26
23	A215 Final Registration	4 hrs	Tue 29/09/26	Tue 29/09/26
24	ATF3/ATF4 2 No. run 380m of Aerial ATF - (19/3.25 Al)	8 hrs	Wed 30/09/26	Wed 30/09/26
25	ATF3/ATF4 2 No. run 540m of Aerial ATF - (19/3.25 Al)	8 hrs	Thu 01/10/26	Thu 01/10/26
26	ATF3 Run of 370m Cabled ATF	4 hrs	Fri 02/10/26	Fri 02/10/26
27	ATF3 Install 2 No. Sealing Ends and associated SPS.	4 hrs	Fri 02/10/26	Fri 02/10/26
28	ATF3 Connect 2 No. Jumpers from Sealing End to Aerial ATF.	1 hr	Mon 05/10/26	Mon 05/10/26
29	ATF4 Run of 370m Cabled ATF	4 hrs	Mon 05/10/26	Mon 05/10/26
30	ATF4 Install 2 No. Sealing Ends and associated SPS.	4 hrs	Mon 05/10/26	Tue 06/10/26
31	ATF4 Connect 2 No. Jumpers from Sealing End to Aerial ATF.	1 hr	Tue 06/10/26	Tue 06/10/26
32				
33	**TRAINS**	159.92 hrs	Sat 05/12/26	Fri 11/12/26
34	**Train#1: Loco, LWRT (Up Relief) 4 x 108m**	8 hrs	Sat 05/12/26	Sat 05/12/26
35	**Train#2: Loco, LWRT (Up Relief) 4 x 108m**	8 hrs	Sun 06/12/26	Sun 06/12/26
36	**Train#3: Loco, LWRT (Up Relief) 4 x 108m**	8 hrs	Mon 07/12/26	Mon 07/12/26
37	**Train#4: Loco, KIROW Consist, Tilting Wagon Consist (set of 4), 3LD Salmon, Loco**	8 hrs	Fri 11/12/26	Fri 11/12/26
38	**ROTR POSSESSIONS**	8 hrs	Fri 11/12/26	Fri 11/12/26
39	Take delivery of 4 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Fri 11/12/26	Fri 11/12/26
40	Take delivery of 4 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Fri 11/12/26	Fri 11/12/26
41	Take delivery of 4 x 108m rail strings in Up Relief 4ft. TRTs position on site	8 hrs	Fri 11/12/26	Fri 11/12/26
42	Take delivery of panels from Train#4: 4 x S&C, 2 x stubs&3 x PL panels. Kirow positions in Up Relief Cess	8 hrs	Fri 11/12/26	Fri 11/12/26
43	**SITE WORKS - DAYSHIFT**	106 hrs	Sat 12/12/26	Wed 16/12/26
44	TRTs position CWR on site for Stage 9. Stage 9 areas cleared and prepped	10 hrs	Sat 12/12/26	Sat 12/12/26
45	TRTs position CWR on site for Stage 9. Stage 9 areas cleared and prepped	10 hrs	Sun 13/12/26	Sun 13/12/26
46	TRTs position CWR on site for Stage 9. Stage 9 areas cleared and prepped	10 hrs	Mon 14/12/26	Mon 14/12/26
47	Stage 9 final prep	10 hrs	Tue 15/12/26	Tue 15/12/26
48	Stage 9 final prep	10 hrs	Wed 16/12/26	Wed 16/12/26
49	**REMOVE RAIL HEAD (DECEMBER)**	106 hrs	Fri 11/12/26	Wed 16/12/26
50	**SITE WORKS - DAYSHIFT**	106 hrs	Fri 11/12/26	Wed 16/12/26
51	Disc cut CWR into strings, unclip and remove rails to loading area	10 hrs	Fri 11/12/26	Sat 12/12/26
52	Recover G44s to loading area and stack - Shift 1 of 3	10 hrs	Sat 12/12/26	Sun 13/12/26
53	Recover G44s to loading area and stack - Shift 2 of 3	10 hrs	Sun 13/12/26	Mon 14/12/26
54	Recover G44s to loading area and stack - Shift 3 of 3	10 hrs	Mon 14/12/26	Tue 15/12/26
55	Re-profile beds and prep for next Stage	10 hrs	Tue 15/12/26	Wed 16/12/26
56				
57	**STAGE 9**	74.92 hrs	Thu 24/12/26	Sun 27/12/26
58	**TRAINS (UP RELIEF EAST RENEWAL)**	23 hrs	Sat 19/12/26	Sun 20/12/26
59	**Train#1: Loco, 10LD Falcons (Top Stone) , 3LD Salmon, 10LD Falcons (Bottom), Loco (FSO)**	23 hrs	Sat 19/12/26	Sun 20/12/26
60	**Train#2: Loco, 10LD Falcons (BB), 15MT Falcons (Type 1, reloaded with spoil)**	22.5 hrs	Sat 19/12/26	Sat 19/12/26
61	**Train#3: Loco (TSO), 15LD Falcons (Type 1), 10MT Falcons (Spoil),**	22 hrs	Sat 19/12/26	Sat 19/12/26
62	**Train#4: Loco, 10MT Falcons (spoil), 15MT Falcons (Scrap), Loco**	22.5 hrs	Sat 19/12/26	Sat 19/12/26
63				
64	**TRAINS (UP RELIEF WEST RENEWAL)**	31 hrs	Sat 19/12/26	Sun 20/12/26
65	**Train#5: Loco, 6LD Falcons (Top Stone), 3LD Salmon (G44s), 12LD Falcons (BB), Loco (FSO)**	21 hrs	Sat 19/12/26	Sat 19/12/26
66	**Train#6: Loco (TSO), 25MT Falcons (Scrap & Spoil), Loco**	10 hrs	Sat 19/12/26	Sat 19/12/26
67	**TAMPER**	14 hrs	Sat 19/12/26	Sun 20/12/26
68				
69	**SITE MOBILISATION / PREP WORKS**		Thu 24/12/26	
70	Brief staff, check tools etc.	1 hr	Sat 19/12/26	Sat 19/12/26
71	Take possession & set up worksite	30 mins	Sat 19/12/26	Sat 19/12/26
72	TPAT#1 @ SN134 on Up Relief	0 mins	Sat 19/12/26	Sat 19/12/26
73	TPAT#2 @ SN156 on Up Relief	0 mins	Sat 19/12/26	Sat 19/12/26
74	TPAT#3 @ SN164 on Up Relief	0 mins	Sat 19/12/26	Sat 19/12/26
75	Take Isolation & issue C Permits	1 hr	Sat 19/12/26	Sat 19/12/26
76	S&T disconnections	2 hrs	Sat 19/12/26	Sat 19/12/26



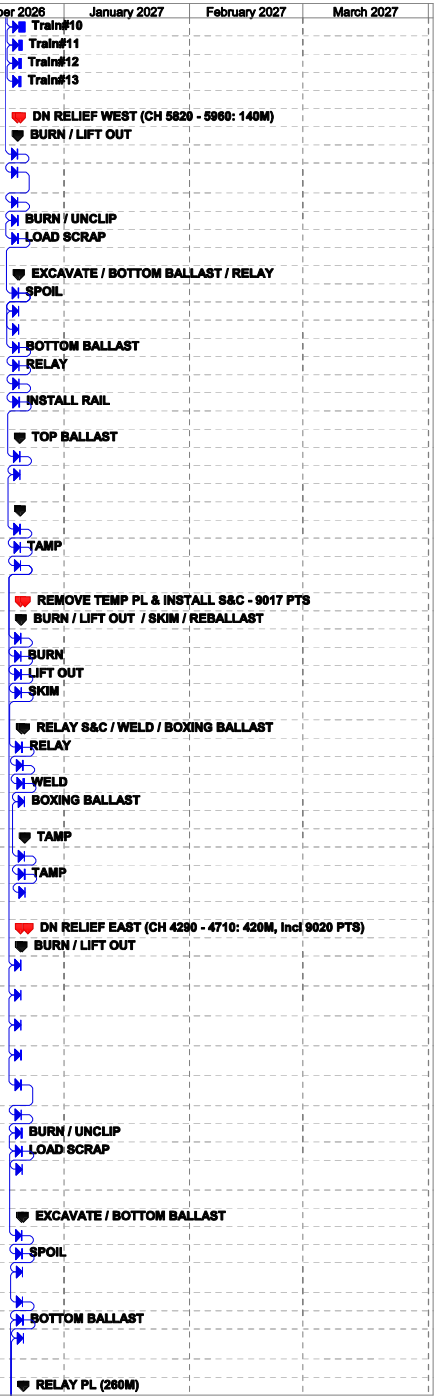
Stage 9 - Xmas 2026

ID	Task Name	Duration	Start	Finish
77	On-track plant and position for working E to W	2 hrs	Sat 19/12/26	Sat 19/12/26
78				
79	**UP RELIEF EAST (CH 4295 to 4640: 345m Incl 9018 Pts)**	**45.08 hrs**	**Thu 24/12/26**	**Fri 25/12/26**
80	**BURN / LIFT OUT**	**5 hrs**	**Thu 24/12/26**	**Thu 24/12/26**
81	Convey Train#1 through 8096 x-over onto the Down Relief and position to the East	45 mins	Thu 24/12/26	Thu 24/12/26
82	Convey Train#2 through 8073 x-over onto the Down Relief and position to the East behind Train#1 & cascade Loco	1 hr	Thu 24/12/26	Thu 24/12/26
83	Convey Train#3 through 8073 x-over onto the Down Relief and position to the East behind Train#2 & cascade Loco	1 hr	Thu 24/12/26	Thu 24/12/26
84	Convey Train#4 through 8104 x-over onto the Down Relief and cascade front Loco onto rear of Train#3	1 hr	Thu 24/12/26	Thu 24/12/26
85	On-track burners & manpower	30 mins	Thu 24/12/26	Thu 24/12/26
86	Burn track into 30fts for lifting out loose	2 hrs	Thu 24/12/26	Thu 24/12/26
87	Unclip rails for lifting out loose	2 hrs	Thu 24/12/26	Thu 24/12/26
88	Lift out loose existing rails and sleepers to front 15 wagons on Train#3 working E to W	3 hrs	Thu 24/12/26	Thu 24/12/26
89				
90	**EXCAVATE / BOTTOM BALLAST**	**16 hrs**	**Thu 24/12/26**	**Thu 24/12/26**
91	Poition on site & Load spoil to train 4#	5 hrs	Thu 24/12/26	Thu 24/12/26
92	Convey Train#4 West to pegging point & stable	15 mins	Thu 24/12/26	Thu 24/12/26
93	Unload Type 1 then reload spoil to train 3. Convey Train#3 west to pegging point & stable	5.25 hrs	Thu 24/12/26	Thu 24/12/26
94	Convey Train#2 into position	15 mins	Thu 24/12/26	Thu 24/12/26
95	Unload type 1 (complete capping layer) from front 10 wagons Train#2	2 hrs	Thu 24/12/26	Thu 24/12/26
96	3D doze and compact reset plant for BB installation	2 hrs	Thu 24/12/26	Thu 24/12/26
97	Reposition Train#2 for bottom ballast	15 mins	Thu 24/12/26	Thu 24/12/26
98	Unload bottom ballast from Train#2, 3D doze and compact	3 hrs	Thu 24/12/26	Thu 24/12/26
99	Convey Train#2 West to pegging point & stable behind Train#3	15 mins	Thu 24/12/26	Thu 24/12/26
100	Split Train#1 & convey Loco/LD Falcons into position for unloading bottom ballast	45 mins	Thu 24/12/26	Thu 24/12/26
101	Unload bottom ballast, 3D doze and compact	3 hrs	Thu 24/12/26	Thu 24/12/26
102				
103	**RELAY / TOP BALLAST**	**10 hrs**	**Thu 24/12/26**	**Fri 25/12/26**
104	Position Salmon for relaying sleepers	15 mins	Thu 24/12/26	Thu 24/12/26
105	Relay sleepers @ 10L/h working E to W up to S&C	1.5 hrs	Thu 24/12/26	Thu 24/12/26
106	Install 9018 Pts using Crawler Crane from wideway (4 x S&C panels, 2 stubs & 3 x PL panels)	6 hrs	Thu 24/12/26	Fri 25/12/26
107	Convey Salmon clear to allow rail install	15 mins	Thu 24/12/26	Thu 24/12/26
108	Install rail, clip up and clamp on PL section	4 hrs	Thu 24/12/26	Thu 24/12/26
109	Reposition Salmon/Falcons and offload top ballast from rear wagons and profile for Tamper	5 hrs	Thu 24/12/26	Fri 25/12/26
110				
111	**TRAINS 1 TO 4 TO MARKER BOARDS**	**21.08 hrs**	**Fri 25/12/26**	**Fri 25/12/26**
112	Convey Train#4 to West marker boards	15 mins	Fri 25/12/26	Fri 25/12/26
113	Convey Train#3 to West marker boards behind Train#4	15 mins	Fri 25/12/26	Fri 25/12/26
114	Convey Train#2 to West marker boards behind Train#3	15 mins	Fri 25/12/26	Fri 25/12/26
115	Reform Train#1 & convey to West marker boards	45 mins	Fri 25/12/26	Fri 25/12/26
116				
117	**UP RELIEF WEST (CH 5750 - 5960: 210M)**	**18.58 hrs**	**Fri 25/12/26**	**Fri 25/12/26**
118	**BURN / LIFT OUT**	**3.75 hrs**	**Fri 25/12/26**	**Fri 25/12/26**
119	Convey Train#5 into site on the Up Relief and through 8104Pts onto the Dn Relief and stable East	45 mins	Fri 25/12/26	Fri 25/12/26
120	Convey Train#6 into site on the Up Relief and through 8104Pts. Casacde front Loco onto Train#5	1 hr	Fri 25/12/26	Fri 25/12/26
121	On track burners & manpower	30 mins	Fri 25/12/26	Fri 25/12/26
122	Burn track and unclip for lifting out (including 8110Pts & Traps)	2 hrs	Fri 25/12/26	Fri 25/12/26
123	Load scrap rails and sleepers to front wagons on Train#6 working E to W	2 hrs	Fri 25/12/26	Fri 25/12/26
124				
125	**EXCAVATE / BOTTOM BALLAST / RELAY**	**12.08 hrs**	**Fri 25/12/26**	**Fri 25/12/26**
126	Excavate & load spoil to remaining Falcon wagons on Train#6	4 hrs	Fri 25/12/26	Fri 25/12/26
127	Convey Train#6 to West marker boards	15 mins	Fri 25/12/26	Fri 25/12/26
128	Position Train#5 for unloading bottom ballast	15 mins	Fri 25/12/26	Fri 25/12/26
129	Unload bottom ballast, 3D doze & compact	3 hrs	Fri 25/12/26	Fri 25/12/26
130	Relay sleepers	1.5 hrs	Fri 25/12/26	Fri 25/12/26
131	Convey Train#5 clear West to allow rail install	15 mins	Fri 25/12/26	Fri 25/12/26
132	Install rail, clip up & clamp	3 hrs	Fri 25/12/26	Fri 25/12/26
133				
134	**TOP BALLAST**	**2.75 hrs**	**Fri 25/12/26**	**Fri 25/12/26**
135	Reposition Train#5, unload boxing ballast and profile for Tamper	2.5 hrs	Fri 25/12/26	Fri 25/12/26
136	Convey Train#5 West to marker boards	15 mins	Fri 25/12/26	Fri 25/12/26
137				
138	**UP RELIEF TAMPING**	**54 hrs**	**Thu 24/12/26**	**Sat 26/12/26**
139	Convey Tamper into site from West on Up Relief and set up to Tamp West section	1 hr	Thu 24/12/26	Thu 24/12/26
140	Tamp West section - 2 runs	3 hrs	Fri 25/12/26	Fri 25/12/26
141	Convey Tamper round new temp Up Relief and set up for Tamping East section	1 hr	Fri 25/12/26	Fri 25/12/26
142	Tamp East section - 2 runs	7 hrs	Fri 25/12/26	Sat 26/12/26
143	Convey Tamper into Carriage Line and shut down for next stage	30 mins	Sat 26/12/26	Sat 26/12/26
144				
145				
146	**TRAINS (DN RELIEF WEST RENEWAL)**	**18 hrs**	**Sat 19/12/26**	**Sun 20/12/26**
147	**Train#7: Loco, 4LD Falcons (Top Stone) , 2LD Salmon (G44s), 8LD Falcons (BB), Loco (FSO)**	**11 hrs**	**Sat 19/12/26**	**Sun 20/12/26**
148	**Train#8: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco**	**17.5 hrs**	**Sun 20/12/26**	**Sun 20/12/26**
149				
150	**TRAINS (DN RELIEF EAST RENEWAL)**	**62.5 hrs**	**Sun 20/12/26**	**Wed 23/12/26**
151	**Train#9: Loco, Klrow & Support, 6LD Salmon, 6 Tilters, Loco (FSO)**	**38 hrs**	**Sun 20/12/26**	**Tue 22/12/26**



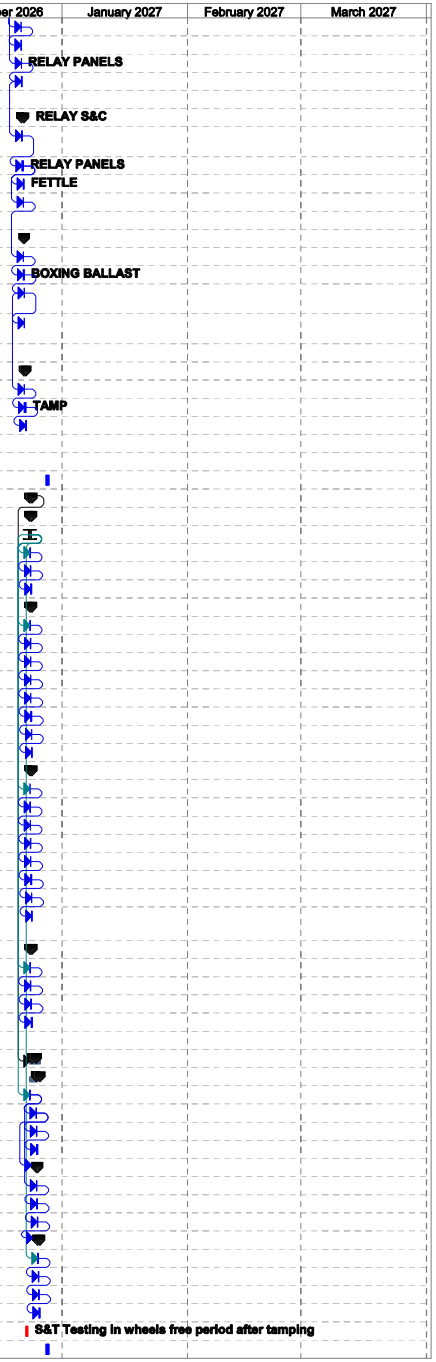
Stage 9 - Xmas 2026

ID	Task Name	Duration	Start	Finish
152	**Train#10: Loco, 3LD Saimon, 15LD Falcons**	**37 hrs**	**Sun 20/12/26**	**Tue 22/12/26**
153	**Train#11: Loco , 20LD Falcons**	**19 hrs**	**Sun 20/12/26**	**Mon 21/12/26**
154	**Train#12: Loco, 25MT Falcons**	**13 hrs**	**Sun 20/12/26**	**Mon 21/12/26**
155	**Train#13: Loco (TSO), 20MT Falcons, Loco**	**12 hrs**	**Sun 20/12/26**	**Mon 21/12/26**
156				
157	**DN RELIEF WEST (CH 5820 - 5960: 140M)**	**18.5 hrs**	**Sun 20/12/26**	**Mon 21/12/26**
158	**BURN / LIFT OUT**	**4 hrs**	**Sun 20/12/26**	**Sun 20/12/26**
159	Convey Train#7 into site on the Up Relief clear and stable	15 mins	Sun 20/12/26	Sun 20/12/26
160	Convey Train#8 into site on the Up Relief behind Train#7 and cascade leading Loco	45 mins	Sun 20/12/26	Sun 20/12/26
161	On track burners & manpower	30 mins	Sun 20/12/26	Sun 20/12/26
162	Burn track and unclip for lifting out loose	2 hrs	Sun 20/12/26	Sun 20/12/26
163	Load scrap rails and sleepers to front 8 wagons on Train#6 working E to W	2 hrs	Sun 20/12/26	Sun 20/12/26
164				
165	**EXCAVATE / BOTTOM BALLAST / RELAY**	**7.92 hrs**	**Sun 20/12/26**	**Sun 20/12/26**
166	Load spoil to remaining Falcon wagons on Train#7	2 hrs	Sun 20/12/26	Sun 20/12/26
167	Convey Train#7 through 8111Pts onto the Dn Relief and to West marker boards	15 mins	Sun 20/12/26	Sun 20/12/26
168	Position Train#8 and plant for Bottom Ballast	15 mins	Sun 20/12/26	Sun 20/12/26
169	Unload bottom ballast, 3D doze & compact	90 mins	Sun 20/12/26	Sun 20/12/26
170	Relay sleepers	60 mins	Sun 20/12/26	Sun 20/12/26
171	Convey Train#8 clear to allow rail install	15 mins	Sun 20/12/26	Sun 20/12/26
172	Install rail, clip up & clamp	3 hrs	Sun 20/12/26	Sun 20/12/26
173				
174	**TOP BALLAST**	**2.75 hrs**	**Sun 20/12/26**	**Mon 21/12/26**
175	Reposition Train#8, unload boxing ballast and profile for Tamper	2.5 hrs	Sun 20/12/26	Mon 21/12/26
176	Convey Train#8 through 8111Pts onto the Dn Relief and to West marker boards	15 mins	Mon 21/12/26	Mon 21/12/26
177				
178	**TAMP**	**4 hrs**	**Mon 21/12/26**	**Mon 21/12/26**
179	Convey Tamper out of Carriage Line and to site via Up Relief & set up	1 hr	Mon 21/12/26	Mon 21/12/26
180	Tamp Dn Relief - 2 runs	2 hrs	Mon 21/12/26	Mon 21/12/26
181	Convey Tamper back into Carriage Line and stable until next Stage	1 hr	Mon 21/12/26	Mon 21/12/26
182				
183	**REMOVE TEMP PL & INSTALL S&C - 9017 PTS**	**26.5 hrs**	**Mon 21/12/26**	**Tue 22/12/26**
184	**BURN / LIFT OUT / SKIM / REBALLAST**	**4.5 hrs**	**Mon 21/12/26**	**Mon 21/12/26**
185	On track burners & manpower	30 mins	Mon 21/12/26	Mon 21/12/26
186	Burn existing temporary plain line into panels for lifting out	1 hr	Mon 21/12/26	Mon 21/12/26
187	Using Crawler Crane lift out panels into wideway	1 hr	Mon 21/12/26	Mon 21/12/26
188	Skim, reballast and compact S&C footprint as required loading any excess spoil to wideway	2 hrs	Mon 21/12/26	Mon 21/12/26
189				
190	**RELAY S&C / WELD / BOXING BALLAST**	**18 hrs**	**Mon 21/12/26**	**Tue 22/12/26**
191	Using Crawler Crane relay 9017 Pts S&C panels from wideway	6 hrs	Mon 21/12/26	Mon 21/12/26
192	Fettle up S&C, cut in closures etc	3 hrs	Mon 21/12/26	Mon 21/12/26
193	Weld	8 hrs	Mon 21/12/26	Tue 22/12/26
194	Unload boxing ballast from stockpile in wideway & profile for Tamper	1 hr	Tue 22/12/26	Tue 22/12/26
195				
196	**TAMP**	**5 hrs**	**Tue 22/12/26**	**Tue 22/12/26**
197	Convey Tamper out of Carriage Line and to site & set up	1 hr	Tue 22/12/26	Tue 22/12/26
198	Tamp 9017 Pts - 2 runs	3 hrs	Tue 22/12/26	Tue 22/12/26
199	Convey Tamper back into Carriage Line and stable until next Stage	1 hr	Tue 22/12/26	Tue 22/12/26
200				
201	**DN RELIEF EAST (CH 4290 - 4710: 420M, Incl 9020 PTS)**	**43.5 hrs**	**Mon 21/12/26**	**Wed 23/12/26**
202	**BURN / LIFT OUT**	**8.5 hrs**	**Mon 21/12/26**	**Mon 21/12/26**
203	Convey Train#9 on the Up Relief through site and onto the Dn Relief through 8097 x-over and shutdown at East marker boards	1 hr	Mon 21/12/26	Mon 21/12/26
204	Convey Train#10 on the Up Relief through site and position to the East. Detach Loco and cascade onto Train#9	1 hr	Mon 21/12/26	Mon 21/12/26
205	Convey Train#11 on the Up Relief through site and position. Detach Loco and cascade onto Train#10	1 hr	Mon 21/12/26	Mon 21/12/26
206	Convey Train#12 on the Up Relief through site and position. Detach Loco and cascade onto Train#11	1 hr	Mon 21/12/26	Mon 21/12/26
207	Convey Train#13 on the Up Relief through site and position. Detach Loco and cascade onto Train#12	1 hr	Mon 21/12/26	Mon 21/12/26
208	On track burners & manpower	30 mins	Mon 21/12/26	Mon 21/12/26
209	Burn track and unclip for lifting out loose	4 hrs	Mon 21/12/26	Mon 21/12/26
210	Load scrap rails and sleepers to Train#13 working E to W	4 hrs	Mon 21/12/26	Mon 21/12/26
211	Once loaded convey Train#13 back through site on Up Relief and to West marker boards on Dn Relief via 8111Pts	30 mins	Mon 21/12/26	Mon 21/12/26
212				
213	**EXCAVATE / BOTTOM BALLAST**	**10 hrs**	**Mon 21/12/26**	**Mon 21/12/26**
214	Position Train#12 and plant for excavation	15 mins	Mon 21/12/26	Mon 21/12/26
215	Excavate & load spoil to Train#12	4 hrs	Mon 21/12/26	Mon 21/12/26
216	Once loaded convey Train#12 back through site on Up Relief and to West marker boards on Dn Relief via 8111Pts	30 mins	Mon 21/12/26	Mon 21/12/26
217	Position Train#11 and plant for Bottom Ballast	15 mins	Mon 21/12/26	Mon 21/12/26
218	Unload bottom ballast, 3D doze & compact. Reload 5 Falcons to complete excavation	5 hrs	Mon 21/12/26	Mon 21/12/26
219	Once loaded convey Train#11 back through site on Up Relief and to West marker boards on Dn Relief via 8111Pts	30 mins	Mon 21/12/26	Mon 21/12/26
220				
221	**RELAY PL (260M)**	**5 hrs**	**Mon 21/12/26**	**Tue 22/12/26**



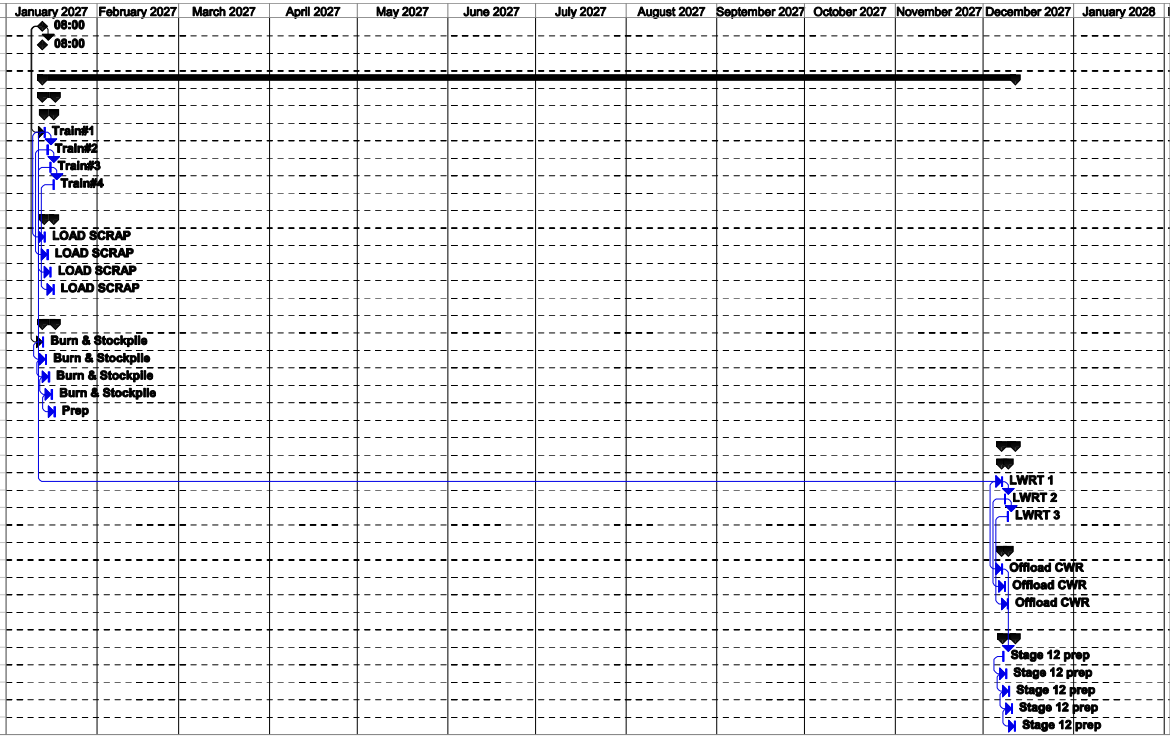
Stage 9 - Xmas 2026

ID	Task Name	Duration	Start	Finish
222	Position Train#9 for relaying G44s	15 mins	Mon 21/12/26	Mon 21/12/26
223	Relay sleepers E to W behind bottom ballast @ 10L/h	1.5 hrs	Mon 21/12/26	Mon 21/12/26
224	Convey Train#10 clear to the West & stable	15 mins	Mon 21/12/26	Mon 21/12/26
225	Install CWR, clip up & clamp	3 hrs	Mon 21/12/26	Tue 22/12/26
226				
227	**RELAY S&C**	**13.5 hrs**	**Tue 22/12/26**	**Tue 22/12/26**
228	Reman Train#9. Disconnect KIROW & Support from rear. Convey Loco & loaded wagons back onto Up Relief and set up for relaying panels	1.5 hrs	Tue 22/12/26	Tue 22/12/26
229	KIROW relays PL & S&C panels on the Down Relief overend from Tilting and Salmon wagons	8 hrs	Tue 22/12/26	Tue 22/12/26
230	Cut in closures, fettle up joints etc	4 hrs	Tue 22/12/26	Tue 22/12/26
231	Remarshall Train#9 and sit clear to the East	1 hr	Tue 22/12/26	Tue 22/12/26
232				
233	**BOXING BALLAST**	**5.5 hrs**	**Tue 22/12/26**	**Tue 22/12/26**
234	Reposition Train#10 for unloading	15 mins	Tue 22/12/26	Tue 22/12/26
235	Unload boxing ballast & profile for Tamping	4 hrs	Tue 22/12/26	Tue 22/12/26
236	Once unloaded convey Train#10 back through site on Up Relief and to West marker boards on Dn Relief via 8111Pts	30 mins	Tue 22/12/26	Tue 22/12/26
237	Convey Train#9 back through site on Up Relief and to West marker boards on Dn Relief via 8111Pts behind Train#10	30 mins	Tue 22/12/26	Tue 22/12/26
238				
239	**TAMP**	**10.75 hrs**	**Tue 22/12/26**	**Wed 23/12/26**
240	Convey Tamper out of Carriage Line and to site & set up	1 hr	Tue 22/12/26	Tue 22/12/26
241	Tamp Dn Relief & 9020 Pts - 2 runs	9 hrs	Tue 22/12/26	Wed 23/12/26
242	Tie up Tamper & convey West to marker boards	45 mins	Wed 23/12/26	Wed 23/12/26
243				
244				
245	Welding at same time as S&T installation	18 hrs	Mon 28/12/26	Mon 28/12/26
246	**OHL Works 9A**	**14 hrs**	**Thu 24/12/26**	**Thu 24/12/26**
247	**Team 1**	**12 hrs**	**Thu 24/12/26**	**Thu 24/12/26**
248	J-03-91 Run 600m of Catenary up to Existing Wire Run 53 Contenary Splice (West of Mitre OB) and replace splice.	2 hrs	Thu 24/12/26	Thu 24/12/26
249	J-03-91 Install 14 Spans of Droppers	2 hrs	Thu 24/12/26	Thu 24/12/26
250	J-03-91 Run 800m of Contact Wire up to Existing Wire Run 53 EQ Plate	2 hrs	Thu 24/12/26	Thu 24/12/26
251	J-03-91 Install 1 No. Anchor Span Insulation	6 hrs	Thu 24/12/26	Thu 24/12/26
252	**Team 2**	**11 hrs**	**Thu 24/12/26**	**Thu 24/12/26**
253	J-04-40A Reposition ATF Anchor Assembly	2 hrs	Thu 24/12/26	Thu 24/12/26
254	J-04-42A Reposition Drop Tube & ATF Support	0.5 hrs	Thu 24/12/26	Thu 24/12/26
255	J-04-43A Reposition Drop Tube & ATF Support	0.5 hrs	Thu 24/12/26	Thu 24/12/26
256	J-04-43D Reposition Drop Tube & ATF Support	0.5 hrs	Thu 24/12/26	Thu 24/12/26
257	J-04-44A Reposition Drop Tube & ATF Support	0.5 hrs	Thu 24/12/26	Thu 24/12/26
258	J-04-40A Install 2 No. Sealing Ends and associated SPS (Cut Back Existing ATF Cables).	4 hrs	Thu 24/12/26	Thu 24/12/26
259	J-04-40A Connect 2 No. Jumpers from Sealing End to Aerial ATF.	1 hr	Thu 24/12/26	Thu 24/12/26
260	J-04-43D Install Temporary Anchor for Existing Wire Run 53 and Recover from Splice	2 hrs	Thu 24/12/26	Thu 24/12/26
261	**Team 3**	**11.5 hrs**	**Thu 24/12/26**	**Thu 24/12/26**
262	J-05-29C Reposition Drop Tube & ATF Support	0.5 hrs	Thu 24/12/26	Thu 24/12/26
263	J-05-32A Install Drop Tube & ATF Support	1 hr	Thu 24/12/26	Thu 24/12/26
264	J-05-33A Reposition Drop Tube & ATF Support	0.5 hrs	Thu 24/12/26	Thu 24/12/26
265	J-05-34A Reposition Drop Tube & ATF Support	0.5 hrs	Thu 24/12/26	Thu 24/12/26
266	J-05-32A Install Temporary Anchor for Existing Wire Run 65 and Recover from J-06-01A	2 hrs	Thu 24/12/26	Thu 24/12/26
267	J-06-01A Anchor Existing Wire Run 65 to Create New Overlap with Wire Run A229	4 hrs	Thu 24/12/26	Thu 24/12/26
268	J-05-32A Install Drop Tube & ATF Anchor SPS	1 hr	Thu 24/12/26	Thu 24/12/26
269	J-05-32A Splice New ATF into Existing, reposition on ATF Support and Temporarily Anchor Exisitng ATF on the ATF Anchor	2 hrs	Thu 24/12/26	Thu 24/12/26
270	**Team 4**	**12 hrs**	**Thu 24/12/26**	**Thu 24/12/26**
271	Run 720m of Catenary	2 hrs	Thu 24/12/26	Thu 24/12/26
272	J-05-18A Install 19 Spans of Droppers	2 hrs	Thu 24/12/26	Thu 24/12/26
273	J-05-18A Run 720m of Contact Wire	2 hrs	Thu 24/12/26	Thu 24/12/26
274	J-05-18A Install 1 No. Anchor Span Insulation Final Registration	6 hrs	Thu 24/12/26	Thu 24/12/26
275				
276	**OHL Works 9B**	**24 hrs?**	**Thu 24/12/26**	**Fri 25/12/26**
277	**Team 1**	**24 hrs?**	**Fri 25/12/26**	**Sat 26/12/26**
278	J-04-02 Run 600m of Catenary up to Existing Wire Run 55 Contenary Splice (West of Mitre OB) and replace splice.	2 hrs	Thu 24/12/26	Thu 24/12/26
279	J-04-02 Install 14 Spans of Droppers	2 hrs	Fri 25/12/26	Fri 25/12/26
280	J-04-02 Run 800m of Contact Wire up to Existing Wire Run 55 EQ Plate	2 hrs	Fri 25/12/26	Fri 25/12/26
281	J-04-02 Install 1 No. Anchor Span Insulation	6 hrs	Fri 25/12/26	Sat 26/12/26
282	**Team 2**	**8 hrs**	**Fri 25/12/26**	**Sat 26/12/26**
283	J-04-43D Install Temporary Anchor for Existing Wire Run 55 and Recover from Splice	2 hrs	Fri 25/12/26	Fri 25/12/26
284	J-05-32A Install Temporary Anchor for Existing Wire Run 62 and Recover from J-06-01A	2 hrs	Fri 25/12/26	Fri 25/12/26
285	J-06-01A Anchor Existing Wire Run 62 to Create New Overlap with Wire Run A229	4 hrs	Fri 25/12/26	Sat 26/12/26
286	**Team 3**	**12 hrs**	**Sat 26/12/26**	**Sat 26/12/26**
287	J-05-18B Run 730m of Catenary	2 hrs	Sat 26/12/26	Sat 26/12/26
288	J-05-18B Install 19 Spans of Droppers	2 hrs	Sat 26/12/26	Sat 26/12/26
289	J-05-18B Run 730m of Contact Wire	2 hrs	Sat 26/12/26	Sat 26/12/26
290	J-05-18B Install 1 No. Anchor Span Insulation Final Registration	6 hrs	Sat 26/12/26	Sat 26/12/26
291	S&T Testing in wheels free period after tamping	12 hrs	Wed 23/12/26	Wed 23/12/26
292	E&P during main works	18 hrs	Mon 28/12/26	Mon 28/12/26



Stage 10

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 10**			
2	**JANUARY TO DECEMBER 2027**	0 hrs	Wed 13/01/27	Wed 13/01/27
3				
4	**STAGE 10**			
5	**RECOVER RELIEFS (CH 4950 - 5740: 790m)**			
6	**TRAINS**			
7	**Train#1: Loco, 15MT Falcons, Loco**	**8 hrs**	**Wed 13/01/27**	**Thu 14/01/27**
8	**Train#2: Loco, 15MT Falcons, Loco**	**8 hrs**	**Thu 14/01/27**	**Fri 15/01/27**
9	**Train#3: Loco, 15MT Falcons, Loco**	**8 hrs**	**Fri 15/01/27**	**Sat 16/01/27**
10	**Train#4: Loco, 15MT Falcons, Loco**	**8 hrs**	**Sat 16/01/27**	**Sun 17/01/27**
11				
12	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
13	Load scrap rails to front 5 wagons & scrap sleepers to rear wagons of Train#1	8 hrs	Wed 13/01/27	Thu 14/01/27
14	Load scrap rails to front 5 wagons & scrap sleepers to rear wagons of Train#2	8 hrs	Thu 14/01/27	Fri 15/01/27
15	Load scrap rails to front 5 wagons & scrap sleepers to rear wagons of Train#3	8 hrs	Fri 15/01/27	Sat 16/01/27
16	Load scrap rails to front 5 wagons & scrap sleepers to rear wagons of Train#4	8 hrs	Sat 16/01/27	Sun 17/01/27
17				
18	**SITE WORKS - DAYSHIFT**			
19	Burn Up Relief into 20fts, unclip, load rails and sleepers into stockpiles for loading - Up Relief Shift 1 of 2	10 hrs	Wed 13/01/27	Wed 13/01/27
20	Burn Up Relief into 20fts, unclip, load rails and sleepers into stockpiles for loading - Up Relief Shift 2 of 2	10 hrs	Thu 14/01/27	Thu 14/01/27
21	Burn Down Relief into 20fts, unclip, load rails and sleepers into stockpiles for loading - Dn Relief Shift 1 of 2	10 hrs	Fri 15/01/27	Fri 15/01/27
22	Burn Down Relief into 20fts, unclip, load rails and sleepers into stockpiles for loading - Dn Relief Shift 2 of 2	10 hrs	Sat 16/01/27	Sat 16/01/27
23	Profile out ballast beds to handover to Station Contractor	10 hrs	Sun 17/01/27	Sun 17/01/27
24				
25	**STAGE 12 PREP (DECEMBER)**			
26	**TRAINS**			
27	**LWRT - 1 (6 x 108m)**	**8 hrs**	**Tue 07/12/27**	**Tue 07/12/27**
28	**LWRT - 2 (4 x 108m)**	**8 hrs**	**Wed 08/12/27**	**Wed 08/12/27**
29	**LWRT - 3 (4 x 108m)**	**8 hrs**	**Thu 09/12/27**	**Thu 09/12/27**
30				
31	**SITE MOBILISATION / PREP WORKS - ROTR POSSESSIONS**			
32	Take delivery of 6 x 108m Rails for Dn Main West. TRTs position for core installation in Stage 12	8 hrs	Tue 07/12/27	Tue 07/12/27
33	Take delivery of 4 x 108m Rails for Up Main East. TRTs position for core installation in Stage 12	8 hrs	Wed 08/12/27	Wed 08/12/27
34	Take delivery of 4 x 108m Rails for Up Main West. TRTs position for core installation in Stage 12	8 hrs	Thu 09/12/27	Thu 09/12/27
35				
36	**SITE WORKS - DAYSHIFT**	**13 days**	**Tue 07/12/27**	**Sun 12/12/27**
37	Site prep for Stage 12 - build RRAPs, layout material, Terram etc	10 hrs	Tue 07/12/27	Wed 08/12/27
38	Site prep for Stage 12 - build RRAPs, layout material, Terram etc	8 hrs	Wed 08/12/27	Thu 09/12/27
39	Site prep for Stage 12 - build RRAPs, layout material, Terram etc	8 hrs	Thu 09/12/27	Fri 10/12/27
40	Site prep for Stage 12 - build RRAPs, layout material, Terram etc	8 hrs	Fri 10/12/27	Sat 11/12/27
41	Site prep for Stage 12 - build RRAPs, layout material, Terram etc	8 hrs	Sat 11/12/27	Sun 12/12/27



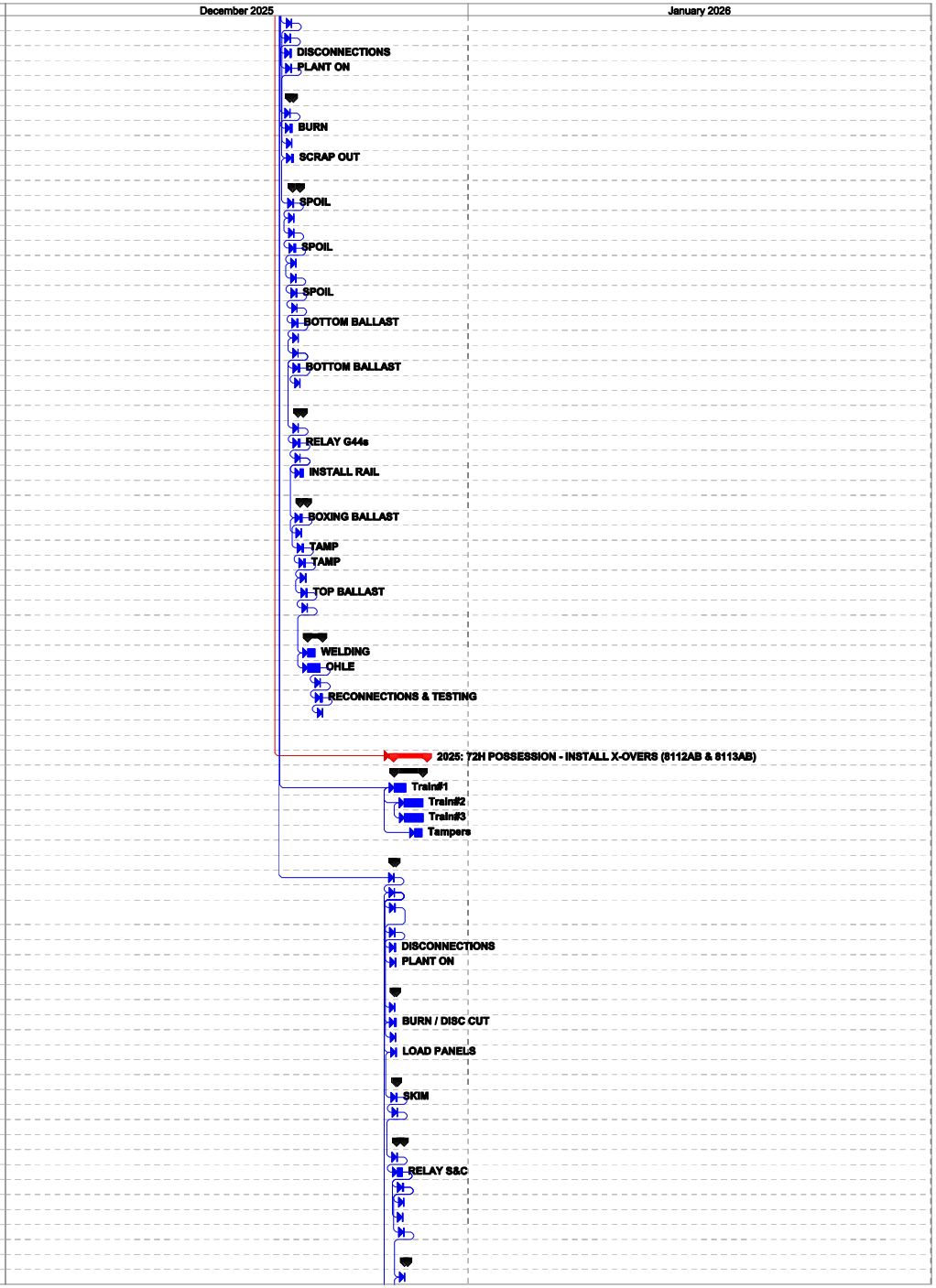
Acton X-Overs - Stage 11

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 11 - ACTON X-OVERS**			
2				
3	**2025: 54H POSSESSION - UP RELIEF RENEWAL CH 5700-6450 (750m)**			
4	**TRAINS**			
5	**Train#1: Loco, 8LD Salmon (G44s), Loco (FSO)**	**30 hrs**	**Sat 13/12/25**	**Sun 14/12/25**
6	**Train#2: Loco, 20LD Falcons (BB)**	**22 hrs**	**Sat 13/12/25**	**Sat 13/12/25**
7	**Train#3: Loco, 20LD Falcons (BB)**	**17 hrs**	**Sat 13/12/25**	**Sat 13/12/25**
8	**Train#4: Loco, 20MT Falcons**	**13.5 hrs**	**Sat 13/12/25**	**Sat 13/12/25**
9	**Train#5: Loco (TSO), 10MT Osprey, 10MT Falcons, Loco**	**10 hrs**	**Sat 13/12/25**	**Sat 13/12/25**
10	**Train#6: Loco: 20LD Autoballasters**	**15 hrs**	**Sun 14/12/25**	**Sun 14/12/25**
11	**TAMPER**	**10 hrs**	**Sun 14/12/25**	**Sun 14/12/25**
12				
13	**SITE MOBILISATION / PREP WORKS**			
14	Brief staff, check tools etc.	1 hr	Sat 13/12/25	Sat 13/12/25
15	Take possession & set up worksite	30 mins	Sat 13/12/25	Sat 13/12/25
16	Take Isolation & issue C Permits	1 hr	Sat 13/12/25	Sat 13/12/25
17	Convey Train#1 into site on the Up Relief, through 8111Pts onto the Down Relief and stable at East pegging point	45 mins	Sat 13/12/25	Sat 13/12/25
18	Convey Train#2 into site on the Up Relief, through 8111Pts onto the Down Relief and stable at East pegging point. Cascade Loco.	1 hr	Sat 13/12/25	Sat 13/12/25
19	Convey Train#3 into site on the Up Relief, through 8111Pts onto the Down Relief and stable at East pegging point. Cascade Loco.	1 hr	Sat 13/12/25	Sat 13/12/25
20	Convey Train#4 into site on the Up Relief, through 8111Pts onto the Down Relief and stable at East pegging point. Cascade Loco.	1 hr	Sat 13/12/25	Sat 13/12/25
21	Convey Train#5 into site on the Up Relief, through 8111Pts onto the Down Relief and stable at East pegging point. Cascade Loco.	1 hr	Sat 13/12/25	Sat 13/12/25
22	S&T disconnections	2 hrs	Sat 13/12/25	Sat 13/12/25
23	On-track all plant and position for working E to W	1 hr	Sat 13/12/25	Sat 13/12/25
24	OHLE prep works	3 hrs	Sat 13/12/25	Sat 13/12/25
25				
26	**BURN / LIFT OUT**			
27	On-track burners & manpower	30 mins	Sat 13/12/25	Sat 13/12/25
28	Burn track for lifting out	3 hrs	Sat 13/12/25	Sat 13/12/25
29	Position Train#5 for scrapping out	15 mins	Sat 13/12/25	Sat 13/12/25
30	Lift out first 200m in panels and stack in laydown area. Load remaining scrap to Train#5 (PL panels onto Osprey, S&C loose in Falcons)	4 hrs	Sat 13/12/25	Sat 13/12/25
31				
32	**EXCAVATE / BOTTOM BALLAST**			
33	Load spoil to rear Falcon wagons on Train#5 as lifting out progresses E to W	90 mins	Sat 13/12/25	Sat 13/12/25
34	Once loaded convey Train#5 to West marker boards	15 mins	Sat 13/12/25	Sat 13/12/25
35	Convey Train#4 into position	15 mins	Sat 13/12/25	Sat 13/12/25
36	Load spoil into Train#4	3.5 hrs	Sat 13/12/25	Sat 13/12/25
37	Once loaded convey Train#4 to West marker boards	15 mins	Sat 13/12/25	Sat 13/12/25
38	Position Train#3 for unloading bottom ballast	15 mins	Sat 13/12/25	Sat 13/12/25
39	Unload bottom ballast from Train#3, 3D doze and compact	3 hrs	Sat 13/12/25	Sat 13/12/25
40	Reposition Train#3 and complete excavation into emtpied wagons	3 hrs	Sat 13/12/25	Sat 13/12/25
41	Once loaded convey Train#3 to West marker boards	15 mins	Sat 13/12/25	Sat 13/12/25
42	Position Train#2 for unloading bottom ballast	15 mins	Sat 13/12/25	Sat 13/12/25
43	Unload bottom ballast from Train#2, 3D doze and compact - Bottom Ballast complete	3 hrs	Sat 13/12/25	Sat 13/12/25
44	Once unloaded convey Train#2 to West marker boards	15 mins	Sat 13/12/25	Sat 13/12/25
45				
46	**RELAY**			
47	Position Train#1 and plant for relaying sleepers	15 mins	Sat 13/12/25	Sat 13/12/25
48	Relay G44s from Train#1 beind bottom ballast operation (6L/h due to wideway and run length for 1st 150m)	7 hrs	Sat 13/12/25	Sun 14/12/25
49	Install CWR, clip up & clamp	8 hrs	Sat 13/12/25	Sun 14/12/25
50	Convey Train#1 to West marker boards, detaching rear Loco clear of 8111Pts	15 mins	Sun 14/12/25	Sun 14/12/25
51				
52	**TOP BALLAST & TAMP**			
53	Convey Train#6 into site on the Up Relief & set up to drop ballast	1 hr	Sun 14/12/25	Sun 14/12/25
54	Unload top ballast from Autos & profile for Tamper	2 hrs	Sun 14/12/25	Sun 14/12/25
55	Convey Autos clear to the East and run Loco round	1 hr	Sun 14/12/25	Sun 14/12/25
56	Convey Tamper into site from West & set up	1 hr	Sun 14/12/25	Sun 14/12/25
57	Tamp site - run 1 (250m/h)	3.5 hrs	Sun 14/12/25	Sun 14/12/25
58	Tamp site - run 2 (250m/h)	3.5 hrs	Sun 14/12/25	Sun 14/12/25
59	Tie up Tamper, convey out of worksite	1 hr	Sun 14/12/25	Sun 14/12/25
60	Top up ballast from Autos & profile	1.5 hrs	Sun 14/12/25	Sun 14/12/25
61	Convey Train#1 onto Dn Relief and to West marker boards	1 hr	Sun 14/12/25	Sun 14/12/25
62				
63	**OHLE / S&T**			
64	OHLE works	16 hrs	Sun 14/12/25	Mon 15/12/25
65	S&T Reconnections & Testing	3 hrs	Mon 15/12/25	Mon 15/12/25
66	Give up isolation	30 mins	Mon 15/12/25	Mon 15/12/25
67	Give up worksite & possession	30 mins	Mon 15/12/25	Mon 15/12/25
68				
69				
70	**2025: 54H POSSESSION - DN RELIEF RENEWAL: CH 6020-6480 (460m)**			
71	**TRAINS**			
72	**Train#1: Loco, 15LD Falcons (Top), 5LD Salmon (G44s), Loco (FSO)**	**32 hrs**	**Sat 20/12/25**	**Sun 21/12/25**
73	**Train#2: Loco, 15LD (BB) Falcons**	**18.5 hrs**	**Sat 20/12/25**	**Sat 20/12/25**
74	**Train#3: Loco, 10LD (BB) Falcons, 10MT Falcons**	**15 hrs**	**Sat 20/12/25**	**Sat 20/12/25**
75	**Train#4: Loco, 20MT Falcons**	**10.5 hrs**	**Sat 20/12/25**	**Sat 20/12/25**
76	**Train#5: Loco (TSO), 12MT Falcons, 8MT Osprey, Loco**	**8 hrs**	**Sat 20/12/25**	**Sat 20/12/25**
77	**TAMPER**	**10 hrs**	**Sat 20/12/25**	**Sun 21/12/25**
78				
79	**SITE MOBILISATION / PREP WORKS**			
80	Brief staff, check tools etc.	1 hr	Sat 20/12/25	Sat 20/12/25
81	Take possession & set up worksite	30 mins	Sat 20/12/25	Sat 20/12/25
82	Convey Train#1 through site on the Up Relief and stable at East pegging point	30 mins	Sat 20/12/25	Sat 20/12/25
83	Convey Train#2 through site on the Up Relief and stable at East pegging point. Cascade Loco	45 mins	Sat 20/12/25	Sat 20/12/25
84	Convey Train#3 through site on the Up Relief and stable at East pegging point. Cascade Loco	45 mins	Sat 20/12/25	Sat 20/12/25
85	Convey Train#4 through site on the Up Relief and stable at East pegging point. Cascade Loco	45 mins	Sat 20/12/25	Sat 20/12/25



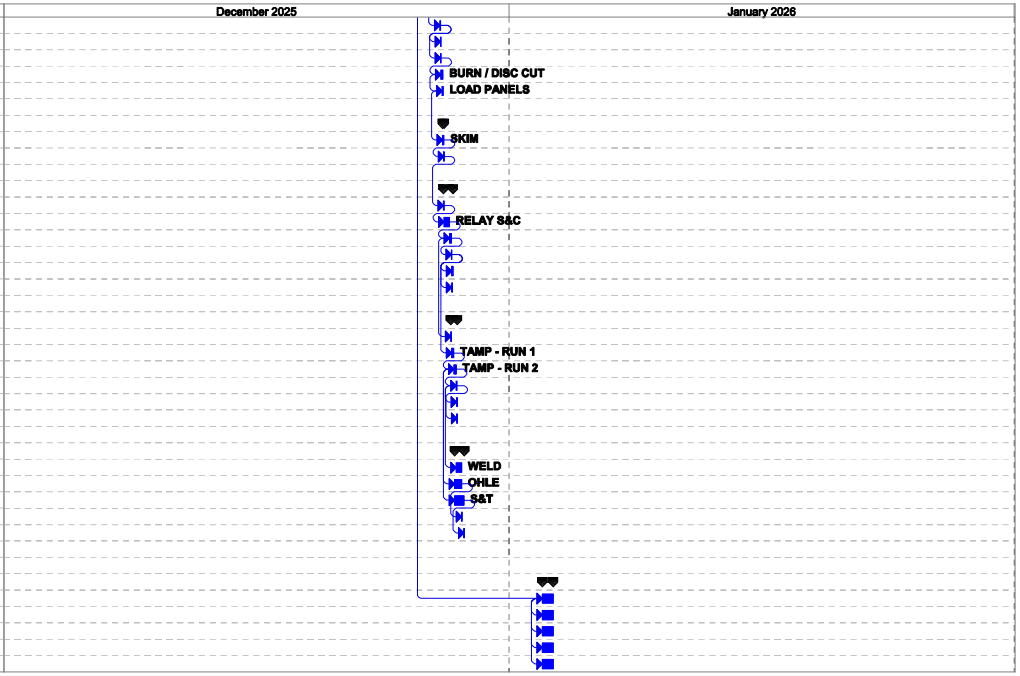
Acton X-Overs - Stage 11

ID	Task Name	Duration	Start	Finish
86	Convey Train#5 through site on the Up Relief and stable at East pegging point. Cascade Loco	45 mins	Sat 20/12/25	Sat 20/12/25
87	Take Isolation & issue C Permits	1 hr	Sat 20/12/25	Sat 20/12/25
88	S&T disconnections	2 hrs	Sat 20/12/25	Sat 20/12/25
89	On-track plant and position for working E to W	90 mins	Sat 20/12/25	Sat 20/12/25
90				
91	**BURN / LIFT OUT**			
92	On-track burners & manpower	30 mins	Sat 20/12/25	Sat 20/12/25
93	Burn PL into 30ft panels and S&C for loading loose	3 hrs	Sat 20/12/25	Sat 20/12/25
94	Position Train#5 and plant for loading	15 mins	Sat 20/12/25	Sat 20/12/25
95	Tandem lift 30ft PL panels onto Osprey Wagons and scrap S&C into Falcons on Train#5 working E to W	3 hrs	Sat 20/12/25	Sat 20/12/25
96				
97	**EXCAVATE / BOTTOM BALLAST**			
98	Load spoil to rear Falcon wagons on Train#5 as lifting out progresses	90 mins	Sat 20/12/25	Sat 20/12/25
99	Convey Train#5 onto Dn Relief via 8125 x-over and to West marker boards	30 mins	Sat 20/12/25	Sat 20/12/25
100	Convey Train#4 into position	15 mins	Sat 20/12/25	Sat 20/12/25
101	Load spoil into Train#4	3 hrs	Sat 20/12/25	Sat 20/12/25
102	Convey Train#4 onto Dn Relief via 8125 x-over and to West marker boards	30 mins	Sat 20/12/25	Sat 20/12/25
103	Convey Train#3 into position	15 mins	Sat 20/12/25	Sat 20/12/25
104	Complete excavation into front 10 wagons of Train#3	90 mins	Sat 20/12/25	Sat 20/12/25
105	Reposition Train#3 for unloading bottom ballast	15 mins	Sat 20/12/25	Sat 20/12/25
106	Unload bottom ballast from Train#3, 3D doze and compact	90 mins	Sat 20/12/25	Sat 20/12/25
107	Convey Train#3 onto Dn Relief via 8125 x-over and to West marker boards	30 mins	Sat 20/12/25	Sat 20/12/25
108	Convey Train#2 into position	15 mins	Sat 20/12/25	Sat 20/12/25
109	Unload bottom ballast from Train#2, 3D doze and compact - Bottom Ballast complete	3 hrs	Sat 20/12/25	Sat 20/12/25
110	Convey Train#2 onto Dn Relief via 8125 x-over and to West marker boards	30 mins	Sat 20/12/25	Sat 20/12/25
111				
112	**RELAY**			
113	Convey Train#1 into position for relaying	15 mins	Sat 20/12/25	Sat 20/12/25
114	Relay G44s from Train#1	3 hrs	Sat 20/12/25	Sat 20/12/25
115	Convey Train#1 clear to allow rail install	15 mins	Sat 20/12/25	Sat 20/12/25
116	Install CWR, clip up & clamp	5 hrs	Sat 20/12/25	Sat 20/12/25
117				
118	**TOP BALLAST & TAMP**			
119	Reposition & unload boxing ballast from Falcons on Train#1 & profile for Tamper	3 hrs	Sat 20/12/25	Sat 20/12/25
120	Convey Tamper into site & set up	1 hr	Sat 20/12/25	Sat 20/12/25
121	Tamp site - run 1 (250m/h)	2.5 hrs	Sat 20/12/25	Sat 20/12/25
122	Tamp site - run 2 (250m/h)	2.5 hrs	Sun 21/12/25	Sun 21/12/25
123	Tie up Tamper, convey to West marker boards	1 hr	Sun 21/12/25	Sun 21/12/25
124	Top up ballast form Train#1 and profile	2 hrs	Sun 21/12/25	Sun 21/12/25
125	Convey Train#1 onto Dn Relief via 8125 x-over and to West marker boards	30 mins	Sun 21/12/25	Sun 21/12/25
126				
127	**WELDING / S&T / OHLE**			
128	Weld joints (both roads outside S&C footprint)	12 hrs	Sun 21/12/25	Sun 21/12/25
129	OHLE works	20 hrs	Sun 21/12/25	Mon 22/12/25
130	Give up isolation	30 mins	Mon 22/12/25	Mon 22/12/25
131	S&T Reconnections & Testing	3 hrs	Mon 22/12/25	Mon 22/12/25
132	Give up worksite & possession	30 mins	Mon 22/12/25	Mon 22/12/25
133				
134				
135	**2025: 72H POSSESSION - INSTALL X-OVERS (8112AB & 8113AB)**			
136	**TRAINS**			
137	**Train#1: Loco, 2LD Salmon, 5LD Tilters, KIROW consist, 5MT Falcons, 4MT Osprey, Loco**	**19 hrs**	**Sat 27/12/25**	**Sat 27/12/25**
138	**Train#2: Loco, 4LD Falcons (TP), 5MT Falcons, 4MT Oparey, Loco (FSO)**	**30 hrs**	**Sat 27/12/25**	**Sun 28/12/25**
139	**Train#3: Loco (TSO), 4LD Falcons (TB), 2LD Salmon, 10LD Tilters, Loco**	**30 hrs**	**Sat 27/12/25**	**Sun 28/12/25**
140	**TAMPERS (2 x S&C)**	**12 hrs**	**Sun 28/12/25**	**Sun 28/12/25**
141				
142	**SITE MOBILISATION / PREP WORKS**			
143	Brief staff, check tools etc.	1 hr	Sat 27/12/25	Sat 27/12/25
144	Take possession & set up worksite	30 mins	Sat 27/12/25	Sat 27/12/25
145	Convey Train#1 through site on the Up Relief. Split train between KIROW & Falcons. Detach Loco/Tilting Wagons and convey onto DN Relief and position to East of relay	90 mins	Sat 27/12/25	Sat 27/12/25
146	Take Isolation & issue C Permits	1 hr	Sat 27/12/25	Sat 27/12/25
147	S&T disconnections	2 hrs	Sat 27/12/25	Sat 27/12/25
148	On-track plant and position for working E to W	90 mins	Sat 27/12/25	Sat 27/12/25
149				
150	**BURN / LIFT OUT (DN RELIEF)**			
151	On-track burners & manpower	30 mins	Sat 27/12/25	Sat 27/12/25
152	Burn/Disc cut PL into 30ft panels for loading	3 hrs	Sat 27/12/25	Sat 27/12/25
153	Position Loco/Osprey/Falcons and plant for loading	15 mins	Sat 27/12/25	Sat 27/12/25
154	Tandem lift 30ft PL panels onto Osprey wagons working E to W	1.5 hrs	Sat 27/12/25	Sat 27/12/25
155				
156	**SKIM BOTTOM BALLAST**			
157	Skim, 3D Doze and compact ballast, loading any excess ballast to empty Falcons	2 hrs	Sat 27/12/25	Sat 27/12/25
158	Convey Loco/Osprey/Falcons clear to the West and stable to allow S&C relay	15 mins	Sat 27/12/25	Sat 27/12/25
159				
160	**RELAY - 8112A & 8113B PTS**			
161	Set Up KIROW and Tilting Wagons for relaying S&C	1 hr	Sat 27/12/25	Sat 27/12/25
162	KIROW relays panels from Tilting Wagons: 10 x S&C Panels & 2 x PL Panels (1h for switches, 45m for remaining)	8 hrs	Sat 27/12/25	Sat 27/12/25
163	On completion of relay, propel Loco/Osprey/Falcons and offload the PL panels for use in next stages	2 hrs	Sat 27/12/25	Sat 27/12/25
164	Convey Loco/Osprey/Falcons West on the Dn Relief via 8125Pts.	30 mins	Sat 27/12/25	Sat 27/12/25
165	Convey Tilting wagons West on the Dn Relief and reform Train#1 (without KIROW consist). Train#1 to West marker boards	1 hr	Sat 27/12/25	Sat 27/12/25
166	Convey KIROW onto the DN Relief to the East and stable to allow Train#2 into position	45 mins	Sat 27/12/25	Sat 27/12/25
167				
168	**BURN / LIFT OUT (UP RELIEF)**			
169	Convey Train#2 into site on the Up Relief and position East of site	30 mins	Sat 27/12/25	Sat 27/12/25



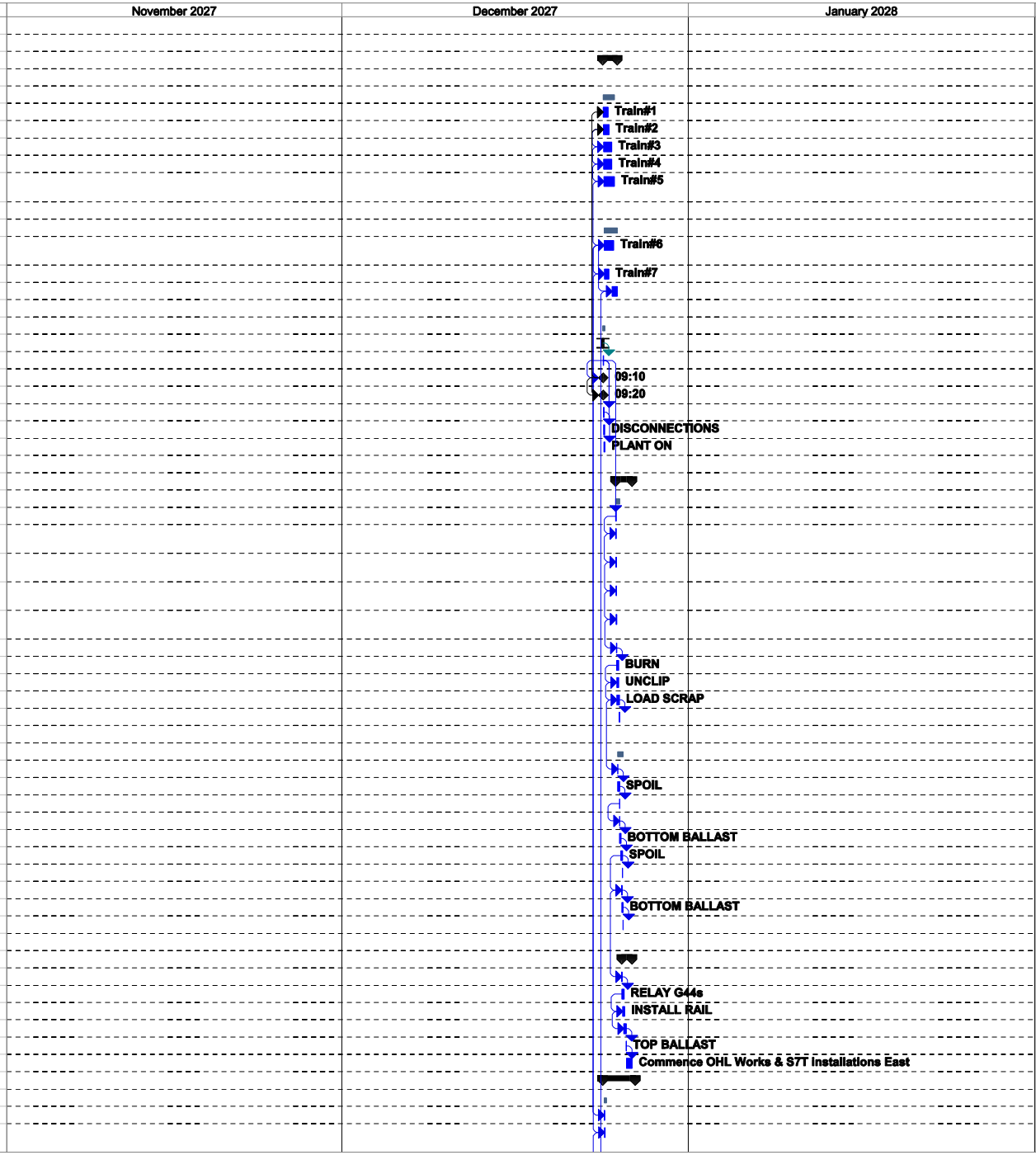
Acton X-Overs - Stage 11

ID	Task Name	Duration	Start	Finish
170	Convey Train#3 into site behind Train#2 and cascade Loco	45 mins	Sat 27/12/25	Sat 27/12/25
171	Convey Train#2 onto the Dn Relief and position for lifting out	30 mins	Sat 27/12/25	Sat 27/12/25
172	On-track burners & manpower	30 mins	Sat 27/12/25	Sat 27/12/25
173	Burn/Disc cut PL into 30ft panels for loading	3 hrs	Sat 27/12/25	Sat 27/12/25
174	Tandem lift 30ft PL panels onto Osprey wagons working E to W	1.5 hrs	Sat 27/12/25	Sat 27/12/25
175				
176	**SKIM BOTTOM BALLAST**			
177	Skim, 3D Doze and compact ballast, loading any excess ballast to empty Falcons	2 hrs	Sat 27/12/25	Sun 28/12/25
178	Convey Train#2 clear to the West and stable to allow S&C relay	15 mins	Sun 28/12/25	Sun 28/12/25
179				
180	**RELAY - 8112B & 8113A PTS**			
181	Set Up KIROW and Tilting Wagons for relaying S&C	1 hr	Sat 27/12/25	Sun 28/12/25
182	KIROW relays panels from Tilting Wagons: 10 x S&C Panels & 2 x PL Panels (1h for switches, 45m for remaining)	8 hrs	Sun 28/12/25	Sun 28/12/25
183	Unload boxing/top ballast from loaded Falcons on Trains 2 & 3 and profile for Tamping	3 hrs	Sun 28/12/25	Sun 28/12/25
184	Convey Trains 2 & 3 clear to the East to allow Tamping	15 mins	Sun 28/12/25	Sun 28/12/25
185	Offload PL panels from Osprey on Train#2 for use in next stages	2 hrs	Sun 28/12/25	Sun 28/12/25
186	Attach KIROW consist to rear of Train#2	45 mins	Sun 28/12/25	Sun 28/12/25
187				
188	**TAMP**			
189	Convey Tampers into site & set up	1 hr	Sun 28/12/25	Sun 28/12/25
190	Tandem Tamp site - run 1	3 hrs	Sun 28/12/25	Sun 28/12/25
191	Tandem Tamp site - run 2	3 hrs	Sun 28/12/25	Sun 28/12/25
192	Tie up Tampers, convey to West marker boards	1 hr	Sun 28/12/25	Sun 28/12/25
193	Convey Train#2 to West marker boards on Dn Relief behind Tamper 1	30 mins	Sun 28/12/25	Sun 28/12/25
194	Convey Train#3 onto Dn Relief via 8125 x-over and to West marker boards behind Tamper 2	30 mins	Sun 28/12/25	Sun 28/12/25
195				
196	**WELDING / S&T / OHLE**			
197	Weld joints	8 hrs	Sun 28/12/25	Mon 29/12/25
198	OHLE works	10 hrs	Sun 28/12/25	Mon 29/12/25
199	Mechanical set up of points & testing	13.5 hrs	Sun 28/12/25	Mon 29/12/25
200	Give up isolation	30 mins	Mon 29/12/25	Mon 29/12/25
201	Give up worksite & possession	30 mins	Mon 29/12/25	Mon 29/12/25
202				
203				
204	**2027: 16H POSSESSION - FOLLOW UP WORKS**	16 hrs	Sat 03/01/26	Sat 03/01/26
205	Spate Tamp	16 hrs	Sat 03/01/26	Sat 03/01/26
206	Welding & Stressing	16 hrs	Sat 03/01/26	Sat 03/01/26
207	OHLE follow up works	16 hrs	Sat 03/01/26	Sat 03/01/26
208	S&T follow up works	16 hrs	Sat 03/01/26	Sat 03/01/26
209	Snagging	16 hrs	Sat 03/01/26	Sat 03/01/26

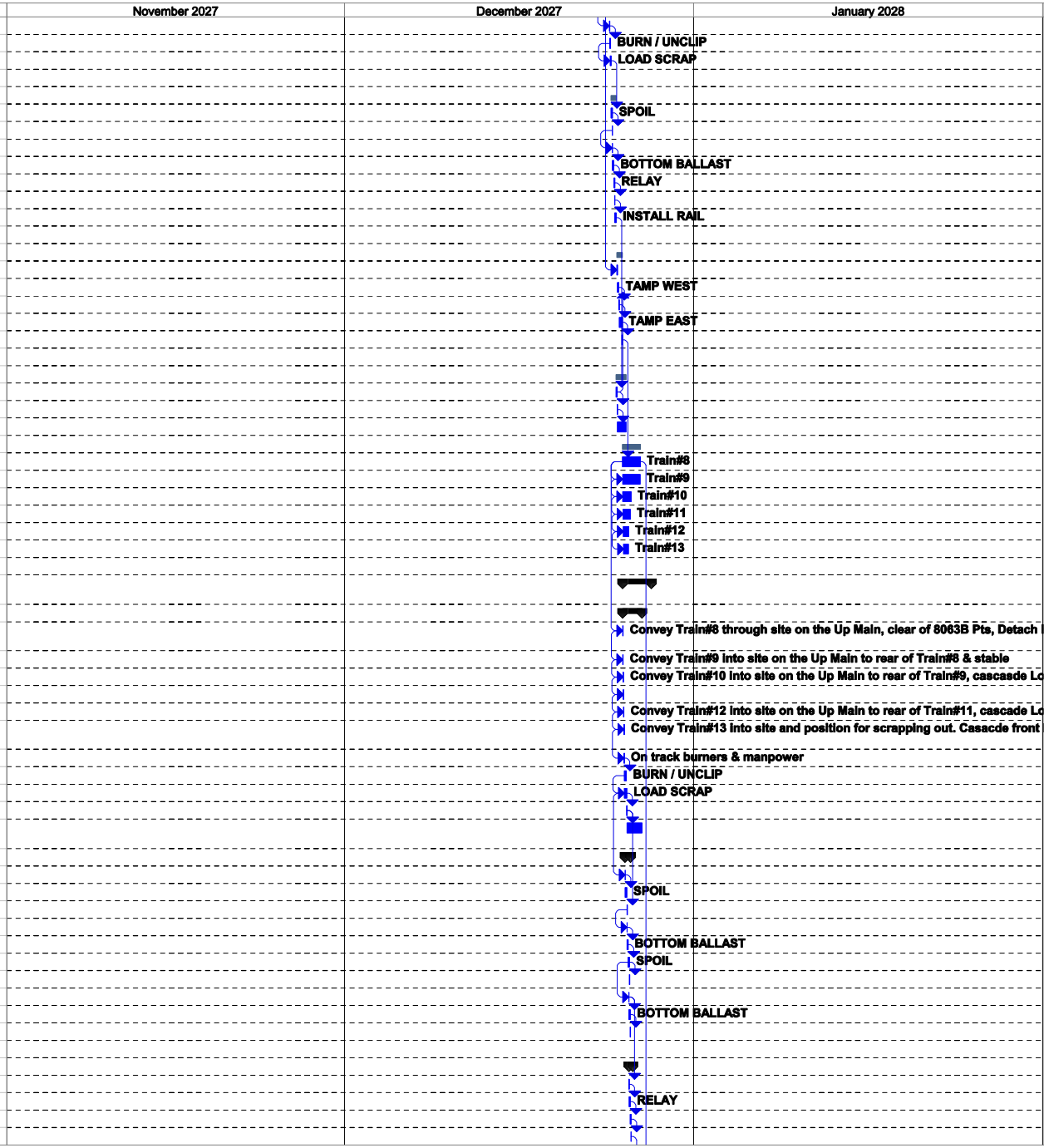


Stage 12

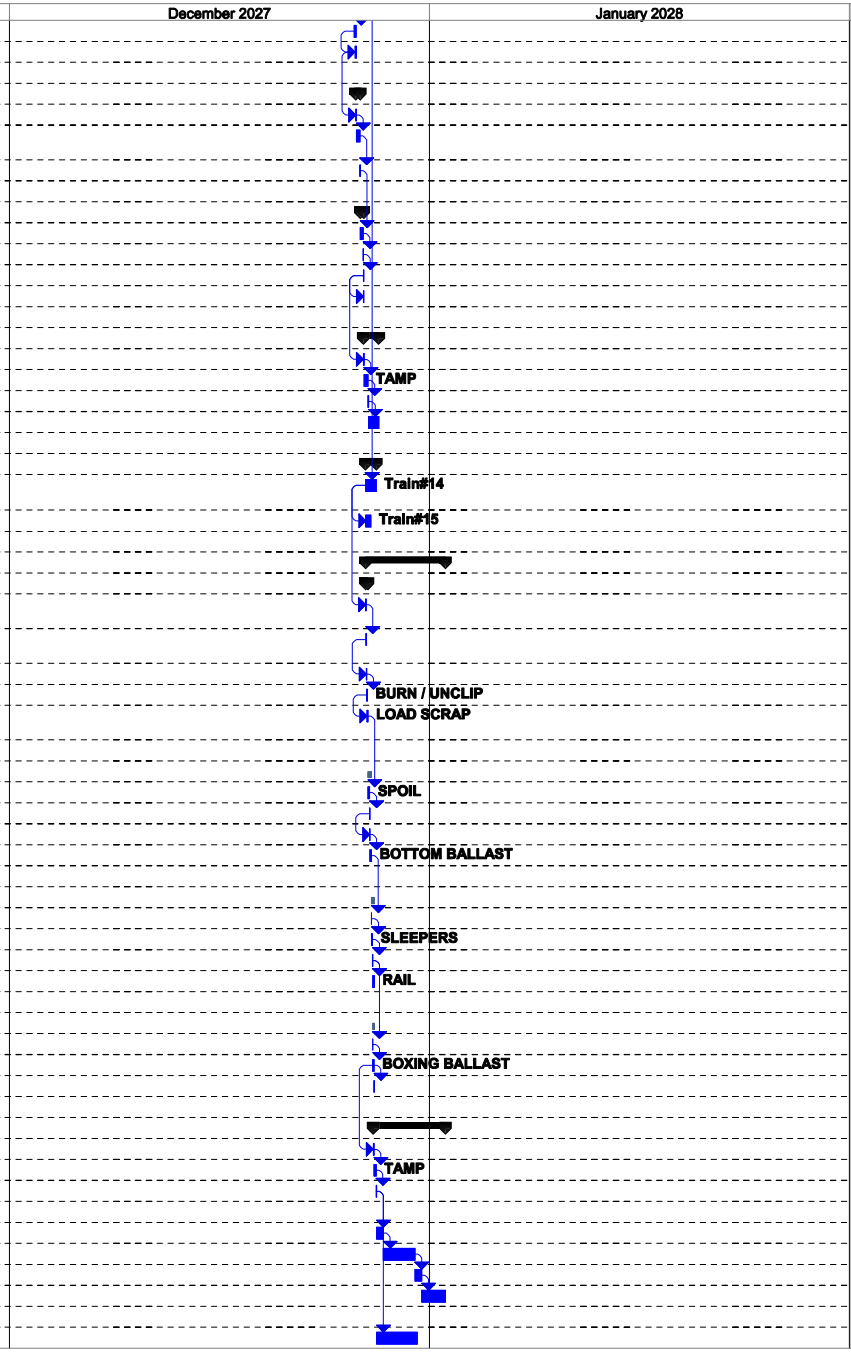
ID	Task Name	Duration	Start	Finish
1	OLD OAK COMMON - STAGE 12			
2				
3	**POSSESSION - XMAS BLOCKADE 2026**	**3.92 days**	**Fri 24/12/27**	**Sat 25/12/27**
4				
5	**TRAINS (UP MAIN EAST RENEWAL)**			
6	**Train#1: Loco (TSO), 20MT Falcons (Scrap), Loco**	**10 hrs**	**Fri 24/12/27**	**Fri 24/12/27**
7	**Train#2: Loco, 25MT Falcons (Spoil)**	**12 hrs**	**Fri 24/12/27**	**Fri 24/12/27**
8	**Train#3: Loco, 10MT Falcons (Spoil), 15LD Falcons (Bottom Ballast)**	**17 hrs**	**Fri 24/12/27**	**Sat 25/12/27**
9	**Train#4: Loco, 15LD Falcons (Bottom Ballast)**	**17 hrs**	**Fri 24/12/27**	**Sat 25/12/27**
10	**Train#5: Loco, 15LD Falcons (Top Ballast), 6LD Salmon (G44s), Loco (FSO)**	**22 hrs**	**Fri 24/12/27**	**Sat 25/12/27**
11				
12	**TRAINS (UP MAIN WEST RENEWAL)**			
13	Train#6: Loco, 5LD Falcons (Top) 2LD Salmon (G44s), 10LD Falcons (BB), Loco (FSO)	20 hrs	Fri 24/12/27	Sat 25/12/27
14	Train#7: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco	9 hrs	Fri 24/12/27	Fri 24/12/27
15	**TAMPER**	**11 hrs**	**Sat 25/12/27**	**Sat 25/12/27**
16				
17	**SITE MOBILISATION / PREP WORKS**			
18	Brief staff, check tools etc.	1 hr	Fri 24/12/27	Fri 24/12/27
19	Take possession & set up worksite	30 mins	Fri 24/12/27	Fri 24/12/27
20	TPAT#1 @ SN120 on Up Main	0 mins	Fri 24/12/27	Fri 24/12/27
21	TPAT#2 @ SN146 on Up Main	0 mins	Fri 24/12/27	Fri 24/12/27
22	Take Isolation & issue C Permits	1 hr	Fri 24/12/27	Fri 24/12/27
23	S&T disconnections	2 hrs	Fri 24/12/27	Fri 24/12/27
24	On-track plant and position for working E to W	2 hrs	Fri 24/12/27	Fri 24/12/27
25				
26	**UP MAIN EAST (CH 4305 to 4850: 545m)**	**4.39 days**	**Sat 25/12/27**	**Sun 26/12/27**
27	**BURN / LIFT OUT**			
28	Convey Train#1 through 8063B onto the Down Main and position on site	45 mins	Sat 25/12/27	Sat 25/12/27
29	Convey Train#2 into site, propel through 8063B onto the Down Main and position behind Train#1. Cascade Loco onto Train#2	1 hr	Sat 25/12/27	Sat 25/12/27
30	Convey Train#3 into site, propel through 8063B onto the Down Main and position behind Train#2. Cascade Loco onto Train#3	1 hr	Sat 25/12/27	Sat 25/12/27
31	Convey Train#4 into site, propel through 8063B onto the Down Main and position behind Train#3. Cascade Loco onto Train#4	1 hr	Sat 25/12/27	Sat 25/12/27
32	Convey Train#4 into site, propel through 8063B onto the Down Main and position behind Train#4. Cascade Loco onto Train#5	1 hr	Sat 25/12/27	Sat 25/12/27
33	On-track burners & manpower	30 mins	Sat 25/12/27	Sat 25/12/27
34	Burn track into 30fts for lifting out loose	4 hrs	Sat 25/12/27	Sat 25/12/27
35	Unclip rails for lifting out loose	4 hrs	Sat 25/12/27	Sat 25/12/27
36	Lift out loose existing rails and sleepers to Train#1 working E to W	5 hrs	Sat 25/12/27	Sat 25/12/27
37	Convey Train#1 West to marker boards	15 mins	Sat 25/12/27	Sat 25/12/27
38				
39	**EXCAVATE / BOTTOM BALLAST**			
40	Convey Train#2 into position	15 mins	Sat 25/12/27	Sat 25/12/27
41	Excavate & load spoil to Train#2 behind scrapping out	3.5 hrs	Sat 25/12/27	Sat 25/12/27
42	Convey Train#2 West to marker boards	15 mins	Sat 25/12/27	Sat 25/12/27
43	Convey Train#3 into position	15 mins	Sat 25/12/27	Sat 25/12/27
44	Unload bottom ballast from front 15 wagons on Train#3, 3D doze and compac	2.5 hrs	Sat 25/12/27	Sat 25/12/27
45	Recommence excavation and fully load all wagons on Train#3	3.5 hrs	Sat 25/12/27	Sun 26/12/27
46	Convey Train#3 West to marker boards	15 mins	Sun 26/12/27	Sun 26/12/27
47	Convey Train#4 into position	15 mins	Sun 26/12/27	Sun 26/12/27
48	Unload bottom ballast from Train#4, 3D doze and compact	2.5 hrs	Sun 26/12/27	Sun 26/12/27
49	Convey Train#4 West to marker boards	15 mins	Sun 26/12/27	Sun 26/12/27
50				
51	**RELAY / TOP BALLAST**	**2.75 days**	**Sun 26/12/27**	**Sun 26/12/27**
52	Split Train#5 between Salmon & Falcons. Position Loco/Salmon for relaying	45 mins	Sun 26/12/27	Sun 26/12/27
53	Relay sleepers from Salmon	4 hrs	Sun 26/12/27	Sun 26/12/27
54	Install rail, clip up and clamp	4 hrs	Sun 26/12/27	Sun 26/12/27
55	Propel Falcons/Loco and unload & profile top ballast behind rail installation	5 hrs	Sun 26/12/27	Sun 26/12/27
56	Reform Train#5 and convey West to marker boards	45 mins	Sun 26/12/27	Sun 26/12/27
57	Commence OHL Works & S7T installations East	12 hrs	Sun 26/12/27	Sun 26/12/27
58	**UP MAIN WEST (CH 5800 - 5970: 170M)**	**8.75 days**	**Fri 24/12/27**	**Mon 27/12/27**
59	**BURN / LIFT OUT**			
60	Convey Train#6 through 8111Pts onto the Dn Relief and stable East	45 mins	Fri 24/12/27	Fri 24/12/27
61	Convey Train#7 into site on the Up Relief and through 8111Pts. Casacde front Loco onto Train#6	1 hr	Fri 24/12/27	Fri 24/12/27



ID	Task Name	Duration	Start	Finish
62	On track burners & manpower	30 mins	Fri 24/12/27	Fri 24/12/27
63	Burn track and unclip for lifting out	2 hrs	Fri 24/12/27	Fri 24/12/27
64	Load scrap rails and sleepers to front 6 wagons on Train#7 working E to W	2 hrs	Fri 24/12/27	Fri 24/12/27
65				
66	**EXCAVATE / BOTTOM BALLAST / RELAY**			
67	Excavate & load spoil to remaining Falcon wagons on Train#7	2.5 hrs	Fri 24/12/27	Fri 24/12/27
68	Convey Train#7 to West marker boards	15 mins	Fri 24/12/27	Fri 24/12/27
69	Position Train#6 for unloading bottom ballast	15 mins	Fri 24/12/27	Fri 24/12/27
70	Unload bottom ballast, 3D doze & compact	3 hrs	Fri 24/12/27	Fri 24/12/27
71	Relay sleepers	1.5 hrs	Fri 24/12/27	Fri 24/12/27
72	Convey Train#6 clear West to allow rail install	15 mins	Fri 24/12/27	Fri 24/12/27
73	Install rail, clip up & clamp	3 hrs	Fri 24/12/27	Sat 25/12/27
74				
75	**UP MAIN TAMPING**			
76	Convey Tamper into site from West & set up to Tamp West section	1 hr	Sat 25/12/27	Sat 25/12/27
77	Tamp West section - 2 runs	3 hrs	Sat 25/12/27	Sat 25/12/27
78	Convey Tamper East and set up for Tamping East section	1 hr	Sat 25/12/27	Sat 25/12/27
79	Tamp East section - 2 runs	6 hrs	Sat 25/12/27	Sat 25/12/27
80	Convey Tamper into Carriage Line and shut down for next stage	30 mins	Sat 25/12/27	Sat 25/12/27
81				
82	**TOP BALLAST**			
83	Reposition Train#6, unload boxing ballast and profile for Tamper	2.5 hrs	Sat 25/12/27	Sat 25/12/27
84	Convey Train#6 West to marker boards	15 mins	Sat 25/12/27	Sat 25/12/27
85	Continue OHL works & S&T Installation. Run Heights and staggers / Pantogra	18 hrs	Sat 25/12/27	Sat 25/12/27
86	**TRAINS (DN MAIN EAST RENEWAL)**			
87	**Train#8: Loco, Kirow Consist, Tilting Wagons (set of 4), 2LD Salmon**	**38 hrs**	**Sat 25/12/27**	**Mon 27/12/27**
88	**Train#9: Loco, 18LD Falcons (Top), 6LD Salmon (G44s)**	**37 hrs**	**Sat 25/12/27**	**Mon 27/12/27**
89	**Train#10: Loco, 20LD Falcons (BB)**	**17 hrs**	**Sat 25/12/27**	**Sun 26/12/27**
90	**Train#11: Loco, 10MT Falcons (Spoil), 10LD Falcons (BB)**	**15 hrs**	**Sat 25/12/27**	**Sun 26/12/27**
91	**Train#12: Loco, 25MT Falcons (Spoil)**	**11 hrs**	**Sat 25/12/27**	**Sun 26/12/27**
92	**Train#13: Loco (TSO), 20MT Falcons (Scrap), Loco**	**10 hrs**	**Sat 25/12/27**	**Sun 26/12/27**
93				
94	**DN MAIN EAST (CH 4320 - 4920: 600M INCL TEMP TURNOUT TO SOUTH RAIL HEAD)**	**7.66 days**	**Sat 25/12/27**	**Tue 28/12/27**
95	**TRAINS INTO SITE / BURN / LIFT OUT**	**5.16 days**	**Sat 25/12/27**	**Mon 27/12/27**
96	Convey Train#8 through site on the Up Main, clear of 8063B Pts, Detach Kirow & convey onto Down Main then shut down	1 hr	Sat 25/12/27	Sat 25/12/27
97	Convey Train#9 into site on the Up Main to rear of Train#8 & stable	30 mins	Sat 25/12/27	Sat 25/12/27
98	Convey Train#10 into site on the Up Main to rear of Train#9, cascasde Loco &	30 mins	Sat 25/12/27	Sat 25/12/27
99	Convey Train#11 into site on the Up Main to rear of Train#10, cascade Loco &	30 mins	Sat 25/12/27	Sat 25/12/27
100	Convey Train#12 into site on the Up Main to rear of Train#11, cascade Loco &	30 mins	Sat 25/12/27	Sat 25/12/27
101	Convey Train#13 into site and position for scrapping out. Casacde front Loco onto Train#12	45 mins	Sat 25/12/27	Sat 25/12/27
102	On track burners & manpower	30 mins	Sat 25/12/27	Sat 25/12/27
103	Burn track and unclip for lifting out loose	4.5 hrs	Sat 25/12/27	Sun 26/12/27
104	Load scrap rails and sleepers to Train#13 working E to W	5 hrs	Sat 25/12/27	Sun 26/12/27
105	Convey Train#13 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Sun 26/12/27	Sun 26/12/27
106	**Access MUPES & RRV's @ Hitachi RRAP. Commence scraping out of Down Main West for Bridge Demolition including OHL and S&T**	4 days	Sun 26/12/27	Mon 27/12/27
107	**EXCAVATE / BOTTOM BALLAST**	**1.44 days**	**Sat 25/12/27**	**Sun 26/12/27**
108	Convey Train#12 into position	15 mins	Sat 25/12/27	Sat 25/12/27
109	Excavate & load spoil to Train#12 behind scrapping out	3 hrs	Sat 25/12/27	Sun 26/12/27
110	Convey Train#12 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Sun 26/12/27	Sun 26/12/27
111	Convey Train#11 into position	15 mins	Sun 26/12/27	Sun 26/12/27
112	Unload bottom ballast from front 10 wagons on Train#11, 3D doze and compa	2 hrs	Sun 26/12/27	Sun 26/12/27
113	Recommence excavation and fully load all wagons on Train#11	3 hrs	Sun 26/12/27	Sun 26/12/27
114	Convey Train#11 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Sun 26/12/27	Sun 26/12/27
115	Convey Train#10 into position	15 mins	Sun 26/12/27	Sun 26/12/27
116	Unload bottom ballast from Train#4, 3D doze and compact	3 hrs	Sun 26/12/27	Sun 26/12/27
117	Convey Train#10 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Sun 26/12/27	Sun 26/12/27
118				
119	**RELAY PL**	**1.06 days**	**Sun 26/12/27**	**Sun 26/12/27**
120	Position Train#9 for relaying sleepers	15 mins	Sun 26/12/27	Sun 26/12/27
121	Relay sleepers on PL section 1 (East of Turnout - 400m)	2.5 hrs	Sun 26/12/27	Sun 26/12/27
122	Relay sleepers on PL section 2 (West of Turnout - 120m (wider 6ft))	90 mins	Sun 26/12/27	Sun 26/12/27
123	Convey Train#9 clear to allow rail install	15 mins	Sun 26/12/27	Sun 26/12/27

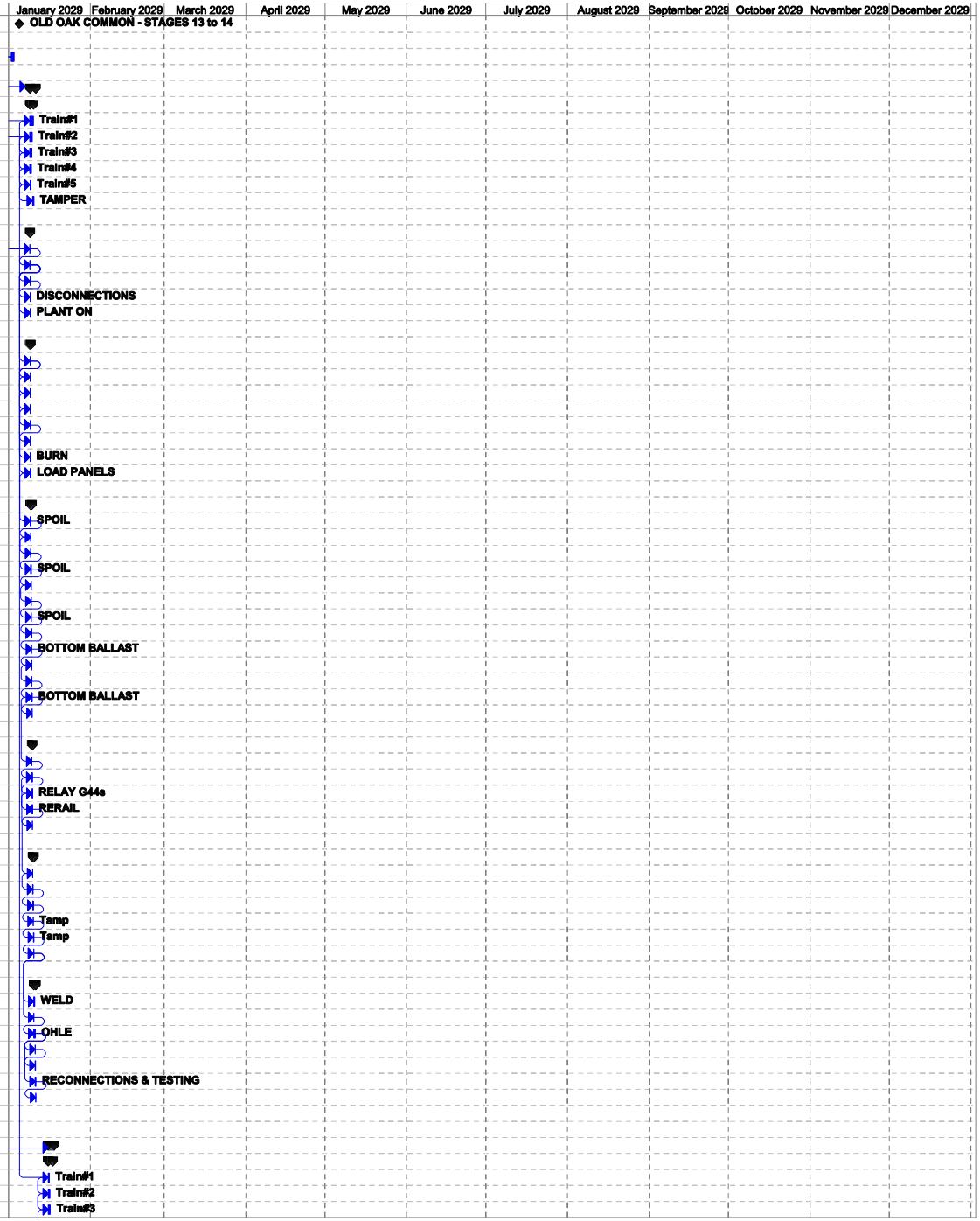


ID	Task Name	Duration	Start	Finish
124	Rerail and clip up PL section 1	3.5 hrs	Sun 26/12/27	Sun 26/12/27
125	Rerail and clip up PL section 2	2.5 hrs	Sun 26/12/27	Sun 26/12/27
126				
127	**RELAY S&C**	**1 day**	**Sun 26/12/27**	**Sun 26/12/27**
128	Set up Kirow & Tilting Wagons for relaying panels	1 hr	Sun 26/12/27	Sun 26/12/27
129	Kirow relays overend Temporary Turnout from Tilting Wagons on Up Main (4 x S&C & 2 x Stub Panels)	6 hrs	Sun 26/12/27	Sun 26/12/27
130	Convey Kirow consist back onto Up Main and reform with Train#8	1 hr	Sun 26/12/27	Sun 26/12/27
131				
132	**TOP BALLAST**	**0.78 days**	**Sun 26/12/27**	**Mon 27/12/27**
133	Reposition Train#9, unload boxing ballast and profile for Tamper	5 hrs	Sun 26/12/27	Mon 27/12/27
134	Cascade Loco from Train#9 onto Train#8	30 mins	Mon 27/12/27	Mon 27/12/27
135	Convey Train#9 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Mon 27/12/27	Mon 27/12/27
136	Convey Train#8 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Mon 27/12/27	Mon 27/12/27
137				
138	**TAMP**	**3.38 days**	**Mon 27/12/27**	**Tue 28/12/27**
139	Convey Tamper out of Carriage Line onto Dn Main & set up to tamp	1 hr	Mon 27/12/27	Mon 27/12/27
140	Tamp Dn Main including Turnout - 2 runs	7 hrs	Mon 27/12/27	Mon 27/12/27
141	Convey Tamper back into Carriage Line and stable until next Stage	1 hr	Mon 27/12/27	Mon 27/12/27
142	Commence S&T installations and OHL works	18 hrs	Mon 27/12/27	Tue 28/12/27
143				
144	**TRAINS (DN MAIN WEST RENEWAL)**	**2.38 days**	**Mon 27/12/27**	**Tue 28/12/27**
145	**Train#14: Loco, 8LD Falcons (Top), 2LD Salmon (G44s), 12LD Falcons (BB), Loco (FSO)**	**19 hrs**	**Mon 27/12/27**	**Tue 28/12/27**
146	**Train#15: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco**	**9 hrs**	**Mon 27/12/27**	**Mon 27/12/27**
147				
148	**DN MAIN WEST (CH 5770 - 5990: 210M)**	**17.66 days**	**Mon 27/12/27**	**Sun 02/01/28**
149	**BURN / LIFT OUT**	**0.5 days**	**Mon 27/12/27**	**Mon 27/12/27**
150	Convey Train#14 into site on the Up Main and stable East of excavation area	30 mins	Mon 27/12/27	Mon 27/12/27
151	Convey Train#15 into site on the Up Main behind Train#14 and cascade front Loco. Position for scrapping out	45 mins	Mon 27/12/27	Mon 27/12/27
152	On track burners & manpower	30 mins	Mon 27/12/27	Mon 27/12/27
153	Burn track and unclip for lifting out loose	90 mins	Mon 27/12/27	Mon 27/12/27
154	Load scrap rails and sleepers to front 4 wagons on Train#15 working E to W	90 mins	Mon 27/12/27	Mon 27/12/27
155				
156	**EXCAVATE / BOTTOM BALLAST**			
157	Excavate & load spoil to remaining Falcon wagons on Train#15	3 hrs	Mon 27/12/27	Mon 27/12/27
158	Convey Train#15 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Mon 27/12/27	Mon 27/12/27
159	Position Train#14 and plant for Bottom Ballast	15 mins	Mon 27/12/27	Mon 27/12/27
160	Unload bottom ballast, 3D doze & compact	3 hrs	Mon 27/12/27	Mon 27/12/27
161				
162	**RELAY**			
163	Reposition Train#14 & relay plant	15 mins	Mon 27/12/27	Mon 27/12/27
164	Relay sleepers	1.5 hrs	Mon 27/12/27	Mon 27/12/27
165	Convey Train#14 clear West to allow rail install	15 mins	Mon 27/12/27	Mon 27/12/27
166	Install rail, clip up & clamp	3 hrs	Mon 27/12/27	Mon 27/12/27
167				
168	**BOXING BALLAST**			
169	Reposition Train#14 for unloading	15 mins	Mon 27/12/27	Mon 27/12/27
170	Unload boxing ballast & profile for Tamping	2.5 hrs	Mon 27/12/27	Mon 27/12/27
171	Convey Train#14 West onto Dn Main via 8136 x-over and to marker boards	30 mins	Mon 27/12/27	Mon 27/12/27
172				
173	**TAMP**	**15.97 days**	**Mon 27/12/27**	**Sun 02/01/28**
174	Convey Tamper out of Carriage Line and to site & set up	1 hr	Mon 27/12/27	Mon 27/12/27
175	Tamp Dn Main - 2 runs	4 hrs	Mon 27/12/27	Tue 28/12/27
176	Tie up Tamper & convey West to marker boards	45 mins	Tue 28/12/27	Tue 28/12/27
177				
178	OHL Works continue behind Tamper, remove temp bonding and commission	12 hrs	Tue 28/12/27	Tue 28/12/27
179	S&T Installation during main works	56 hrs	Tue 28/12/27	Thu 30/12/27
180	S&T Testing During Wheels Free Period	12 hrs	Thu 30/12/27	Fri 31/12/27
181	E&P During main works	42 hrs	Fri 31/12/27	Sun 02/01/28
182				
183	**Bridge Demolition Part 2**	72 hrs	Tue 28/12/27	Fri 31/12/27



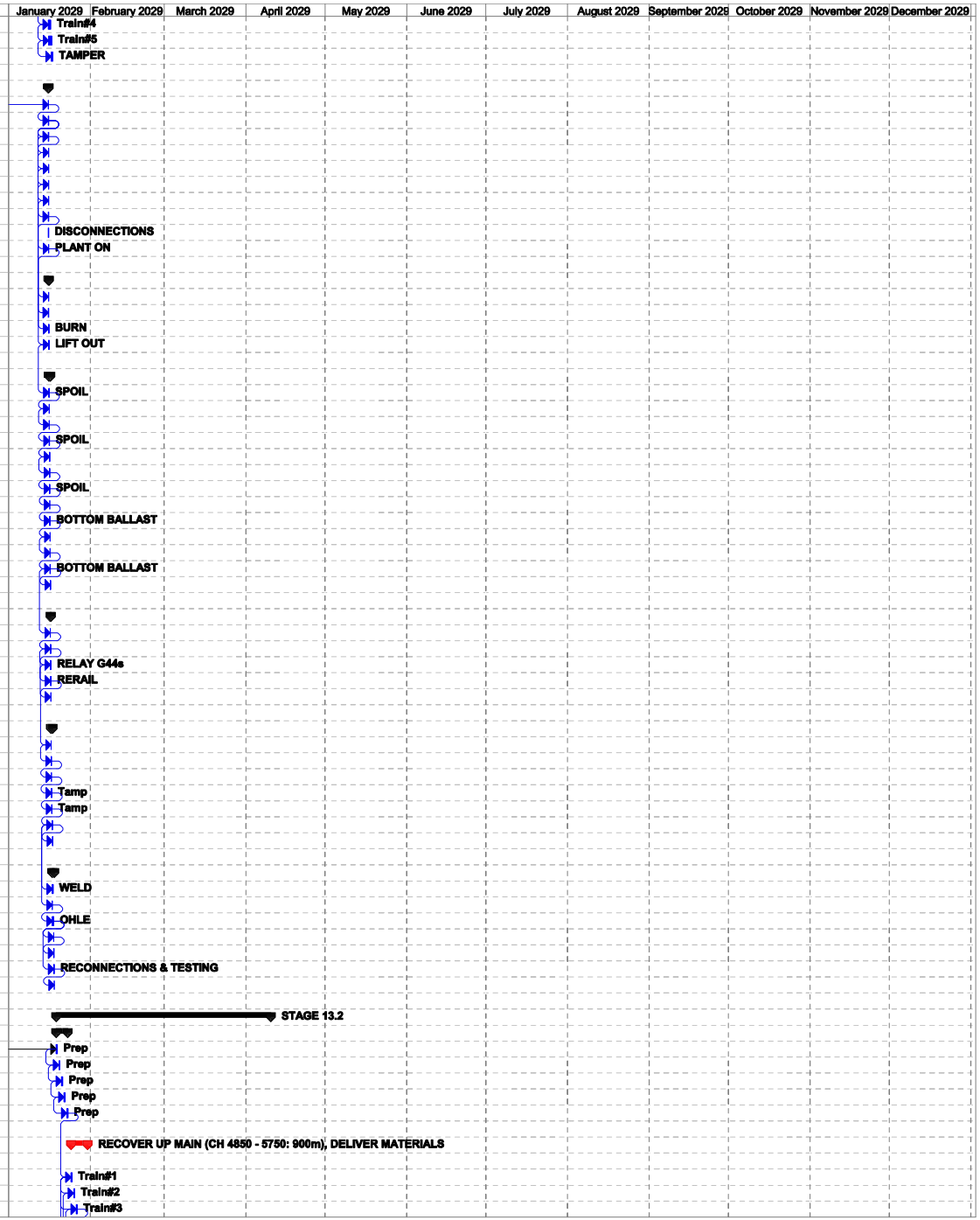
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGES 13 to 14**			
2	**JANUARY TO DECEMBER 2029**			
3	**OLD OAK COMMON - STAGE 13.1 - ACTON MAIN LOWERS**	24 hrs?	Tue 02/01/29	Wed 03/01/29
4				
5	**2029: 54H POSSESSION - DOWN MAIN RENEWAL CH: 5900-6460 (560M)**	54 hrs	Tue 09/01/29	Thu 11/01/29
6	**TRAINS**	34.5 hrs	Tue 09/01/29	Wed 10/01/29
7	**Train#1: Loco, 15LD Falcons, 6LD Salmon, Loco (FSO)**	32 hrs	Tue 09/01/29	Wed 10/01/29
8	**Train#2: Loco, 20LD Falcons (Type 1)**	21.5 hrs	Tue 09/01/29	Tue 09/01/29
9	**Train#3: Loco, 5LD Falcons, 15MT Falcons**	17 hrs	Tue 09/01/29	Tue 09/01/29
10	**Train#4: Loco, 20MT Falcons**	12 hrs	Tue 09/01/29	Tue 09/01/29
11	**Train#5: Loco (TSO), 11MT Osprey, 10MT Falcons, Loco**	9 hrs	Tue 09/01/29	Tue 09/01/29
12	**TAMPER**	10 hrs	Wed 10/01/29	Wed 10/01/29
13				
14	**SITE MOBILISATION / PREP WORKS**	4 hrs	Tue 09/01/29	Tue 09/01/29
15	Brief staff, check tools etc.	1 hr	Tue 09/01/29	Tue 09/01/29
16	Take possession & set up worksite	30 mins	Tue 09/01/29	Tue 09/01/29
17	Take Isolation & issue C Permits	1 hr	Tue 09/01/29	Tue 09/01/29
18	S&T disconnections	2 hrs	Tue 09/01/29	Tue 09/01/29
19	On-track all plant and position for working E to W	90 mins	Tue 09/01/29	Tue 09/01/29
20				
21	**BURN / LIFT OUT**	6 hrs	Tue 09/01/29	Tue 09/01/29
22	Convey Train#1 into site on the Up Main to East pegging point & stable	30 mins	Tue 09/01/29	Tue 09/01/29
23	Convey Train#2 into site behind Train#1 and cascade Loco	45 mins	Tue 09/01/29	Tue 09/01/29
24	Convey Train#3 into site behind Train#2 and cascade Loco	45 mins	Tue 09/01/29	Tue 09/01/29
25	Convey Train#4 into site behind Train#3 and cascade Loco	45 mins	Tue 09/01/29	Tue 09/01/29
26	Convey Train# 5 into site. Cascade Loco onto Train#4 then position for lifting out	1 hr	Tue 09/01/29	Tue 09/01/29
27	On-track burners & manpower	30 mins	Tue 09/01/29	Tue 09/01/29
28	Burn PL into 30ft panels	90 mins	Tue 09/01/29	Tue 09/01/29
29	Tandem lift 30ft panels onto Osprey Wagons on Train#1 working E to W	3 hrs	Tue 09/01/29	Tue 09/01/29
30				
31	**EXCAVATE / BOTTOM BALLAST**	13.5 hrs	Tue 09/01/29	Tue 09/01/29
32	Load spoil to Falcon wagons on Train#5 as lifting out progreses	90 mins	Tue 09/01/29	Tue 09/01/29
33	Convey Train#5 to West marker boards on the Dn line via 8136 x-over	30 mins	Tue 09/01/29	Tue 09/01/29
34	Convey Train#4 into position	15 mins	Tue 09/01/29	Tue 09/01/29
35	Load spoil into Train#4	3 hrs	Tue 09/01/29	Tue 09/01/29
36	Convey Train#4 to West marker boards on the Dn line via 8136 x-over	30 mins	Tue 09/01/29	Tue 09/01/29
37	Convey Train#3 into position	15 mins	Tue 09/01/29	Tue 09/01/29
38	Load spoil into empty wagons on Train#3. Dig complete	2.5 hrs	Tue 09/01/29	Tue 09/01/29
39	Reposition Train#3 and plant	15 mins	Tue 09/01/29	Tue 09/01/29
40	Unload bottom ballast from Train#3, 3D doze and compact	1.5 hrs	Tue 09/01/29	Tue 09/01/29
41	Convey Train#3 to West marker boards on the Dn line via 8136 x-over	30 mins	Tue 09/01/29	Tue 09/01/29
42	Convey Train#2 into position	15 mins	Tue 09/01/29	Tue 09/01/29
43	Unload type 1 from Train#2, 3D doze and compact	3.5 hrs	Tue 09/01/29	Tue 09/01/29
44	Convey Train#2 to West marker boards on the Dn line via 8136 x-over	30 mins	Tue 09/01/29	Tue 09/01/29
45				
46	**RELAY**	7 hrs	Tue 09/01/29	Wed 10/01/29
47	Position Train#1 for relaying	15 mins	Tue 09/01/29	Tue 09/01/29
48	Relay G44s	4 hrs	Tue 09/01/29	Tue 09/01/29
49	Install rail	4 hrs	Tue 09/01/29	Wed 10/01/29
50	Clip up & clamp	4 hrs	Tue 09/01/29	Wed 10/01/29
51	Convey Train#1 clear	15 mins	Tue 09/01/29	Tue 09/01/29
52				
53	**TOP BALLAST & TAMP**	11 hrs	Wed 10/01/29	Wed 10/01/29
54	Reposition Train#1 and plant for unloading ballast	15 mins	Wed 10/01/29	Wed 10/01/29
55	Unload boxing ballast & profile for Tamper	3 hrs	Wed 10/01/29	Wed 10/01/29
56	Tamper into site & set up	1 hr	Wed 10/01/29	Wed 10/01/29
57	Tamp site - run 1	2.5 hrs	Wed 10/01/29	Wed 10/01/29
58	Tamp site - run 2	2.5 hrs	Wed 10/01/29	Wed 10/01/29
59	Tie up Tamper, convey out of worksite	1 hr	Wed 10/01/29	Wed 10/01/29
60				
61	**DEMOBILISE SITE**	18 hrs	Wed 10/01/29	Thu 11/01/29
62	Weld	8 hrs	Wed 10/01/29	Wed 10/01/29
63	On track MEWPs	1 hr	Wed 10/01/29	Wed 10/01/29
64	OHLE alterations & heights and staggers	12 hrs	Wed 10/01/29	Thu 11/01/29
65	Off track plant	1 hr	Thu 11/01/29	Thu 11/01/29
66	Give up isolation	1 hr	Thu 11/01/29	Thu 11/01/29
67	S&T Reconnections & Testing	4.5 hrs	Thu 11/01/29	Thu 11/01/29
68	Give up worksite & possession	30 mins	Thu 11/01/29	Thu 11/01/29
69				
70				
71	**2029: 54H POSSESSION - UP MAIN RENEWAL: CH 5960-6480 (520M)**	54 hrs	Tue 16/01/29	Thu 18/01/29
72	**TRAINS**	41 hrs	Tue 16/01/29	Wed 17/01/29
73	**Train#1: Loco (TSO), 10MT Falcon, 10MT Osprey**	9 hrs	Tue 16/01/29	Tue 16/01/29
74	**Train#2: Loco, 20MT Falcons (Type 1)**	12 hrs	Tue 16/01/29	Tue 16/01/29
75	**Train#3: Loco, 10LD Falcons (Type 1), 10MT Falcons**	16 hrs	Tue 16/01/29	Tue 16/01/29



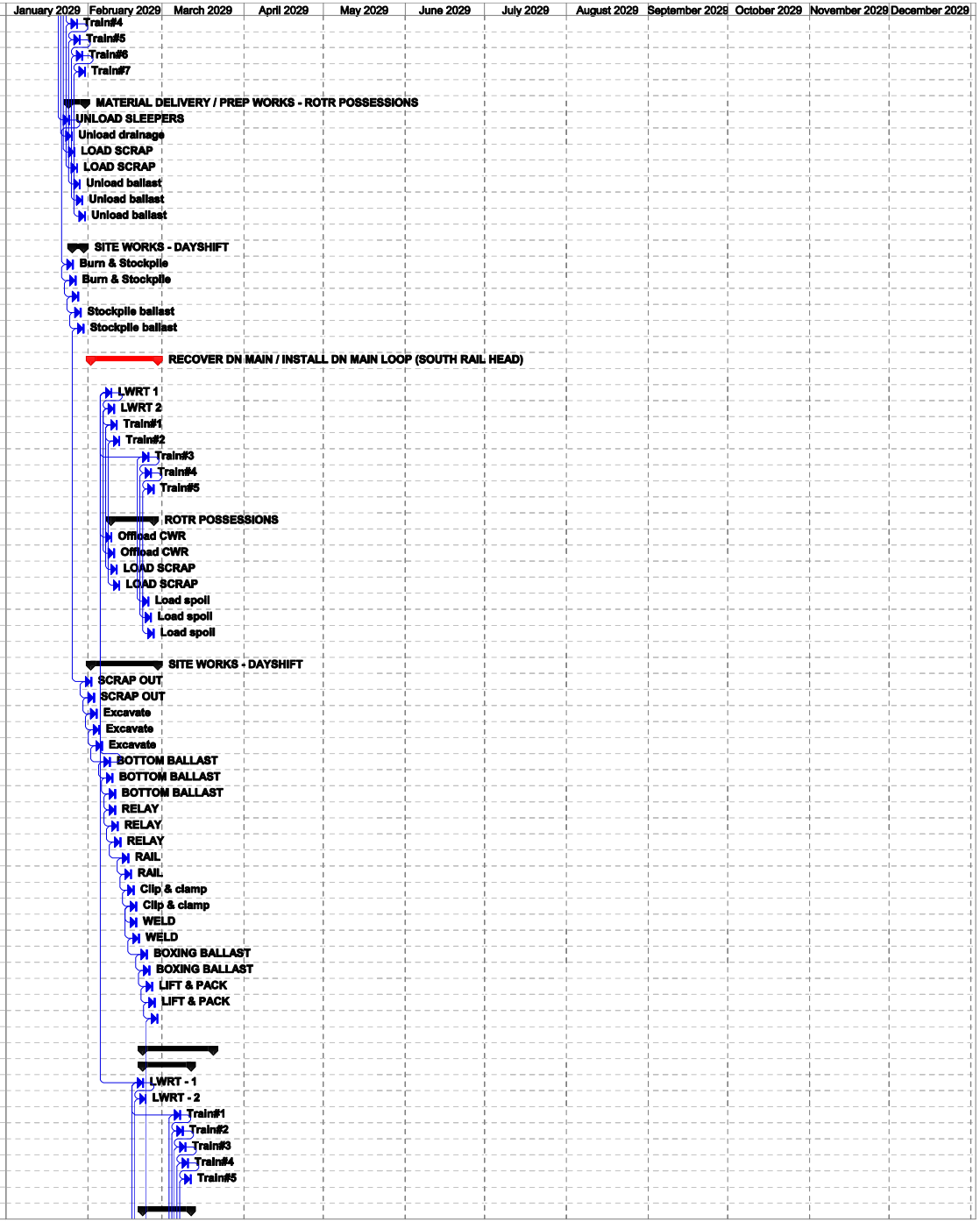
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
76	Train#4: Loco, 20LD Falcons	20 hrs	Tue 16/01/29	Tue 16/01/29
77	Train#5: Loco (TSO), 10LD Salmon, 10LD Falcons, Loco	30 hrs	Tue 16/01/29	Wed 17/01/29
78	TAMPER	16 hrs	Wed 17/01/29	Wed 17/01/29
79				
80	SITE MOBILISATION / PREP WORKS	4.25 hrs	Tue 16/01/29	Tue 16/01/29
81	Brief staff, check tools etc.	1 hr	Tue 16/01/29	Tue 16/01/29
82	Take possession & set up worksite	30 mins	Tue 16/01/29	Tue 16/01/29
83	Train#1 into site on the Up Main & position West of 8063B Pts	30 mins	Tue 16/01/29	Tue 16/01/29
84	Convey Train#2 into site behind Train#1 & cascdae Loco	45 mins	Tue 16/01/29	Tue 16/01/29
85	Convey Train#3 into site behind Train#2 & cascdae Loco	45 mins	Tue 16/01/29	Tue 16/01/29
86	Convey Train#4 into site behind Train#3 & cascdae Loco	45 mins	Tue 16/01/29	Tue 16/01/29
87	Convey Train#5 into site behind Train#4 & cascdae Loco	45 mins	Tue 16/01/29	Tue 16/01/29
88	Take isolation & issue C Permits	1 hr	Tue 16/01/29	Tue 16/01/29
89	S&T disconnections	2 hrs	Tue 16/01/29	Tue 16/01/29
90	On-track plant and position for working E to W	90 mins	Tue 16/01/29	Tue 16/01/29
91				
92	BURN / LIFT OUT	5.5 hrs	Tue 16/01/29	Tue 16/01/29
93	Convey Train#1 through 8063Pts onto Dn Main and position for lifting out	30 mins	Tue 16/01/29	Tue 16/01/29
94	On-track burners & manpower	30 mins	Tue 16/01/29	Tue 16/01/29
95	Burn PL into 30ft panels	90 mins	Tue 16/01/29	Tue 16/01/29
96	Tandem lift 30ft panels onto Osprey Wagons on Train#1 working E to W	3 hrs	Tue 16/01/29	Tue 16/01/29
97				
98	EXCAVATE / BOTTOM BALLAST	13.25 hrs	Tue 16/01/29	Tue 16/01/29
99	Load spoil to Falcon wagons on Train#1 as lifting out progreses	90 mins	Tue 16/01/29	Tue 16/01/29
100	Convey Train#1 to West marker boards	15 mins	Tue 16/01/29	Tue 16/01/29
101	Convey Train#2 into position	15 mins	Tue 16/01/29	Tue 16/01/29
102	Load spoil into Train#2	3 hrs	Tue 16/01/29	Tue 16/01/29
103	Convey Train#2 to West marker boards	15 mins	Tue 16/01/29	Tue 16/01/29
104	Convey Train#3 into position	15 mins	Tue 16/01/29	Tue 16/01/29
105	Load spoil into empty wagons on Train#3. Dig complete	2.5 hrs	Tue 16/01/29	Tue 16/01/29
106	Reposition Train#3 and plant	15 mins	Tue 16/01/29	Tue 16/01/29
107	Unload bottom ballast from Train#3, 3D doze and compact	1.5 hrs	Tue 16/01/29	Tue 16/01/29
108	Convey Train#3 to West marker boards	15 mins	Tue 16/01/29	Tue 16/01/29
109	Convey Train#4 into position	15 mins	Tue 16/01/29	Tue 16/01/29
110	Unload bottom ballast from Train#4, 3D doze and compact	3.5 hrs	Tue 16/01/29	Tue 16/01/29
111	Convey Train#4 to West marker boards	15 mins	Tue 16/01/29	Tue 16/01/29
112				
113	RELAY	7 hrs	Tue 16/01/29	Wed 17/01/29
114	Position Train#5 for relaying	15 mins	Tue 16/01/29	Tue 16/01/29
115	Relay G44s	4 hrs	Tue 16/01/29	Tue 16/01/29
116	Install rail	4 hrs	Tue 16/01/29	Tue 16/01/29
117	Clip up & clamp	4 hrs	Tue 16/01/29	Wed 17/01/29
118	Convey Train#5 clear	15 mins	Tue 16/01/29	Tue 16/01/29
119				
120	TOP BALLAST & TAMP	15 hrs	Wed 17/01/29	Wed 17/01/29
121	Reposition Train#5 and plant for unloading ballast	15 mins	Wed 17/01/29	Wed 17/01/29
122	Unload boxing ballast & profile for Tamper	3 hrs	Wed 17/01/29	Wed 17/01/29
123	Tamper into site & set up	1 hr	Wed 17/01/29	Wed 17/01/29
124	Tamp site - run 1	2.5 hrs	Wed 17/01/29	Wed 17/01/29
125	Tamp site - run 2	2.5 hrs	Wed 17/01/29	Wed 17/01/29
126	Cross over Tamper and carry out Spate Tamp of Dn Main	4 hrs	Wed 17/01/29	Wed 17/01/29
127	Tie up Tamper, convey out of worksite	1 hr	Wed 17/01/29	Wed 17/01/29
128				
129	DEMOBILISE SITE	18.5 hrs	Wed 17/01/29	Thu 18/01/29
130	Weld	8 hrs	Wed 17/01/29	Wed 17/01/29
131	On track MEWPs	1 hr	Wed 17/01/29	Wed 17/01/29
132	OHLE alterations & heights and staggers	12 hrs	Wed 17/01/29	Thu 18/01/29
133	Off track plant	1 hr	Thu 18/01/29	Thu 18/01/29
134	Give up isolation	1 hr	Thu 18/01/29	Thu 18/01/29
135	S&T Reconnections & Testing	5 hrs	Thu 18/01/29	Thu 18/01/29
136	Give up worksite & possession	30 mins	Thu 18/01/29	Thu 18/01/29
137				
138	STAGE 13.2			
139	SITE MOBILISATION & PREP			
140	Set up site for Stage 13, build RRAPs, create fenced ALO zones, material laydown areas, e	10 hrs	Fri 19/01/29	Fri 19/01/29
141	Set up site for Stage 13, build RRAPs, create fenced ALO zones, material laydown areas, e	10 hrs	Sat 20/01/29	Sat 20/01/29
142	Set up site for Stage 13, build RRAPs, create fenced ALO zones, material laydown areas, e	10 hrs	Sun 21/01/29	Sun 21/01/29
143	Set up site for Stage 13, build RRAPs, create fenced ALO zones, material laydown areas, e	10 hrs	Mon 22/01/29	Mon 22/01/29
144	Set up site for Stage 13, build RRAPs, create fenced ALO zones, material laydown areas, e	10 hrs	Tue 23/01/29	Tue 23/01/29
145				
146	RECOVER UP MAIN (CH 4850 - 5750: 900m), DELIVER MATERIALS			
147	TRAINS			
148	Train#1: Loco, 7LD Salmon, Loco	8 hrs	Wed 24/01/29	Wed 24/01/29
149	Train#2: Loco, 8LD Bass (Pipes), 10LD Falcons (Peas)	8 hrs	Thu 25/01/29	Thu 25/01/29
150	Train#3: Loco, 20MT Falcons, Loco	8 hrs	Fri 26/01/29	Fri 26/01/29



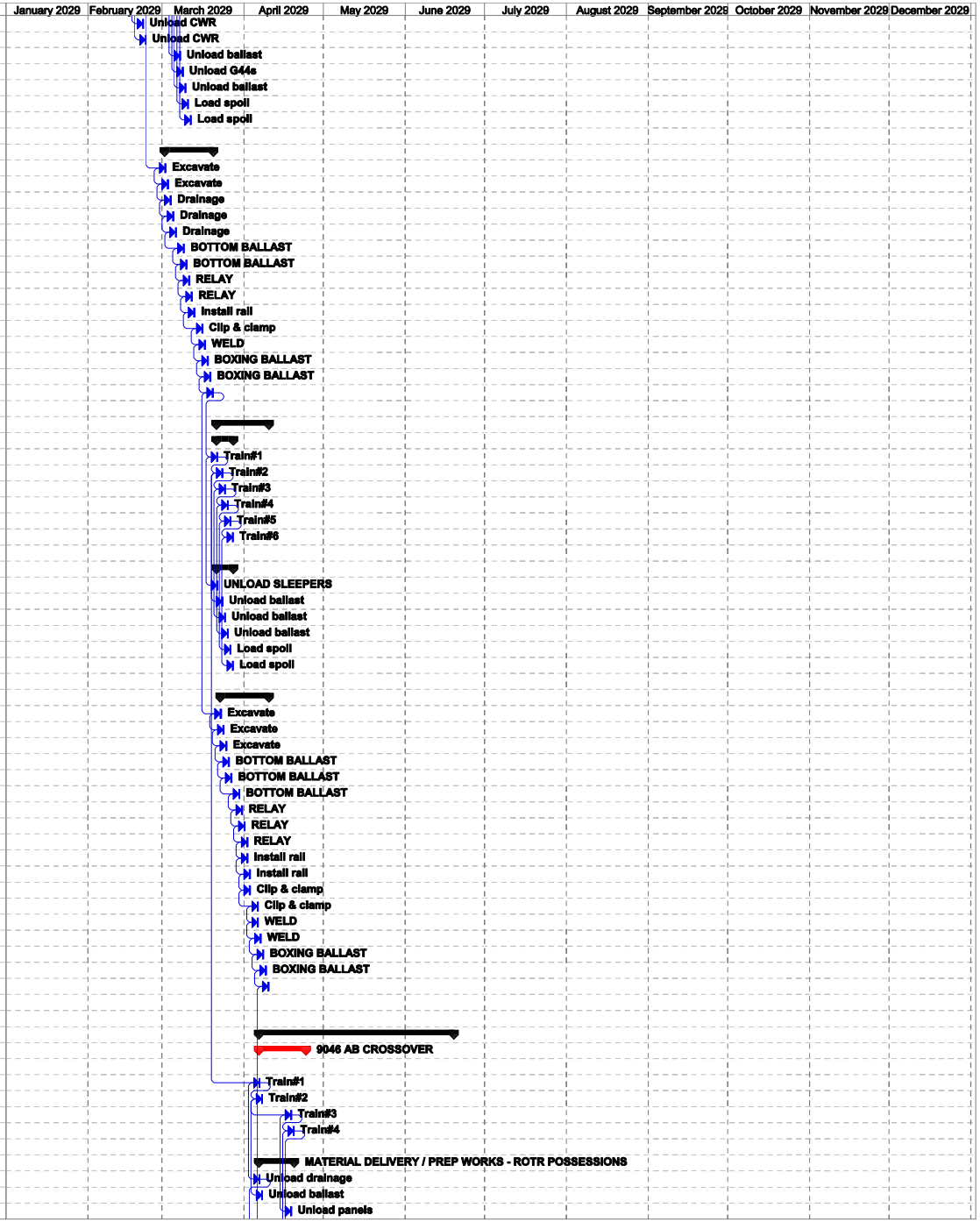
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
151	Train#4: Loco, 20MT Falcons, Loco	8 hrs	Sat 27/01/29	Sat 27/01/29
152	Train#5: Loco, 20LD Falcons (Type 1), Loco	8 hrs	Sun 28/01/29	Sun 28/01/29
153	Train#6: Loco, 20LD Falcons, Loco	8 hrs	Mon 29/01/29	Mon 29/01/29
154	Train#7: Loco, 20LD Falcons, Loco	8 hrs	Tue 30/01/29	Tue 30/01/29
155				
156	MATERIAL DELIVERY / PREP WORKS - ROTR POSSESSIONS			
157	Unload G44s from Train#1 on South Rail Head into wideway	8 hrs	Wed 24/01/29	Wed 24/01/29
158	Unload drainage materials from Train#2 on South Rail Head	8 hrs	Thu 25/01/29	Thu 25/01/29
159	Load scrap rails to front 5 wagons & scrap sleepers to rear wagons of Train#3 on South	8 hrs	Fri 26/01/29	Fri 26/01/29
160	Load scrap rails to front 5 wagons & scrap sleepers to rear wagons of Train#4 on South	8 hrs	Sat 27/01/29	Sat 27/01/29
161	Unload type 1 from Train#5 on South Rail Head	8 hrs	Sun 28/01/29	Sun 28/01/29
162	Unload ballast from Train#6 on South Rail Head	8 hrs	Mon 29/01/29	Mon 29/01/29
163	Unload ballast from Train#7 on South Rail Head	8 hrs	Tue 30/01/29	Tue 30/01/29
164				
165	SITE WORKS - DAYSHIFT			
166	Move G44s to laydown area. Burn Up Main into 20fts, uniclip, load rails and sleepers int	10 hrs	Fri 26/01/29	Fri 26/01/29
167	Move G44s to laydown area. Burn Up Main into 20fts, uniclip, load rails and sleepers int	10 hrs	Sat 27/01/29	Sat 27/01/29
168	Create laydown area for delivery of ballast for Dn Loop	10 hrs	Sun 28/01/29	Sun 28/01/29
169	Position unloaded ballast from Train#4 in laydown area	10 hrs	Mon 29/01/29	Mon 29/01/29
170	Position unloaded ballast from Train#5 in laydown area	10 hrs	Tue 30/01/29	Tue 30/01/29
171				
172	RECOVER DN MAIN / INSTALL DN MAIN LOOP (SOUTH RAIL HEAD)			
173	TRAINS			
174	LWRT - 1 (8 x 108m)	8 hrs	Fri 09/02/29	Fri 09/02/29
175	LWRT - 2 (8 x 108m)	8 hrs	Sat 10/02/29	Sat 10/02/29
176	Train#1: Loco, 20MT Falcons, Loco - Scrap (Train on Dn Main - East)	8 hrs	Sun 11/02/29	Sun 11/02/29
177	Train#2: Loco, 20MT Falcons, Loco - Scrap (Train on Dn Main - East)	8 hrs	Mon 12/02/29	Mon 12/02/29
178	Train#3: Loco, 20MT Falcons, Loco - Spoil (Train on Dn Main - East)	8 hrs	Fri 23/02/29	Fri 23/02/29
179	Train#4: Loco, 20MT Falcons, Loco - Spoil (Train on Dn Main - East)	8 hrs	Sat 24/02/29	Sat 24/02/29
180	Train#5: Loco, 20MT Falcons, Loco - Spoil (Train on Dn Main - East)	8 hrs	Sun 25/02/29	Sun 25/02/29
181				
182	ROTR POSSESSIONS			
183	Take delivery of 8 x 108m Rails in the Dn Main 4ft. TRTs position in wideway to West of	8 hrs	Fri 09/02/29	Fri 09/02/29
184	Take delivery of 8 x 108m Rails in the Dn Main 4ft. TRTs position in wideway to West of	8 hrs	Sat 10/02/29	Sat 10/02/29
185	Load stockpiled scrap rail & sleepers to Train#1 on the Dn Main	8 hrs	Sun 11/02/29	Sun 11/02/29
186	Load stockpiled scrap rail & sleepers to Train#2 on the Dn Main	8 hrs	Mon 12/02/29	Mon 12/02/29
187	Load stockpiled spoil to Train#3 on the Dn Main	8 hrs	Fri 23/02/29	Fri 23/02/29
188	Load stockpiled spoil to Train#4 on the Dn Main	8 hrs	Sat 24/02/29	Sat 24/02/29
189	Load stockpiled spoil to Train#5 on the Dn Main	8 hrs	Sun 25/02/29	Sun 25/02/29
190				
191	SITE WORKS - DAYSHIFT			
192	Burn Dn Main into 20fts, uniclip, load rails and sleepers into stockpiles for loading - Shift	10 hrs	Fri 02/02/29	Fri 02/02/29
193	Burn Dn Main into 20fts, uniclip, load rails and sleepers into stockpiles for loading - Shift	10 hrs	Sat 03/02/29	Sat 03/02/29
194	Excavate Dn Main Loop (including cess drain) working W to E. Load spoil to Moxy's and	10 hrs	Sun 04/02/29	Sun 04/02/29
195	Excavate Dn Main Loop (including cess drain) working W to E. Load spoil to Moxy's and	10 hrs	Mon 05/02/29	Mon 05/02/29
196	Excavate Dn Main Loop (including cess drain) working W to E. Load spoil to Moxy's and	10 hrs	Tue 06/02/29	Tue 06/02/29
197	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 1 of 3	10 hrs	Fri 09/02/29	Fri 09/02/29
198	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 2 of 3	10 hrs	Sat 10/02/29	Sat 10/02/29
199	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 3 of 3. Bottom	10 hrs	Sun 11/02/29	Sun 11/02/29
200	Relay sleepers from stockpile behind bottom ballast - Shift 1 of 3	10 hrs	Sun 11/02/29	Sun 11/02/29
201	Relay sleepers from stockpile behind bottom ballast - Shift 2 of 3	10 hrs	Mon 12/02/29	Mon 12/02/29
202	Relay sleepers from stockpile behind bottom ballast - Shift 3 of 3	10 hrs	Tue 13/02/29	Tue 13/02/29
203	Install CWR with TRTs	10 hrs	Fri 16/02/29	Fri 16/02/29
204	Install CWR with TRTs	10 hrs	Sat 17/02/29	Sat 17/02/29
205	Clip up and clamp	10 hrs	Sun 18/02/29	Sun 18/02/29
206	Clip up and clamp	10 hrs	Mon 19/02/29	Mon 19/02/29
207	Weld joints	10 hrs	Mon 19/02/29	Mon 19/02/29
208	Weld joints	10 hrs	Tue 20/02/29	Tue 20/02/29
209	Run in boxing ballast & profile	10 hrs	Fri 23/02/29	Fri 23/02/29
210	Run in boxing ballast & profile	10 hrs	Sat 24/02/29	Sat 24/02/29
211	Lift & pack Rail Head to tolerance for running trains	10 hrs	Sun 25/02/29	Sun 25/02/29
212	Lift & pack Rail Head to tolerance for running trains	10 hrs	Mon 26/02/29	Mon 26/02/29
213	Clear and reconfigure laydown areas for next stage	10 hrs	Tue 27/02/29	Tue 27/02/29
214				
215	INSTALL UP MAIN LOOP: CH 4900-5300 (400M)			
216	TRAINS			
217	LWRT - 1 (16 x 108m)	8 hrs	Wed 21/02/29	Wed 21/02/29
218	LWRT - 2 (8 x 108m)	8 hrs	Thu 22/02/29	Thu 22/02/29
219	Train#1: Loco, 20LD Falcons (Type 1), Loco	8 hrs	Wed 07/03/29	Wed 07/03/29
220	Train#2: Loco, 4LD Salmon, Loco	8 hrs	Thu 08/03/29	Thu 08/03/29
221	Train#3: Loco, 20LD Falcons, Loco	8 hrs	Fri 09/03/29	Fri 09/03/29
222	Train#4: Loco, 20MT Falcons, Loco - Spoil	8 hrs	Sat 10/03/29	Sat 10/03/29
223	Train#5: Loco, 20MT Falcons, Loco - Spoil	8 hrs	Sun 11/03/29	Sun 11/03/29
224				
225	ROTR POSSESSIONS			



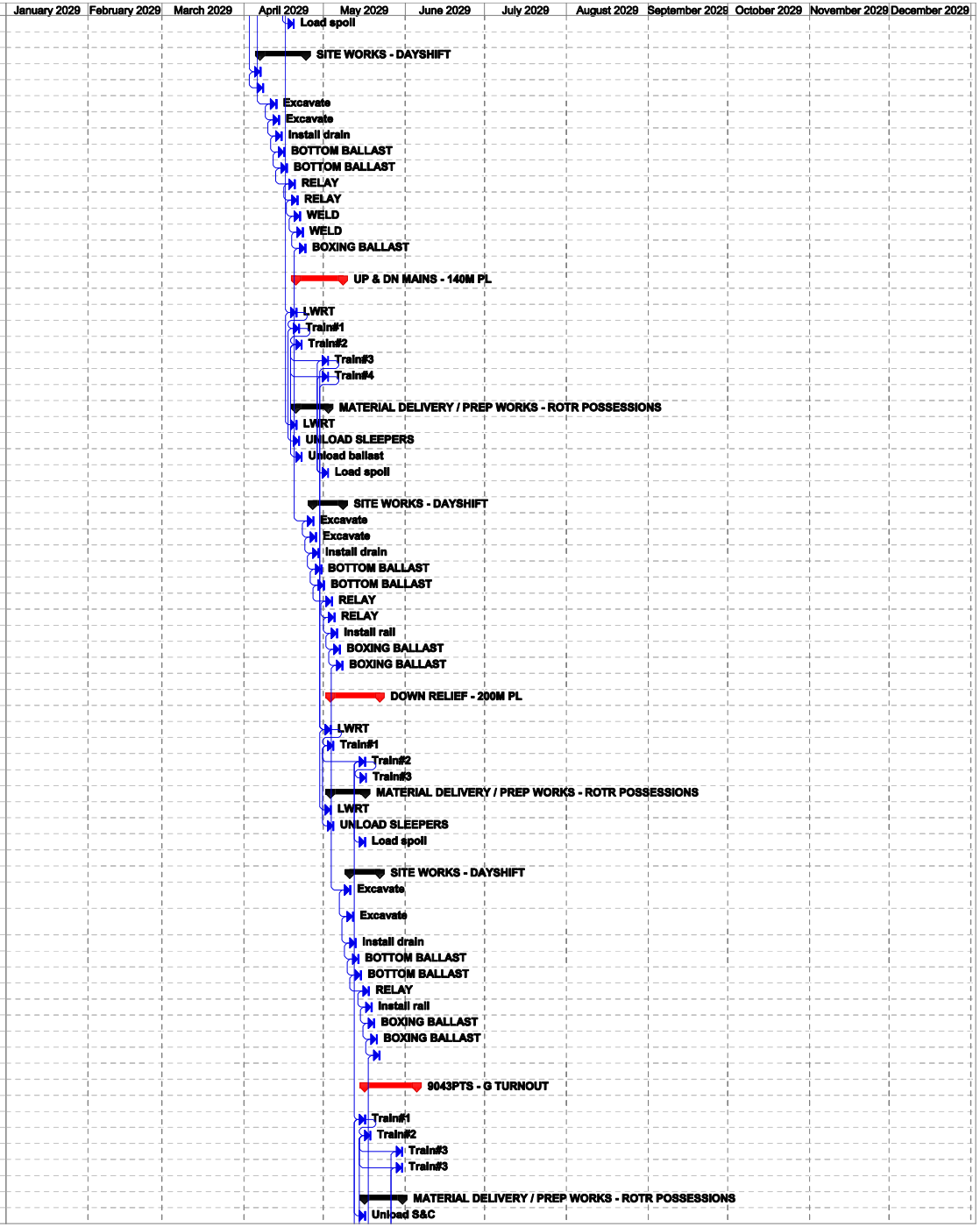
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
226	Take delivery of 16 x 108m Rails in the Dn Main 4ft. TRTs position in wideway to West c	8 hrs	Wed 21/02/29	Wed 21/02/29
227	Take delivery of 6 x 108m Rails in the Dn Main 4ft. TRTs position in wideway to West of	8 hrs	Thu 22/02/29	Thu 22/02/29
228	Unload ballast from Train#1 in South Rail Head	8 hrs	Wed 07/03/29	Wed 07/03/29
229	Unload sleepers from Train#2 in South Rail Head	8 hrs	Thu 08/03/29	Thu 08/03/29
230	Unload ballast from Train#3 in South Rail Head	8 hrs	Fri 09/03/29	Fri 09/03/29
231	Load stockpiled spoil to Train#4 in South Rail Head	8 hrs	Sat 10/03/29	Sat 10/03/29
232	Load stockpiled spoil to Train#5 in South Rail Head	8 hrs	Sun 11/03/29	Sun 11/03/29
233				
234	SITE WORKS - DAYSHIFT			
235	Excavate Up Main Loop working W to E. Load spoil to Moxy's and stockpile for loading -	10 hrs	Fri 02/03/29	Fri 02/03/29
236	Excavate Up Main Loop working W to E. Load spoil to Moxy's and stockpile for loading -	10 hrs	Sat 03/03/29	Sat 03/03/29
237	Excavate & install 6ft drain - Shift 1 of 3	10 hrs	Sun 04/03/29	Sun 04/03/29
238	Excavate & install 6ft drain - Shift 2 of 3	10 hrs	Mon 05/03/29	Mon 05/03/29
239	Excavate & install 6ft drain - Shift 3 of 3	10 hrs	Tue 06/03/29	Tue 06/03/29
240	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 1 of 2	10 hrs	Fri 09/03/29	Fri 09/03/29
241	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 2 of 2. Bottom	10 hrs	Sat 10/03/29	Sat 10/03/29
242	Relay sleepers from stockpile behind bottom ballast - Shift 1 of 2	10 hrs	Sun 11/03/29	Sun 11/03/29
243	Relay sleepers from stockpile behind bottom ballast - Shift 2 of 2	10 hrs	Mon 12/03/29	Mon 12/03/29
244	Install CWR with TRTs	10 hrs	Tue 13/03/29	Tue 13/03/29
245	Clip up and clamp	10 hrs	Fri 16/03/29	Fri 16/03/29
246	Weld joints	10 hrs	Sat 17/03/29	Sat 17/03/29
247	Run in boxing ballast & profile	10 hrs	Sun 18/03/29	Sun 18/03/29
248	Run in boxing ballast & profile	10 hrs	Mon 19/03/29	Mon 19/03/29
249	Clear and reconfigure laydown areas for next stage	10 hrs	Tue 20/03/29	Tue 20/03/29
250				
251	INSTALL DN MAIN: CH 4850-5490 (640M)			
252	TRAINS			
253	Train#1: Loco, 7LD Salmon, Loco	8 hrs	Wed 21/03/29	Wed 21/03/29
254	Train#2: Loco, 20LD Falcons (type 1), Loco	8 hrs	Fri 23/03/29	Fri 23/03/29
255	Train#3: Loco, 20LD Falcons, Loco	8 hrs	Sat 24/03/29	Sat 24/03/29
256	Train#4: Loco, 20LD Falcons, Loco	8 hrs	Sun 25/03/29	Sun 25/03/29
257	Train#5: Loco, 20MT Falcons, Loco - Spoil	8 hrs	Mon 26/03/29	Mon 26/03/29
258	Train#6: Loco, 20MT Falcons, Loco - Spoil	8 hrs	Tue 27/03/29	Tue 27/03/29
259				
260	ROTR POSSESSIONS			
261	Unload sleepers from Train#1 in South Rail Head	8 hrs	Wed 21/03/29	Wed 21/03/29
262	Unload ballast from Train#2 in South Rail Head	8 hrs	Fri 23/03/29	Fri 23/03/29
263	Unload ballast from Train#3 in South Rail Head	8 hrs	Sat 24/03/29	Sat 24/03/29
264	Unload ballast from Train#4 in South Rail Head	8 hrs	Sun 25/03/29	Sun 25/03/29
265	Load stockpiled spoil to Train#5 in South Rail Head	8 hrs	Mon 26/03/29	Mon 26/03/29
266	Load stockpiled spoil to Train#6 in South Rail Head	8 hrs	Tue 27/03/29	Tue 27/03/29
267				
268	SITE WORKS - DAYSHIFT			
269	Excavate Dn Main working W to E. Load spoil to Moxy's and stockpile for loading - Shift	10 hrs	Fri 23/03/29	Fri 23/03/29
270	Excavate Dn Main working W to E. Load spoil to Moxy's and stockpile for loading - Shift	10 hrs	Sat 24/03/29	Sat 24/03/29
271	Excavate Dn Main working W to E. Load spoil to Moxy's and stockpile for loading - Shift	10 hrs	Sun 25/03/29	Sun 25/03/29
272	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 1 of 3	10 hrs	Mon 26/03/29	Mon 26/03/29
273	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 2 of 3	10 hrs	Tue 27/03/29	Tue 27/03/29
274	Run out bottom ballast from stockpile, 3D doze & compact W to E - Shift 3 of 3	10 hrs	Fri 30/03/29	Fri 30/03/29
275	Relay sleepers from stockpile behind bottom ballast - Shift 1 of 3	10 hrs	Sat 31/03/29	Sat 31/03/29
276	Relay sleepers from stockpile behind bottom ballast - Shift 2 of 3	10 hrs	Sun 01/04/29	Sun 01/04/29
277	Relay sleepers from stockpile behind bottom ballast - Shift 3 of 3	10 hrs	Mon 02/04/29	Mon 02/04/29
278	Install CWR with TRTs	10 hrs	Mon 02/04/29	Mon 02/04/29
279	Install CWR with TRTs	10 hrs	Tue 03/04/29	Tue 03/04/29
280	Clip up and clamp	10 hrs	Tue 03/04/29	Tue 03/04/29
281	Clip up and clamp	10 hrs	Fri 06/04/29	Fri 06/04/29
282	Weld joints	10 hrs	Fri 06/04/29	Fri 06/04/29
283	Weld joints	10 hrs	Sat 07/04/29	Sat 07/04/29
284	Run in boxing ballast & profile	10 hrs	Sun 08/04/29	Sun 08/04/29
285	Run in boxing ballast & profile	10 hrs	Mon 09/04/29	Mon 09/04/29
286	Clear and reconfigure laydown areas for next stage. Stage 13.1 Complete	10 hrs	Tue 10/04/29	Tue 10/04/29
287				
288				
289	STAGE 13.3			
290	9046 AB CROSSOVER			
291	TRAINS			
292	Train#1: Loco, 5LD Bass (Pipes), 5LD Falcons (Type 1), 5LD Falcons (Peas)	8 hrs	Fri 06/04/29	Fri 06/04/29
293	Train#2: Loco, 15LD Falcons, Loco	8 hrs	Sat 07/04/29	Sat 07/04/29
294	Train#3: Loco, 4LD Tilting Wagons, 6LD Salmon, Loco	8 hrs	Wed 18/04/29	Wed 18/04/29
295	Train#4: Loco, 15MT Falcons, Loco	8 hrs	Thu 19/04/29	Thu 19/04/29
296				
297	MATERIAL DELIVERY / PREP WORKS - ROTR POSSESSIONS			
298	Unload drainage materials from Train#1 on Dn Main	8 hrs	Fri 06/04/29	Fri 06/04/29
299	Unload ballast from Train#2 on Dn Main	8 hrs	Sat 07/04/29	Sat 07/04/29
300	Unload panels from Train#3 on South Rail Head	8 hrs	Wed 18/04/29	Wed 18/04/29



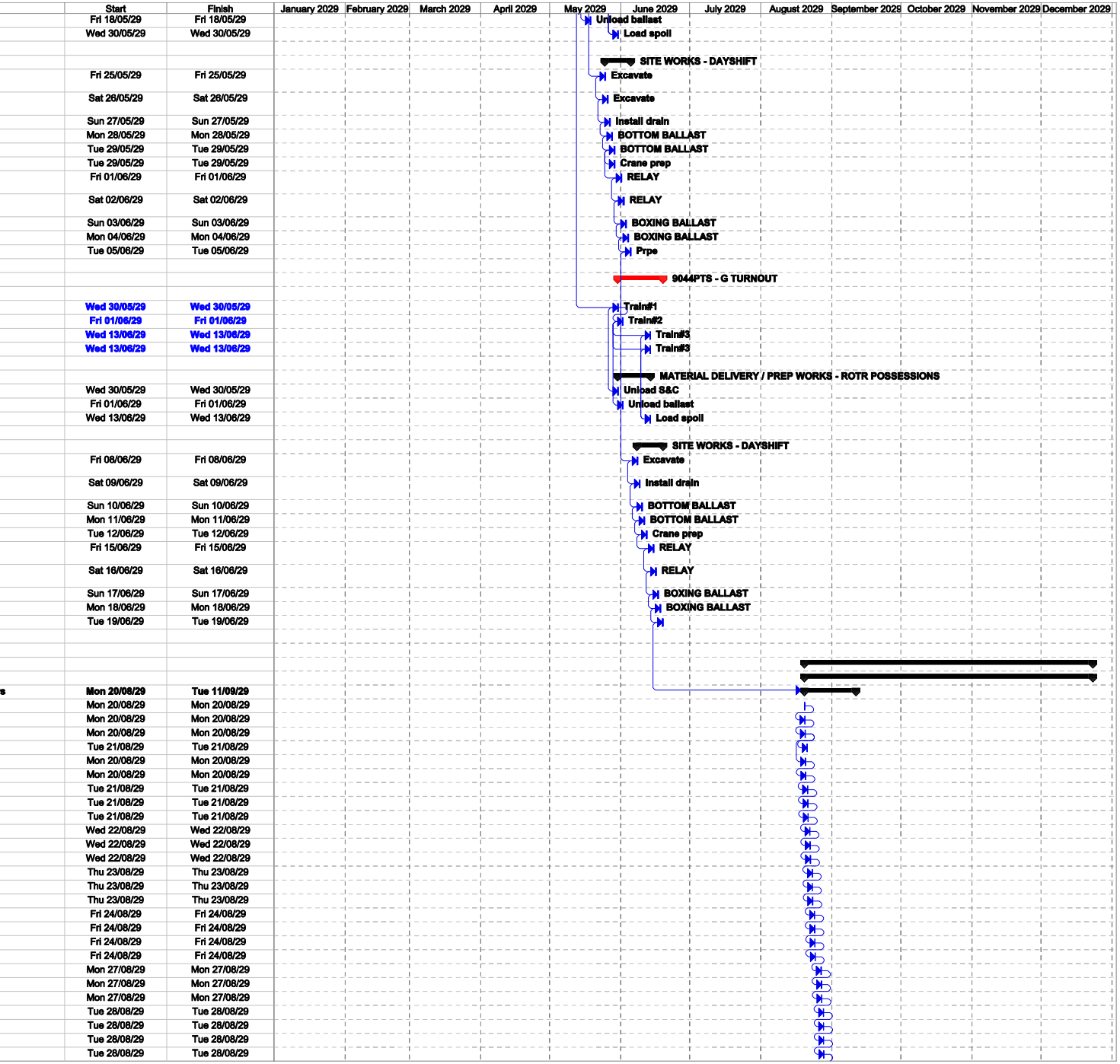
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
301	Load spoil to Train#4 on Dn Main	8 hrs	Thu 19/04/29	Thu 19/04/29
302				
303	SITE WORKS - DAYSHIFT			
304	Convey drainage materials to laydown area	10 hrs	Sat 07/04/29	Sat 07/04/29
305	Convey ballast to laydown area	10 hrs	Sun 08/04/29	Sun 08/04/29
306	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 1	10 hrs	Fri 13/04/29	Fri 13/04/29
307	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 2	10 hrs	Sat 14/04/29	Sat 14/04/29
308	Install drainage and backfill	10 hrs	Sun 15/04/29	Sun 15/04/29
309	Install ballast from stockpile, 3D doze & compact for S&C footprint - Shift 1 of 2	10 hrs	Mon 16/04/29	Mon 16/04/29
310	Install ballast from stockpile, 3D doze & compact for S&C footprint - Shift 2 of 2	10 hrs	Tue 17/04/29	Tue 17/04/29
311	Relay S&C and temporary slave panels with Crawler crane. Remove slave bearers & rai	10 hrs	Fri 20/04/29	Fri 20/04/29
312	Relay S&C and temporary slave panels with Crawler crane. Remove slave bearers & rai	10 hrs	Sat 21/04/29	Sat 21/04/29
313	Weld joints	10 hrs	Sun 22/04/29	Sun 22/04/29
314	Weld joints	10 hrs	Mon 23/04/29	Mon 23/04/29
315	Run in boxing ballast & profile. Prep areas for next section	10 hrs	Tue 24/04/29	Tue 24/04/29
316				
317	UP & DN MAINS - 140M PL			
318	TRAINS			
319	LWRT - 6 x 108m Rails	8 hrs	Fri 20/04/29	Fri 20/04/29
320	Train#1: Loco, 5LD Salmon (G44s), Loco	8 hrs	Sat 21/04/29	Sat 21/04/29
321	Train#2: Loco, 15LD Falcons, Loco	8 hrs	Sun 22/04/29	Sun 22/04/29
322	Train#3: Loco, 20MT Falcons, Loco	8 hrs	Wed 02/05/29	Wed 02/05/29
323	Train#4: Loco, 20MT Falcons (Type 1), Loco	8 hrs	Wed 02/05/29	Wed 02/05/29
324				
325	MATERIAL DELIVERY / PREP WORKS - ROTR POSSESSIONS			
326	Unload CWR on Dn Main. TRTs position in wideway	8 hrs	Fri 20/04/29	Fri 20/04/29
327	Unload sleepers from Train#1 on Dn Main into wideway	8 hrs	Sat 21/04/29	Sat 21/04/29
328	Unload ballast from Train#2 on Dn Main into wideway	8 hrs	Sun 22/04/29	Sun 22/04/29
329	Load stockpiled spoil to Train#3 on Dn Main	8 hrs	Wed 02/05/29	Wed 02/05/29
330				
331	SITE WORKS - DAYSHIFT			
332	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 1	10 hrs	Fri 27/04/29	Fri 27/04/29
333	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 2	10 hrs	Sat 28/04/29	Sat 28/04/29
334	Install drainage and backfill	10 hrs	Sun 29/04/29	Sun 29/04/29
335	Install Type 1 from stockpile, 3D doze & compact - Shift 1 of 2	10 hrs	Mon 30/04/29	Mon 30/04/29
336	Install ballast from stockpile, 3D doze & compact - Shift 2 of 2	10 hrs	Tue 01/05/29	Tue 01/05/29
337	Install G44s from stockpile - Dn Main	10 hrs	Fri 04/05/29	Fri 04/05/29
338	Install G44s from stockpile - Up Main	10 hrs	Sat 05/05/29	Sat 05/05/29
339	Install CWR, clip up and clamp - Both Up & Dn Mains	10 hrs	Sun 06/05/29	Sun 06/05/29
340	Run in boxing ballast & profile - Shift 1 of 2	10 hrs	Mon 07/05/29	Mon 07/05/29
341	Run in boxing ballast & profile - Shift 2 of 2. Clear & prep areas for next section	10 hrs	Tue 08/05/29	Tue 08/05/29
342				
343	DOWN RELIEF - 200M PL			
344	TRAINS			
345	LWRT - 4 x 108m Rails	8 hrs	Thu 03/05/29	Thu 03/05/29
346	Train#1: Loco, 20LD Falcons, Loco	8 hrs	Fri 04/05/29	Fri 04/05/29
347	Train#2: Loco, 15MT Falcons, Loco	8 hrs	Wed 16/05/29	Wed 16/05/29
348	Train#3: Loco 15LD Falcons (Type 1), Loco	8 hrs	Wed 16/05/29	Thu 17/05/29
349	MATERIAL DELIVERY / PREP WORKS - ROTR POSSESSIONS			
350	Unload CWR on Dn Main. TRTs position in wideway	8 hrs	Thu 03/05/29	Thu 03/05/29
351	Unload ballast from Train#1 on Dn Main into wideway	8 hrs	Fri 04/05/29	Fri 04/05/29
352	Load stockpiled spoil to Train#2 on Dn Main	8 hrs	Wed 16/05/29	Wed 16/05/29
353				
354	SITE WORKS - DAYSHIFT			
355	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 1 of 2	10 hrs	Fri 11/05/29	Fri 11/05/29
356	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 2 of 2	10 hrs	Sat 12/05/29	Sat 12/05/29
357	Install drainage and backfill	10 hrs	Sun 13/05/29	Sun 13/05/29
358	Install ballast from stockpile, 3D doze & compact - Shift 1 of 2	10 hrs	Mon 14/05/29	Mon 14/05/29
359	Install ballast from stockpile, 3D doze & compact - Shift 2 of 2	10 hrs	Tue 15/05/29	Tue 15/05/29
360	Install G44s from stockpile	10 hrs	Fri 18/05/29	Fri 18/05/29
361	Install CWR, clip up and clamp	10 hrs	Sat 19/05/29	Sat 19/05/29
362	Run in boxing ballast & profile - Shift 1 of 2	10 hrs	Sun 20/05/29	Sun 20/05/29
363	Run in boxing ballast & profile - Shift 2 of 2	10 hrs	Mon 21/05/29	Mon 21/05/29
364	Clear and prep areas for next section	10 hrs	Tue 22/05/29	Tue 22/05/29
365				
366	9043PTS - G TURNOUT			
367	TRAINS			
368	Train#1: Loco, 6LD Tilters, 6LD Salmon, Loco	8 hrs	Wed 16/05/29	Wed 16/05/29
369	Train#2: Loco, 15LD Falcons, Loco	8 hrs	Fri 18/05/29	Fri 18/05/29
370	Train#3: Loco, 20LD Falcons (Type 1), Loco	8 hrs	Wed 30/05/29	Wed 30/05/29
371	Train#4: Loco, 20MT Falcons, Loco	8 hrs	Wed 30/05/29	Wed 30/05/29
372				
373	MATERIAL DELIVERY / PREP WORKS - ROTR POSSESSIONS			
374	Offload S&C, PL panels and ironwork with Crawler Crane from Train#1 on South Rail He	8 hrs	Wed 16/05/29	Wed 16/05/29



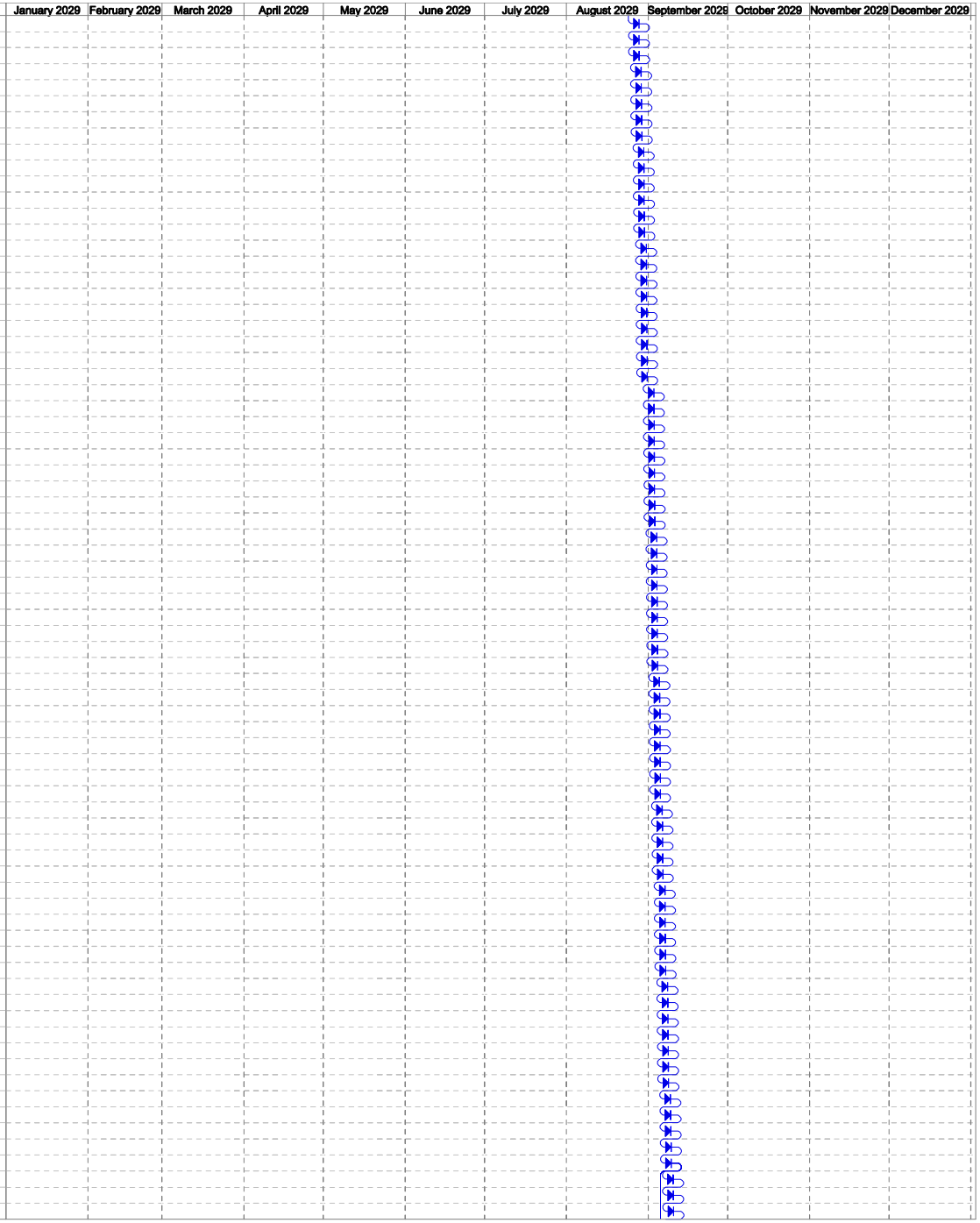
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
375	Unload ballast from Train#2 on Dn Main into wideway	8 hrs	Fri 18/05/29	Fri 18/05/29
376	Load stockpiled spoil to Train#3 on Dn Main	8 hrs	Wed 30/05/29	Wed 30/05/29
377				
378	SITE WORKS - DAYSHIFT			
379	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 1 of 2	10 hrs	Fri 25/05/29	Fri 25/05/29
380	Excavate formation and drainage, load spoil to Moxys and stockpile for loading - Shift 2 of 2	10 hrs	Sat 26/05/29	Sat 26/05/29
381	Install drainage and backfill	10 hrs	Sun 27/05/29	Sun 27/05/29
382	Install ballast from stockpile, 3D doze & compact - Shift 1 of 2	10 hrs	Mon 28/05/29	Mon 28/05/29
383	Install ballast from stockpile, 3D doze & compact - Shift 2 of 2	10 hrs	Tue 29/05/29	Tue 29/05/29
384	Create access routes / pads for Crawler Crane	10 hrs	Tue 29/05/29	Tue 29/05/29
385	Relay S&C and temporary slave panels with Crawler crane. Remove slave bearers & rails and install ironwork - Shift 1 of 2	10 hrs	Fri 01/06/29	Fri 01/06/29
386	Relay S&C and temporary slave panels with Crawler crane. Remove slave bearers & rails and install ironwork - Shift 2 of 2	10 hrs	Sat 02/06/29	Sat 02/06/29
387	Run in boxing ballast & profile - Shift 1 of 2	10 hrs	Sun 03/06/29	Sun 03/06/29
388	Run in boxing ballast & profile - Shift 2 of 2	10 hrs	Mon 04/06/29	Mon 04/06/29
389	Clear and prep areas for next section	10 hrs	Tue 05/06/29	Tue 05/06/29
390				
391	9044PTS - G TURNOUT			
392	TRAINS			
393	Train#1: Loco, 6LD Tilters, 6LD Salmon, Loco	8 hrs	Wed 30/05/29	Wed 30/05/29
394	Train#2: Loco, 15LD Falcons, Loco	8 hrs	Fri 01/06/29	Fri 01/06/29
395	Train#3: Loco, 20LD Falcons (Type 1), Loco	8 hrs	Wed 13/06/29	Wed 13/06/29
396	Train#4: Loco, 20MT Falcons, Loco	8 hrs	Wed 13/06/29	Wed 13/06/29
397				
398	MATERIAL DELIVERY / PREP WORKS - ROTR POSSESSIONS			
399	Offload S&C, PL panels and ironwork with Crawler Crane from Train#1 on South Rail He	8 hrs	Wed 30/05/29	Wed 30/05/29
400	Unload ballast from Train#2 on South Rail Head into 10ft	8 hrs	Fri 01/06/29	Fri 01/06/29
401	Load stockpiled spoil to Train#3 on South Rail Head	8 hrs	Wed 13/06/29	Wed 13/06/29
402				
403	SITE WORKS - DAYSHIFT			
404	Excavate formation, load spoil to Moxys and stockpile for loading to South Rail Head - Shift 1 of 2	10 hrs	Fri 08/06/29	Fri 08/06/29
405	Excavate formation, load spoil to Moxys and stockpile for loading to South Rail Head - Shift 2 of 2	10 hrs	Sat 09/06/29	Sat 09/06/29
406	Install ballast from stockpile, 3D doze & compact - Shift 1 of 2	10 hrs	Sun 10/06/29	Sun 10/06/29
407	Install ballast from stockpile, 3D doze & compact - Shift 2 of 2	10 hrs	Mon 11/06/29	Mon 11/06/29
408	Create access routes / pads for Crawler Crane	10 hrs	Tue 12/06/29	Tue 12/06/29
409	Relay S&C and temporary slave panels with Crawler crane. Remove slave bearers & rails and install ironwork - Shift 1 of 2	10 hrs	Fri 15/06/29	Fri 15/06/29
410	Relay S&C and temporary slave panels with Crawler crane. Remove slave bearers & rails and install ironwork - Shift 2 of 2	10 hrs	Sat 16/06/29	Sat 16/06/29
411	Run in boxing ballast & profile - Shift 1 of 2	10 hrs	Sun 17/06/29	Sun 17/06/29
412	Run in boxing ballast & profile - Shift 2 of 2	10 hrs	Mon 18/06/29	Mon 18/06/29
413	Clear 10fts, laydown areas and site tidy area. SECTION 13.3 COMPLETE	10 hrs	Tue 19/06/29	Tue 19/06/29
414				
415				
416	STAGE 14			
417	JULY TO DECEMEBER 2029			
418	OHLE Works	538.5 hrs	Mon 20/08/29	Tue 11/09/29
419	J-04-29 Recover TTC Boom	2 hrs	Mon 20/08/29	Mon 20/08/29
420	J-04-29 Recover Mast & Foundation	3 hrs	Mon 20/08/29	Mon 20/08/29
421	J-04-29A Transfer Existing OLE and Re-dropper	4 hrs	Mon 20/08/29	Mon 20/08/29
422	J-04-32C Transfer Existing OLE and Re-dropper	4 hrs	Tue 21/08/29	Tue 21/08/29
423	J-04-34 Recover TTC Boom	2 hrs	Mon 20/08/29	Mon 20/08/29
424	J-04-34 Recover Mast & Foundation	3 hrs	Mon 20/08/29	Mon 20/08/29
425	J-04-36A Transfer Existing OLE and Re-dropper	4 hrs	Tue 21/08/29	Tue 21/08/29
426	J-04-39 Recover TTC Boom	2 hrs	Tue 21/08/29	Tue 21/08/29
427	J-04-39 Recover Mast & Foundation	3 hrs	Tue 21/08/29	Tue 21/08/29
428	J-04-40A Erect TTC Boom	2 hrs	Wed 22/08/29	Wed 22/08/29
429	J-04-40A Install Drop Tube & Registration (2 No.)	2 hrs	Wed 22/08/29	Wed 22/08/29
430	J-04-40A Transfer Existing OLE and Re-dropper	4 hrs	Wed 22/08/29	Wed 22/08/29
431	J-04-42A Erect TTC Boom	2 hrs	Thu 23/08/29	Thu 23/08/29
432	J-04-42A Install Drop Tube & Registration (2 No.)	2 hrs	Thu 23/08/29	Thu 23/08/29
433	J-04-42A Transfer Existing OLE and Re-dropper	4 hrs	Thu 23/08/29	Thu 23/08/29
434	J-04-43 Recover TTC Boom	2 hrs	Fri 24/08/29	Fri 24/08/29
435	J-04-43 Recover Mast & Foundation	3 hrs	Fri 24/08/29	Fri 24/08/29
436	J-04-43A Erect TTC Boom	2 hrs	Fri 24/08/29	Fri 24/08/29
437	J-04-43A Install Drop Tube & Registration (2 No.)	2 hrs	Fri 24/08/29	Fri 24/08/29
438	J-04-43A Transfer Existing OLE and Re-dropper	4 hrs	Mon 27/08/29	Mon 27/08/29
439	J-04-44 Recover TTC Boom	2 hrs	Mon 27/08/29	Mon 27/08/29
440	J-04-44 Recover Mast & Foundation	3 hrs	Mon 27/08/29	Mon 27/08/29
441	J-04-49B Install Drop Tube & Anchor SPS (A212)	1 hr	Tue 28/08/29	Tue 28/08/29
442	J-04-49B Install Drop Tube & Anchor SPS (A213)	1 hr	Tue 28/08/29	Tue 28/08/29
443	J-04-52D Install Drop Tube & Registration (A212)	1 hr	Tue 28/08/29	Tue 28/08/29
444	J-04-52D Install Drop Tube & Registration (A213)	1 hr	Tue 28/08/29	Tue 28/08/29



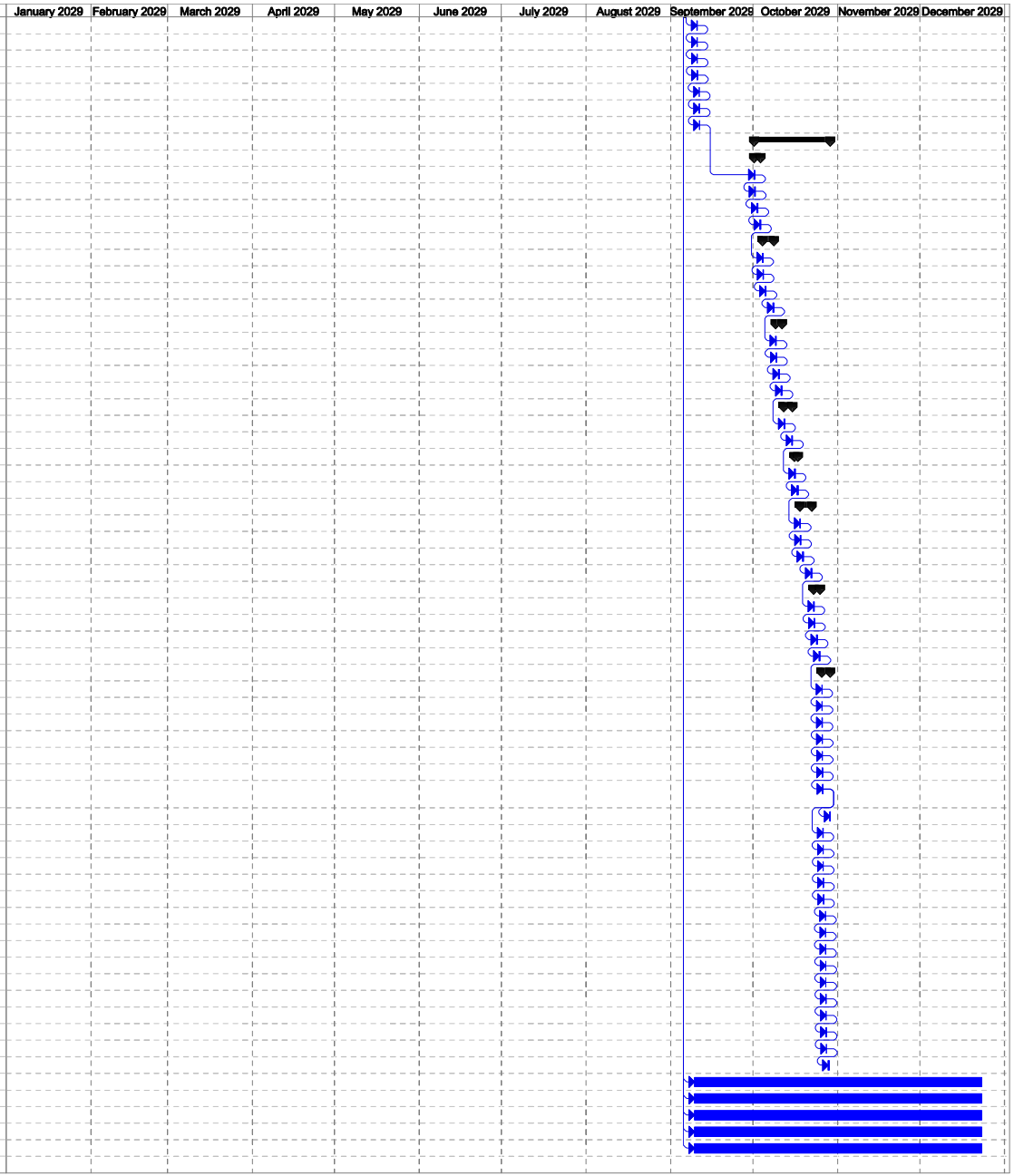
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
445	J-04-55B Erect SSA Mast	1 hr	Tue 28/08/29	Tue 28/08/29
446	J-04-55B Install ATF Anchor SPS	0.5 hrs	Tue 28/08/29	Tue 28/08/29
447	J-04-56A Erect Portal Boom	2 hrs	Tue 28/08/29	Tue 28/08/29
448	J-04-56A Erect Portal Mast (both Mast A & B)	2 hrs	Wed 29/08/29	Wed 29/08/29
449	J-04-56A Install Drop Tube & Registration (A212)	1 hr	Wed 29/08/29	Wed 29/08/29
450	J-04-56A Install Drop Tube & Registration (A213)	1 hr	Wed 29/08/29	Wed 29/08/29
451	J-04-60B Erect Portal Boom	2 hrs	Wed 29/08/29	Wed 29/08/29
452	J-04-60B Erect Portal Mast (both Mast A & B)	2 hrs	Wed 29/08/29	Wed 29/08/29
453	J-04-60B Install Drop Tube & Registration (A212)	1 hr	Thu 30/08/29	Thu 30/08/29
454	J-04-60B Install Drop Tube & Registration (A213)	1 hr	Thu 30/08/29	Thu 30/08/29
455	J-04-60B Tie/Strut Install Tie/Strut (both Mast A & B)	1 hr	Thu 30/08/29	Thu 30/08/29
456	J-04-61F Install O/B Drop Tube & Registration (A214)	1 hr	Thu 30/08/29	Thu 30/08/29
457	J-04-61G Install O/B Drop Tube & Registration (A213)	1 hr	Thu 30/08/29	Thu 30/08/29
458	J-04-61H Erect STC Mast	2 hrs	Thu 30/08/29	Thu 30/08/29
459	J-04-61H Install Mast Bracket & Registration (A212)	1 hr	Fri 31/08/29	Fri 31/08/29
460	J-04-64D Install Drop Tube & Registration (A213)	1 hr	Fri 31/08/29	Fri 31/08/29
461	J-04-64D Install Drop Tube & Registration (A214)	1 hr	Fri 31/08/29	Fri 31/08/29
462	J-04-64E Install Drop Tube & Registration (A212)	1 hr	Fri 31/08/29	Fri 31/08/29
463	J-04-65D Install Drop Tube & Registration (A213)	1 hr	Fri 31/08/29	Fri 31/08/29
464	J-04-65D Install Drop Tube & Registration (A214)	1 hr	Fri 31/08/29	Fri 31/08/29
465	J-04-65E Install Drop Tube & Registration (A212)	1 hr	Fri 31/08/29	Fri 31/08/29
466	J-05-04D Install Drop Tube & Registration (A213)	1 hr	Fri 31/08/29	Fri 31/08/29
467	J-05-04D Install Drop Tube & Registration (A214)	1 hr	Fri 31/08/29	Fri 31/08/29
468	J-05-04E Install Drop Tube & Registration (A212)	1 hr	Mon 03/09/29	Mon 03/09/29
469	J-05-05F Erect STC Mast	1 hr	Mon 03/09/29	Mon 03/09/29
470	J-05-05F Install Mast Bracket & Registration (A212)	1 hr	Mon 03/09/29	Mon 03/09/29
471	J-05-06A Install O/B Drop Tube & Registration (A214)	1 hr	Mon 03/09/29	Mon 03/09/29
472	J-05-06B Install O/B Drop Tube & Registration (A213)	1 hr	Mon 03/09/29	Mon 03/09/29
473	J-05-07F Install O/B Drop Tube & Registration (A214)	1 hr	Mon 03/09/29	Mon 03/09/29
474	J-05-07G Install O/B Drop Tube & Registration (A213)	1 hr	Mon 03/09/29	Mon 03/09/29
475	J-05-07H Erect STC Mast	1 hr	Mon 03/09/29	Mon 03/09/29
476	J-05-07H Install Mast Bracket & Registration (A212)	1 hr	Mon 03/09/29	Mon 03/09/29
477	J-05-08D Install Drop Tube & Registration (A213)	1 hr	Tue 04/09/29	Tue 04/09/29
478	J-05-08D Install Drop Tube & Registration (A214)	1 hr	Tue 04/09/29	Tue 04/09/29
479	J-05-08E Install Drop Tube & Registration (A212)	1 hr	Tue 04/09/29	Tue 04/09/29
480	J-05-09D Install Drop Tube & Registration (A213)	1 hr	Tue 04/09/29	Tue 04/09/29
481	J-05-09D Install Drop Tube & Registration (A214)	1 hr	Tue 04/09/29	Tue 04/09/29
482	J-05-09E Install Drop Tube & Registration (A212)	1 hr	Tue 04/09/29	Tue 04/09/29
483	J-05-10G Install O/B Drop Tube & Registration (A214)	1 hr	Tue 04/09/29	Tue 04/09/29
484	J-05-10H Install O/B Drop Tube & Registration (A213)	1 hr	Tue 04/09/29	Tue 04/09/29
485	J-05-11A Erect SSA Mast	1 hr	Tue 04/09/29	Tue 04/09/29
486	J-05-11A Install Mast Bracket & Registration (A212)	1 hr	Wed 05/09/29	Wed 05/09/29
487	J-05-11D Erect Portal Boom	2 hrs	Wed 05/09/29	Wed 05/09/29
488	J-05-11D Erect Portal Mast (both Mast A & B)	2 hrs	Wed 05/09/29	Wed 05/09/29
489	J-05-11D Install Drop Tube & Registration (A212)	1 hr	Wed 05/09/29	Wed 05/09/29
490	J-05-11D Install Drop Tube & Registration (A213)	1 hr	Wed 05/09/29	Wed 05/09/29
491	J-05-11G Erect SSA Mast	1 hr	Wed 05/09/29	Wed 05/09/29
492	J-05-11G Install ATF Anchor SPS	0.5 hrs	Wed 05/09/29	Wed 05/09/29
493	J-05-11G Install ATF Anchor SPS	0.5 hrs	Wed 05/09/29	Wed 05/09/29
494	J-05-12D Erect Portal Boom	2 hrs	Thu 06/09/29	Thu 06/09/29
495	J-05-12D Erect Portal Mast (both Mast A & B)	2 hrs	Thu 06/09/29	Thu 06/09/29
496	J-05-12D Install Drop Tube & Registration (A212)	1 hr	Thu 06/09/29	Thu 06/09/29
497	J-05-12D Install Drop Tube & Registration (A213)	1 hr	Thu 06/09/29	Thu 06/09/29
498	J-05-16A Erect Portal Boom	2 hrs	Thu 06/09/29	Thu 06/09/29
499	J-05-16A Erect Portal Mast (both Mast A & B)	2 hrs	Fri 07/09/29	Fri 07/09/29
500	J-05-16A Install Drop Tube & Registration (A212)	1 hr	Fri 07/09/29	Fri 07/09/29
501	J-05-16A Install Drop Tube & Registration (A213)	1 hr	Fri 07/09/29	Fri 07/09/29
502	J-05-16A Tie/Strut Install Tie/Strut (both Mast A & B)	1 hr	Fri 07/09/29	Fri 07/09/29
503	J-05-19C Erect Portal Boom	2 hrs	Fri 07/09/29	Fri 07/09/29
504	J-05-19C Erect Portal Mast (both Mast A & B)	2 hrs	Fri 07/09/29	Fri 07/09/29
505	J-05-19C Install Drop Tube & Registration (A222)	1 hr	Sat 08/09/29	Sat 08/09/29
506	J-05-19C Install Drop Tube & Registration (A212)	1 hr	Sat 08/09/29	Sat 08/09/29
507	J-05-21B Erect Portal Boom	2 hrs	Sat 08/09/29	Sat 08/09/29
508	J-05-21B Erect Portal Mast (both Mast A & B)	2 hrs	Sat 08/09/29	Sat 08/09/29
509	J-05-21B Install Drop Tube & Registration (A222)	1 hr	Sat 08/09/29	Sat 08/09/29
510	J-05-21B Install Drop Tube & Registration (A212)	1 hr	Sat 08/09/29	Sat 08/09/29
511	J-05-21E Erect SSA Mast	1 hr	Sat 08/09/29	Sat 08/09/29
512	J-05-22A Erect Portal Boom	2 hrs	Sun 09/09/29	Sun 09/09/29
513	J-05-22A Erect Portal Mast (both Mast A & B)	2 hrs	Sun 09/09/29	Sun 09/09/29
514	J-05-22A Install Drop Tube &Tensorex Unit (A212)	2 hrs	Sun 09/09/29	Sun 09/09/29
515	J-05-22A Install Drop Tube &Tensorex Unit (A213)	2 hrs	Sun 09/09/29	Sun 09/09/29
516	J-05-22A Tie/Strut Install Tie/Strut (both Mast A & B)	1 hr	Sun 09/09/29	Sun 09/09/29
517	J-05-25A Erect Portal Boom	2 hrs	Mon 10/09/29	Mon 10/09/29
518	J-05-25A Erect Portal Mast (both Mast A & B)	2 hrs	Mon 10/09/29	Mon 10/09/29
519	J-05-25A Install Drop Tube & Registration (A222)	1 hr	Mon 10/09/29	Mon 10/09/29



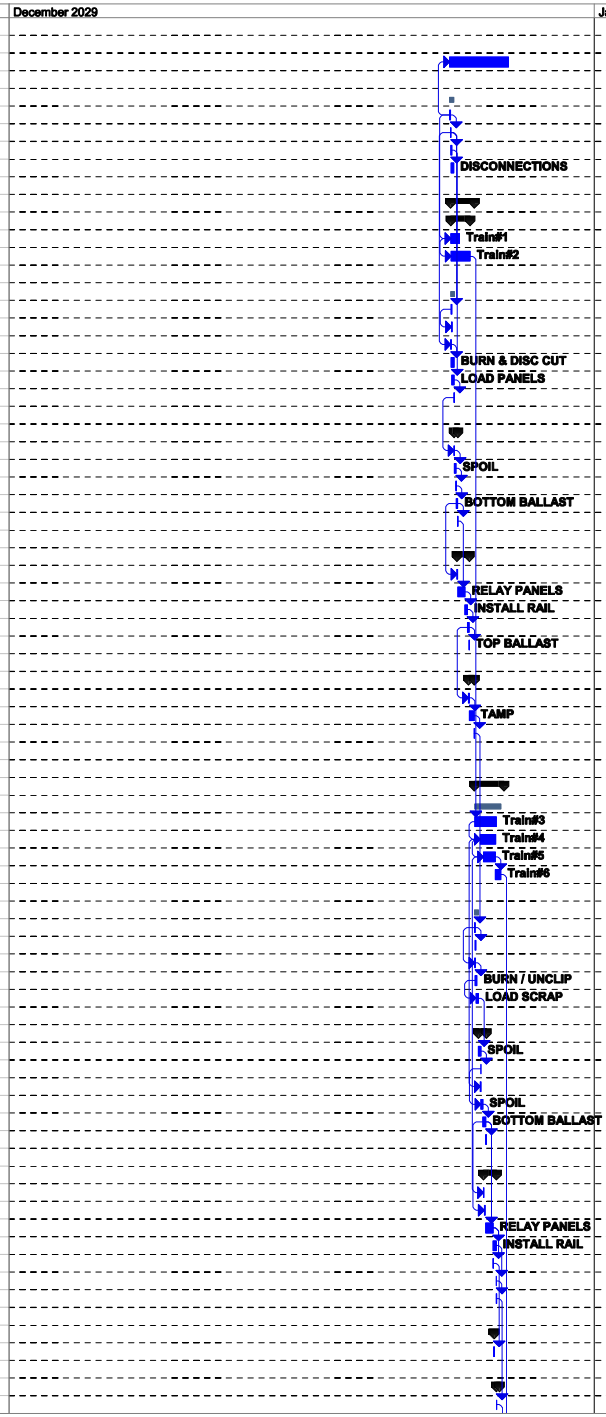
Stage 13
January to December 2029

ID	Task Name	Duration	Start	Finish
520	J-05-25A Install Drop Tube & Registration (A224)	1 hr	Mon 10/09/29	Mon 10/09/29
521	J-05-25C Install Drop Tube & Anchor SPS (A222)	1 hr	Mon 10/09/29	Mon 10/09/29
522	J-05-25C Install Drop Tube & Anchor SPS (A224)	1 hr	Mon 10/09/29	Mon 10/09/29
523	J-05-27B Install Drop Tube & Registration (A223)	1 hr	Mon 10/09/29	Mon 10/09/29
524	J-05-27B Install Drop Tube & Registration (A225)	1 hr	Tue 11/09/29	Tue 11/09/29
525	J-05-29B Install Drop Tube & Registration (A223)	1 hr	Tue 11/09/29	Tue 11/09/29
526	J-05-29B Install Drop Tube & Registration (A225)	1 hr	Tue 11/09/29	Tue 11/09/29
527	**OHLE Wiring**	**667 hrs**	**Mon 01/10/29**	**Mon 29/10/29**
528	**Wire Run A212**	**56 hrs**	**Mon 01/10/29**	**Wed 03/10/29**
529	Run 750m of Catenary	4 hrs	Mon 01/10/29	Mon 01/10/29
530	Install 18 Spans of Droppers	4 hrs	Mon 01/10/29	Mon 01/10/29
531	Run 750m of Contact Wire	8 hrs	Tue 02/10/29	Tue 02/10/29
532	Install 2 No. Anchor Span Insulation Final Registration	8 hrs	Wed 03/10/29	Wed 03/10/29
533	**Wire Run A213**	**100 hrs**	**Thu 04/10/29**	**Mon 08/10/29**
534	Run 750m of Catenary	4 hrs	Thu 04/10/29	Thu 04/10/29
535	Install 18 Spans of Droppers	4 hrs	Thu 04/10/29	Thu 04/10/29
536	Run 750m of Contact Wire	8 hrs	Fri 05/10/29	Fri 05/10/29
537	Install 2 No. Anchor Span Insulation Final Registration	8 hrs	Mon 08/10/29	Mon 08/10/29
538	**Wire Run A214**	**56 hrs**	**Tue 09/10/29**	**Thu 11/10/29**
539	Run 750m of Catenary	4 hrs	Tue 09/10/29	Tue 09/10/29
540	Install 18 Spans of Droppers	4 hrs	Tue 09/10/29	Tue 09/10/29
541	Run 750m of Contact Wire	8 hrs	Wed 10/10/29	Wed 10/10/29
542	Install 2 No. Anchor Span Insulation Final Registration	8 hrs	Thu 11/10/29	Thu 11/10/29
543	**Wire Run ATF1**	**76 hrs**	**Fri 12/10/29**	**Mon 15/10/29**
544	Run of 400m Cabled ATF	8 hrs	Fri 12/10/29	Fri 12/10/29
545	Install 2 No. Sealing Ends and associated SPS.	8 hrs	Mon 15/10/29	Mon 15/10/29
546	Wire Run ATF2	**32 hrs**	**Tue 16/10/29**	**Wed 17/10/29**
547	Run of 400m Cabled ATF	8 hrs	Tue 16/10/29	Tue 16/10/29
548	Install 2 No. Sealing Ends and associated SPS.	8 hrs	Wed 17/10/29	Wed 17/10/29
549	**Wire Run A214**	**105 hrs**	**Thu 18/10/29**	**Mon 22/10/29**
550	Run 250m of Catenary	4 hrs	Thu 18/10/29	Thu 18/10/29
551	Install 5 Spans of Droppers	4 hrs	Thu 18/10/29	Thu 18/10/29
552	Run 250m of Contact Wire	8 hrs	Fri 19/10/29	Fri 19/10/29
553	Install 1 No. Anchor Span Insulation Final Registration	8 hrs	Mon 22/10/29	Mon 22/10/29
554	**Wire Run A214**	**56 hrs**	**Tue 23/10/29**	**Thu 25/10/29**
555	Run 250m of Catenary	4 hrs	Tue 23/10/29	Tue 23/10/29
556	Install 5 Spans of Droppers	4 hrs	Tue 23/10/29	Tue 23/10/29
557	Run 250m of Contact Wire	8 hrs	Wed 24/10/29	Wed 24/10/29
558	Install 1 No. Anchor Span Insulation Final Registration	8 hrs	Thu 25/10/29	Thu 25/10/29
559	**Drop tube Re-fit**	**74 hrs**	**Fri 26/10/29**	**Mon 29/10/29**
560	J-04-43D Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
561	J-04-44A Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
562	J-04-44B Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
563	J-04-46D Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
564	J-04-49B Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
565	J-04-52D Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
566	J-04-55B Anchor Aerial repositioned ATF & Connect 2 No. Jumpers from Sealing End.	4 hrs	Fri 26/10/29	Fri 26/10/29
567	J-05-11G Anchor Aerial repositioned ATF & Connect 2 No. Jumpers from Sealing En	4 hrs	Mon 29/10/29	Mon 29/10/29
568	J-05-12D Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
569	J-05-16A Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
570	J-05-19C Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
571	J-05-21B Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
572	J-05-22A Reposition Drop Tube & ATF Support	1 hr	Fri 26/10/29	Fri 26/10/29
573	J-05-25A Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
574	J-05-25C Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
575	J-05-27B Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
576	J-05-29B Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
577	J-05-31A Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
578	J-05-31B Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
579	J-05-32A Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
580	J-05-33A Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
581	J-05-34A Reposition Drop Tube & ATF Support	1 hr	Sat 27/10/29	Sat 27/10/29
582	Recover Cabled ATF and Associated SPS from between Platforms 3 & 4	8 hrs	Sun 28/10/29	Sun 28/10/29
583	Tamping - Beaver	15 wks	Sun 09/09/29	Sun 23/12/29
584	Welding & Stressing	15 wks	Sun 09/09/29	Sun 23/12/29
585	S&T Installations	15 wks	Sun 09/09/29	Sun 23/12/29
586	E&P Installations	15 wks	Sun 09/09/29	Sun 23/12/29
587	Minor Civils Installations	15 wks	Sun 09/09/29	Sun 23/12/29
588				



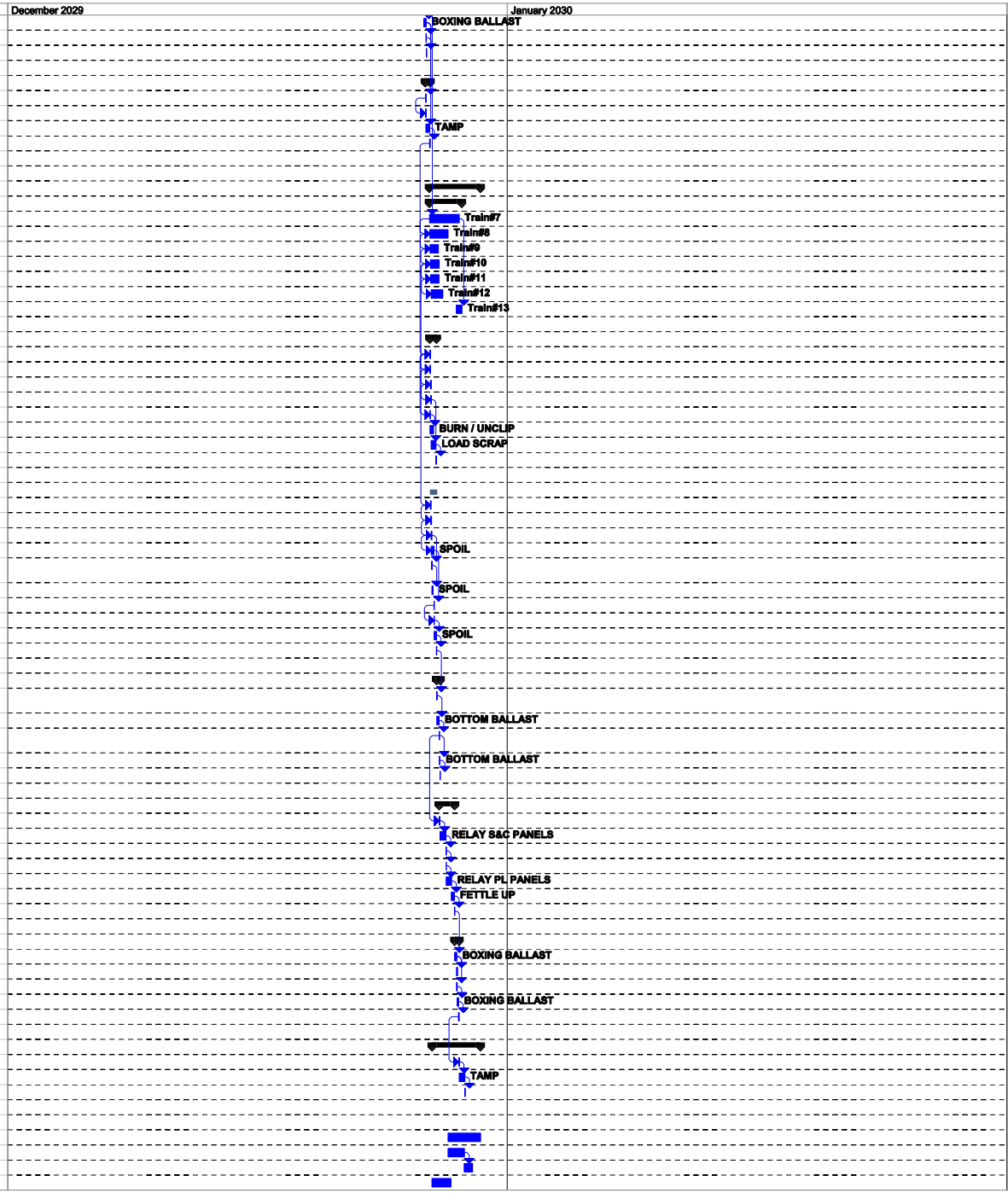
Stage 15 - Xmas 2029

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 15**			
2				
3	**POSSESSION - XMAS BLOCKADE 2029**			
4				
5	**SITE MOBILISATION / PREP WORKS**			
6	Brief staff, check tools etc.	1 hr	Mon 24/12/29	Mon 24/12/29
7	Take possession & set up worksite	30 mins	Mon 24/12/29	Mon 24/12/29
8	Take Isolation & Issue C Permits	1 hr	Mon 24/12/29	Mon 24/12/29
9	S&T disconnections	3 hrs	Mon 24/12/29	Mon 24/12/29
10				
11	**DN MAIN EAST (CH 4710 to 4850: 9023 Pts)**			
12	**TRAINS**			
13	**Train#1: Loco, 5LD Falcons (Top), 6LD Salmon, 6LD S&C Tilting Wagons, Kirow Consist, Loco (FSO)**	**11 hrs**	**Mon 24/12/29**	**Mon 24/12/29**
14	**Train#2: Loco (TSO), 4LD Falcons (BB), 6MT Falcons (Spoil), 6MT Salmon, Loco**	**24 hrs**	**Mon 24/12/29**	**Tue 25/12/29**
15				
16	**BURN / LIFT OUT**			
17	Convey Train#1 into site on the Up Main. Detach Kirow Consist and convey Kirow through 8063B onto the Dn Main & set u	1 hr	Mon 24/12/29	Mon 24/12/29
18	Convey Train#2 into site on the Up Main behind Train#1, detach & cascade front Loco. Reposition ready for lifting out	1 hr	Mon 24/12/29	Mon 24/12/29
19	On-track burners & manpower	30 mins	Mon 24/12/29	Mon 24/12/29
20	Burn & disc cut temp C turnout and PL into panels for lifting out	4 hrs	Mon 24/12/29	Mon 24/12/29
21	Kirow lifts out panels onto Salmon wagons on Train#2 overend working W to E	3 hrs	Mon 24/12/29	Mon 24/12/29
22	Site Kirow clear to the East & stable	15 mins	Mon 24/12/29	Mon 24/12/29
23				
24	**EXCAVATE / BOTTOM BALLAST**			
25	Reposition Train#2 for excavating, working E to W	15 mins	Mon 24/12/29	Mon 24/12/29
26	Skim & doze, loading excess spoil to Train#2	2 hrs	Mon 24/12/29	Mon 24/12/29
27	Reposition Train#2 and plant	15 mins	Mon 24/12/29	Mon 24/12/29
28	Unload bottom ballast from Train#2 as required, 3D doze and compact	2 hrs	Mon 24/12/29	Mon 24/12/29
29	Convey Train#2 West to marker boards	15 mins	Mon 24/12/29	Mon 24/12/29
30				
31	**RELAY / TOP BALLAST**			
32	Set up Kirow and Tilting Wagons for relaying	1 hr	Mon 24/12/29	Mon 24/12/29
33	Kirow relays panels overend from Tilters & Salmon wagons on Train#1 working E to W	9 hrs	Mon 24/12/29	Tue 25/12/29
34	Remove temp panels, closures etc, install all ironwork & fettle up	3 hrs	Tue 25/12/29	Tue 25/12/29
35	Unload boxing ballast from Falcons on Train#1 & profile	2 hrs	Tue 25/12/29	Tue 25/12/29
36	Convey Train#1 West to marker boards. (Loco/Kirow Consist remain on site)	30 mins	Tue 25/12/29	Tue 25/12/29
37				
38	**TAMPING**			
39	Convey Tamper into site on the Dn line and set up	1 hr	Tue 25/12/29	Tue 25/12/29
40	Tamp 9023 Pts - 2 runs	6 hrs	Tue 25/12/29	Tue 25/12/29
41	Convey Tamper into Carriage Line and shut down for next stage	30 mins	Tue 25/12/29	Tue 25/12/29
42				
43				
44	**9047 AB X-OVER (WEST MAINS)**			
45	**TRAINS**			
46	**Train#3: Loco, 20MT Falcons (Scrap& Spoil)**	**27 hrs**	**Tue 25/12/29**	**Wed 26/12/29**
47	**Train#4: Loco, 8MT Falcons, 12LD Falcons**	**19.5 hrs**	**Tue 25/12/29**	**Wed 26/12/29**
48	**Train#5: Loco, 6LD Tilting Wagons, 6LD Salmon**	**15 hrs**	**Wed 26/12/29**	**Wed 26/12/29**
49	**Train#6: Loco, 10LD Falcons**	**7 hrs**	**Wed 26/12/29**	**Thu 27/12/29**
50				
51	**BURN / LIFT OUT**			
52	Convey Loco/Kirow consist from Dn Main East onto Up Main and stable West of North London Line OB	1 hr	Tue 25/12/29	Tue 25/12/29
53	Convey Train#3 into site on the Dn Relief via 8113AB X-over	30 mins	Tue 25/12/29	Tue 25/12/29
54	On track burners & manpower	30 mins	Tue 25/12/29	Tue 25/12/29
55	Burn both Up & Dn Mains and unclip for lifting out	2 hrs	Tue 25/12/29	Tue 25/12/29
56	Load scrap rails and sleepers to front 8 wagons on Train#3 working W to E	3 hrs	Tue 25/12/29	Tue 25/12/29
57				
58	**EXCAVATE / BOTTOM BALLAST**			
59	Excavate & load spoil to remaining Falcon wagons on Train#3. Additional time due to wide 10ft & 6ft drain	3 hrs	Tue 25/12/29	Tue 25/12/29
60	Convey Train#3 clear to the East & stable	15 mins	Tue 25/12/29	Tue 25/12/29
61	Convey Train#4 into site on the Dn Relief via 8113AB X-over	30 mins	Tue 25/12/29	Tue 25/12/29
62	Complete excavation into front 12 Falcons on Train#4. Additional time due to wide 10ft & 6ft drain	2.5 hrs	Tue 25/12/29	Wed 26/12/29
63	Unload bottom ballast, 3D doze & compact entire S&C footprint over both lines. Install drainage in 6ft under crossover	4 hrs	Wed 26/12/29	Wed 26/12/29
64	Convey Train#4 clear to the East behind Train#3 and cascade Loco	45 mins	Wed 26/12/29	Wed 26/12/29
65				
66	**RELAY**			
67	Convey Train#5 into site on the Dn Relief via 8113AB X-over	30 mins	Wed 26/12/29	Wed 26/12/29
68	Set up Kirow and Tilting Wagons for relaying	1 hr	Wed 26/12/29	Wed 26/12/29
69	Kirow relays panels overend from Tilters & Salmon wagons on Train#4 working W to E. Up Main followed by Down Main.	9 hrs	Wed 26/12/29	Wed 26/12/29
70	Remove temp panels, closures etc, install all ironwork & fettle up	4 hrs	Wed 26/12/29	Wed 26/12/29
71	Convey Train#5 clear to the East behind Train#4 and cascade Loco	45 mins	Wed 26/12/29	Wed 26/12/29
72	Position Kirow clear to the East & stable on the Up Main	15 mins	Wed 26/12/29	Wed 26/12/29
73	Convey light Loco through 9046 X-over onto the Dn Main and stable West of North London Line OB	15 mins	Wed 26/12/29	Wed 26/12/29
74				
75	**EXIT TRAINS 3 TO 5**			
76	Convey Trains# 3 to 5 to West marker boards on the Up Relief	1 hr	Wed 26/12/29	Wed 26/12/29
77				
78	**TOP BALLAST**			
79	Convey Train#6 into position on the Dn Main	15 mins	Wed 26/12/29	Wed 26/12/29



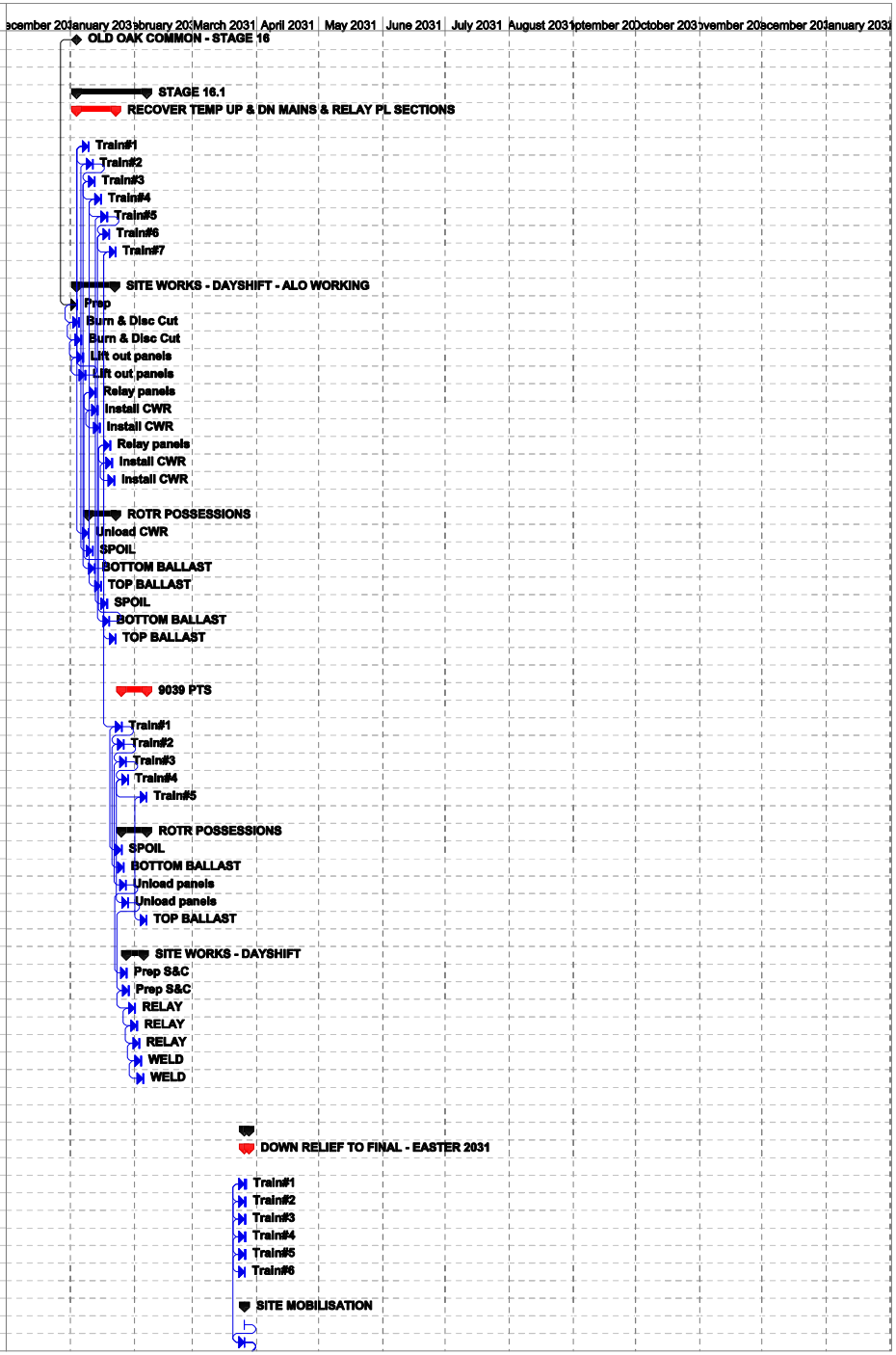
Stage 15 - Xmas 2029

ID	Task Name	Duration	Start	Finish
80	Unload boxing ballast throughout both lines & profile for Tamping. Crossing onto Dn Main	3 hrs	Wed 26/12/29	Wed 26/12/29
81	Attach light Loco onto rear of Train#6	30 mins	Wed 26/12/29	Wed 26/12/29
82	Convey Train#6 to marker boards on the Up Main	15 mins	Wed 26/12/29	Wed 26/12/29
83				
84	**TAMPING**			
85	Convey Tamper from Carriage Line to site and set up on the Dn Main	1 hr	Wed 26/12/29	Wed 26/12/29
86	Convey 2nd Tamper into site and set up on Up Main	1 hr	Wed 26/12/29	Wed 26/12/29
87	Tandem Tamp crossover - 2 runs	5 hrs	Wed 26/12/29	Thu 27/12/29
88	Convey Tamper 1 back to Carriage Line and Tamper 2 to marker boards	1 hr	Thu 27/12/29	Thu 27/12/29
89				
90				
91	**UP MAIN EAST (CH 4680 to 5020: 9024 Pts)**			
92	**TRAINS**			
93	**Train#7: Loco, 6LD Falcons (Top), 7LD Salmon (PL Panels), Loco (FSO) - Dn Main**	**44 hrs**	**Thu 27/12/29**	**Sat 29/12/29**
94	**Train#8: Loco, 6LD Salmon, 6LD Tilting Wagons - Dn Main**	**27 hrs**	**Thu 27/12/29**	**Fri 28/12/29**
95	**Train#9: Loco, 20MT Falcons (Scrap) - Dn Relief**	**12 hrs**	**Thu 27/12/29**	**Thu 27/12/29**
96	**Train#10: Loco, 20MT Falcons (Spoil) - Dn Main**	**13 hrs**	**Thu 27/12/29**	**Thu 27/12/29**
97	**Train#11: Loco, 20MT Falcons (Spoil) - Dn Main**	**12 hrs**	**Thu 27/12/29**	**Thu 27/12/29**
98	**Train#12: Loco (TSO), 20LD Falcons (BB), Loco - Dn Main**	**17 hrs**	**Thu 27/12/29**	**Thu 27/12/29**
99	**Train#13: Loco, 10LD Autoballasters - Up Main**	**8 hrs**	**Fri 28/12/29**	**Sat 29/12/29**
100				
101	**TRAINS INTO SITE / BURN / LIFT OUT**			
102	Convey Kirow consist from the West through site and shut down clear to the East on the Up Main	1 hr	Thu 27/12/29	Thu 27/12/29
103	Convey Train#7 into site on the Dn Main via 8047 x-over and shutdown clear the East	30 mins	Thu 27/12/29	Thu 27/12/29
104	Convey Train#8 into site on the Dn Main via 8047 x-over behind Train#7. Cascade Loco then shut down.	1 hr	Thu 27/12/29	Thu 27/12/29
105	Convey Train#9 into site on the Dn Relief via 8113 x-over and position for scrapping out E to W	30 mins	Thu 27/12/29	Thu 27/12/29
106	On track burners & manpower	30 mins	Thu 27/12/29	Thu 27/12/29
107	Burn track and unclip for lifting out loose working E to W	5 hrs	Thu 27/12/29	Thu 27/12/29
108	Load scrap rails and sleepers to Train#9 on the Dn Relief working E to W. Additional time due to wide 10ft	7 hrs	Thu 27/12/29	Thu 27/12/29
109	On completion of loading run Loco round and convey Train#9 to West marker boards on the Dn Relief	1 hr	Thu 27/12/29	Thu 27/12/29
110				
111	**EXCAVATE**			
112	Convey Train#10 into site on the Dn Main via 8047 x-over and position for loading spoil. Cascade Loco onto Train#8.	45 mins	Thu 27/12/29	Thu 27/12/29
113	Convey Train#11 into site on the Dn Main via 8047 x-over & cascade Loco onto Train#10	45 mins	Thu 27/12/29	Thu 27/12/29
114	Convey Train#12 into site on the Up Main. Stable West of 9047 x-over, detach front Loco and cascade onto rear of Train#	45 mins	Thu 27/12/29	Thu 27/12/29
115	Commence excavation working E to W loading spoil into Train#10 - Excavation Plant 1	4 hrs	Thu 27/12/29	Thu 27/12/29
116	Once Loco attached convey Train#11 through 9046 x-over and position rear wagons for loading spoil from PL section West of Platform 4	30 mins	Thu 27/12/29	Thu 27/12/29
117	Excavate PL section into rear 6 wagons of Train#11 - Excavation Plant 2	90 mins	Thu 27/12/29	Thu 27/12/29
118	Once fully loaded convey Train#10 to West marker boards	30 mins	Thu 27/12/29	Thu 27/12/29
119	Convey Train#11 onto Dn Main and position remaining empty wagons to complete excavation	30 mins	Thu 27/12/29	Thu 27/12/29
120	Load spoil to Train#11. Excavation complete	3 hrs	Thu 27/12/29	Thu 27/12/29
121	Once fully loaded convey Train#10 to West marker boards behind Train#11	30 mins	Thu 27/12/29	Thu 27/12/29
122				
123	**BOTTOM BALLAST**			
124	Propel Train#12 through 9047 x-over and position for unloading bottom ballast, leaving rear 4 wagons loaded for PL section West of Platform 4	30 mins	Thu 27/12/29	Thu 27/12/29
125	Unload bottom ballast, 3D doze and compact from front 16 wagons of Train#10	3 hrs	Thu 27/12/29	Thu 27/12/29
126	Convey Train#12 through 9046 x-over and propel rear 4 loaded wagons into position to offload for the PL section West of Platform 4	30 mins	Thu 27/12/29	Thu 27/12/29
127	Unload bottom ballast, 3D doze and compact from rear 4 wagons of Train#10	1 hr	Thu 27/12/29	Thu 27/12/29
128	On completion convey Train#12 to West marker boards on the Dn Main via 9046 x-over	30 mins	Thu 27/12/29	Thu 27/12/29
129				
130	**RELAY S&C**			
131	Man up Kirow, Train#8 and set up Tilting Wagons for relaying	1 hr	Thu 27/12/29	Thu 27/12/29
132	Kirow relays overend 9024 Pts from Tilting Wagons on Dn Main working E to W	9 hrs	Thu 27/12/29	Fri 28/12/29
133	Once unloaded convey Train#8 to West marker boards	15 mins	Fri 28/12/29	Fri 28/12/29
134	Position Train#7 for unloading	15 mins	Fri 28/12/29	Fri 28/12/29
135	Kirow relays PL panels from Salmon wagons on Train#7 working E to W	8 hrs	Fri 28/12/29	Fri 28/12/29
136	Fettle up, remove temp panels and install all ironwork	4 hrs	Fri 28/12/29	Fri 28/12/29
137	On completion stable Kirow consist in Dn Main Loop	30 mins	Fri 28/12/29	Fri 28/12/29
138				
139	**TOP BALLAST**			
140	Unload boxing ballast through S&C from Falcons on rear of Train#7 & profile for Tamper	3 hrs	Fri 28/12/29	Fri 28/12/29
141	Convey Train#7 West of 9044 Pts, attach Kirow consist to rear then convey to West marker boards	1 hr	Fri 28/12/29	Fri 28/12/29
142	Convey Train#13 into site on the Up Main and set up for unloading ballast	45 mins	Fri 28/12/29	Fri 28/12/29
143	Unload boxing ballast on Up Main then propel through 9024 Pts unloading on PL section into Platform 4. Profile for Tampe	2 hrs	Fri 28/12/29	Fri 28/12/29
144	On completion convey Train#13 onto Dn Main, running round Loco, then convey to West marker boards	1 hr	Fri 28/12/29	Sat 29/12/29
145				
146	**TAMP**			
147	Convey Tamper out of Carriage Line onto Dn Main & set up to tamp	1 hr	Fri 28/12/29	Sat 29/12/29
148	Tamp 9024 Pts & associated PL into Platform 4 - 2 runs	8 hrs	Sat 29/12/29	Sat 29/12/29
149	Convey Tamper to West marker boards	30 mins	Sat 29/12/29	Sat 29/12/29
150				
151				
152	OHL Works	48 hrs	Fri 28/12/29	Sun 30/12/29
153	S&T Installation during main works	24 hrs	Fri 28/12/29	Sat 29/12/29
154	S&T Testing	12 hrs	Sat 29/12/29	Sat 29/12/29
155	E&P	28 hrs	Thu 27/12/29	Fri 28/12/29



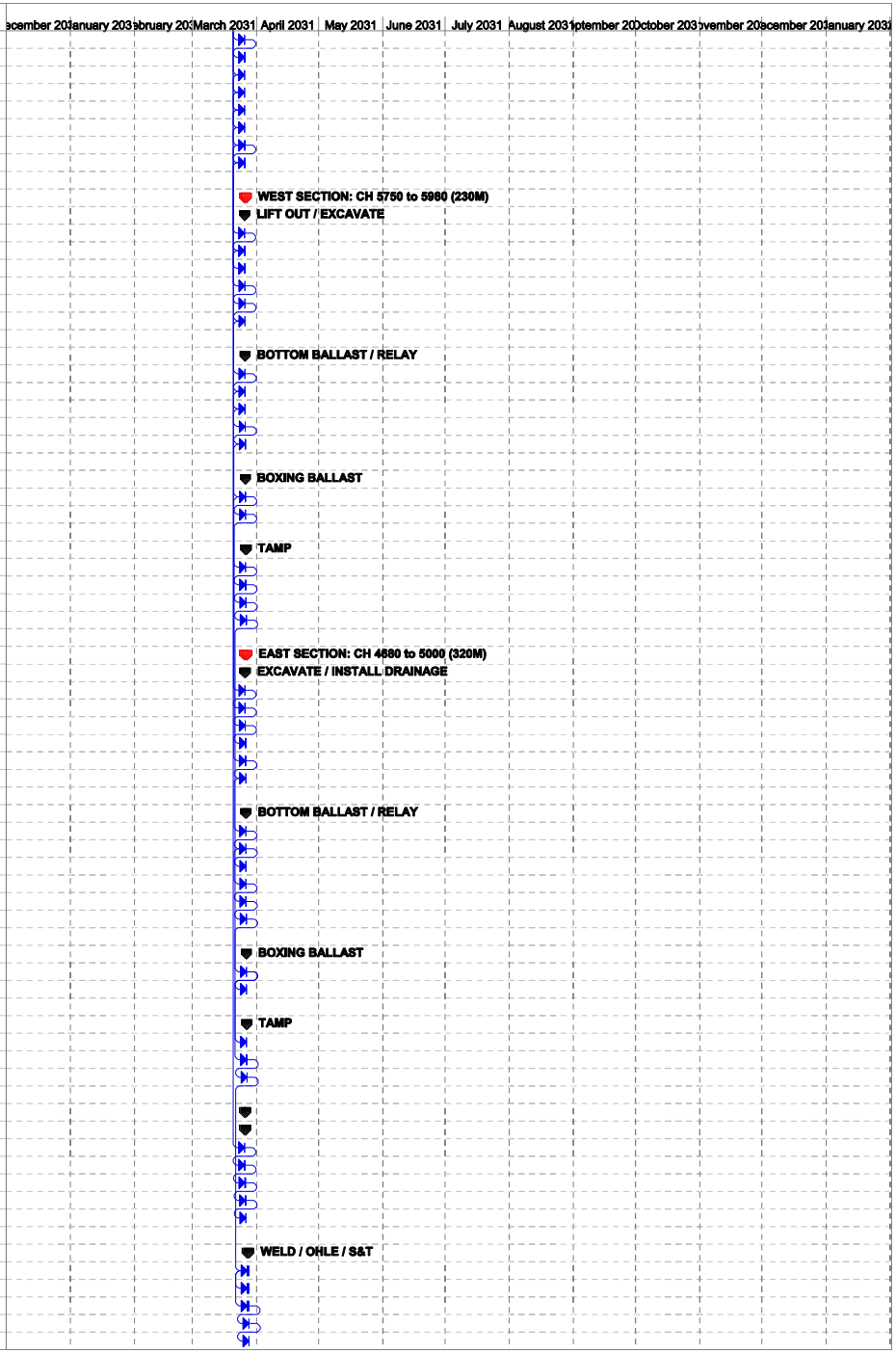
STAGE 16 -2031

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 16**			
2	**JANUARY TO APRIL 2031**			
3				
4	**STAGE 16.1**			
5	**RECOVER TEMP UP & DN MAINS & RELAY PL SECTIONS**			
6	**TRAINS**			
7	**Train#1: LWRT: 4 x 218m strings CWR**	**8 hrs**	**Thu 09/01/31**	**Thu 09/01/31**
8	**Train#2: Loco, 10MT Falcons (Spoil) Train on Up Main**	**8 hrs**	**Sat 11/01/31**	**Sat 11/01/31**
9	**Train#3: Loco, 8LD Falcons (Bottom Ballast) Train on Up Main**	**8 hrs**	**Sun 12/01/31**	**Sun 12/01/31**
10	**Train#4: Loco, 6LD Falcons (Top Ballast) Train on Up Main**	**8 hrs**	**Wed 15/01/31**	**Wed 15/01/31**
11	**Train#5: Loco, 10MT Falcons (Spoil) Train on Dn Relief**	**8 hrs**	**Sat 18/01/31**	**Sat 18/01/31**
12	**Train#6: Loco, 8LD Falcons (Bottom Ballast) Train on Dn Relief**	**8 hrs**	**Sun 19/01/31**	**Sun 19/01/31**
13	**Train#7: Loco, 6LD Falcons (Top Ballast) Train on Dn Relief**	**8 hrs**	**Wed 22/01/31**	**Wed 22/01/31**
14				
15	**SITE WORKS - DAYSHIFT - ALO WORKING**			
16	Set up site for Stage 16, build RRAPs, create fenced ALO zones, material laydown areas etc	10 hrs	Sat 04/01/31	Sat 04/01/31
17	Burn and disc cut Up Main into 18m panels (CH 5350 to 5650: 300m / 17 Panels)	10 hrs	Sun 05/01/31	Sun 05/01/31
18	Burn and disc cut Dn Main into 18m panels (CH 5300 to 5650: 350m / 20 Panels)	10 hrs	Mon 06/01/31	Mon 06/01/31
19	McCullochs Panels lifters lift out panels and stack West of OOC Lane UB for later installation - Up Main	10 hrs	Tue 07/01/31	Tue 07/01/31
20	McCullochs Panels lifters lift out panels and stack West of OOC Lane UB for later installation - Dn Main	10 hrs	Wed 08/01/31	Wed 08/01/31
21	Relay plain line panels with McCullochs Panel Lifter on PL section from 9043 Pts to Patform 4	10 hrs	Mon 13/01/31	Mon 13/01/31
22	Remove slave rails from panels, install CWR and clip up & clamp - Shift 1 of 2	10 hrs	Tue 14/01/31	Tue 14/01/31
23	Remove slave rails from panels, install CWR and clip up & clamp - Shift 2 of 2	10 hrs	Wed 15/01/31	Wed 15/01/31
24	Relay plain line panels with McCullochs Panel Lifter on PL section from 9039 Pts to 9031 Pts	10 hrs	Mon 20/01/31	Mon 20/01/31
25	Remove slave rails from panels, install CWR and clip up & clamp - Shift 1 of 2	10 hrs	Tue 21/01/31	Tue 21/01/31
26	Remove slave rails from panels, install CWR and clip up & clamp - Shift 2 of 2	10 hrs	Wed 22/01/31	Wed 22/01/31
27				
28	**ROTR POSSESSIONS**			
29	Unload 4 x 218m strings of CWR and position in site with TRTs	8 hrs	Thu 09/01/31	Thu 09/01/31
30	Excavate PL section from 9043 Pts to Platform 4 and load spoil to Train#2 on the Up Main	8 hrs	Sat 11/01/31	Sat 11/01/31
31	Unload bottom ballast and 3D doze PL section from 9043 Pts to Platform 4 from Train#3 on the Up Main	8 hrs	Sun 12/01/31	Sun 12/01/31
32	Unload top ballast & profile from Train#4 on the Up Main	8 hrs	Wed 15/01/31	Wed 15/01/31
33	Excavate PL section from 9039 Pts to 9031Pts and load spoil to Train#5 on the Dn Relief	8 hrs	Sat 18/01/31	Sat 18/01/31
34	Unload bottom ballast and 3D doze PL section from 9039 Pts to 9031 Pts from Train#6 on the Dn Relief	8 hrs	Sun 19/01/31	Sun 19/01/31
35	Unload top ballast & profile from Train#7 on the Dn Relief	8 hrs	Wed 22/01/31	Wed 22/01/31
36				
37				
38	**9039 PTS**			
39	**TRAINS**			
40	**Train#1: Loco, 10MT Falcons (Spoil) Train on Up Main**	**8 hrs**	**Sat 25/01/31**	**Sat 25/01/31**
41	**Train#2: Loco, 7LD Falcons (Bottom Ballast) Train on Up Main**	**8 hrs**	**Sun 26/01/31**	**Sun 26/01/31**
42	**Train#3: Loco, 5LD Salmon (9039 Pts in slave panels & Ironwork) Train on Dn Main**	**8 hrs**	**Mon 27/01/31**	**Mon 27/01/31**
43	**Train#4: Loco, 5LD Salmon (9039 Pts in slave panels & Ironwork) Train on Dn Main**	**8 hrs**	**Tue 28/01/31**	**Tue 28/01/31**
44	**Train#5: Loco, 6LD Falcons (Top Ballast) Train on Up Main**	**8 hrs**	**Thu 06/02/31**	**Thu 06/02/31**
45				
46	**ROTR POSSESSIONS**			
47	Excavate & load spoil to Train#1 on the Up Main	8 hrs	Sat 25/01/31	Sat 25/01/31
48	Unload ballast & 3D doze from Train#2 on Up Main	8 hrs	Sun 26/01/31	Sun 26/01/31
49	Unload panels from Train#3 on Dn Main. RRVs lift off from Up Main into laydown area	8 hrs	Mon 27/01/31	Mon 27/01/31
50	Unload panels from Train#4 on Dn Main. RRVs lift off from Up Main into laydown area	8 hrs	Tue 28/01/31	Tue 28/01/31
51	Unload top ballast & profile from Train#5 on the Up Main	8 hrs	Thu 06/02/31	Thu 06/02/31
52				
53	**SITE WORKS - DAYSHIFT**			
54	Convey offloaded panels and ironwork from Train#3 to site in prep for installation	10 hrs	Tue 28/01/31	Tue 28/01/31
55	Convey offloaded panels and ironwork from Train#4 to site in prep for installation	10 hrs	Wed 29/01/31	Wed 29/01/31
56	Relay 9039 Pts - Build in hole using temporary panels, remove slave rails & install all S&C ironwork	10 hrs	Sat 01/02/31	Sat 01/02/31
57	Relay 9039 Pts - Build in hole using temporary panels, remove slave rails & install all S&C ironwork	10 hrs	Sun 02/02/31	Sun 02/02/31
58	Relay 9039 Pts - Build in hole using temporary panels, remove slave rails & install all S&C ironwork	10 hrs	Mon 03/02/31	Mon 03/02/31
59	Weld joints	10 hrs	Tue 04/02/31	Tue 04/02/31
60	Weld joints	10 hrs	Wed 05/02/31	Wed 05/02/31
61				
62				
63	**STAGE 16.2**			
64	**DOWN RELIEF TO FINAL - EASTER 2031**			
65	**TRAINS**			
66	**Train#1: Loco, 10LD Falcons, 4LD Salmon, Loco (FSO) - EAST SECTION**	**25 hrs**	**Wed 26/03/31**	**Thu 27/03/31**
67	**Train#2: Loco, 20LD Falcons (BB) - EAST SECTION**	**20 hrs**	**Wed 26/03/31**	**Wed 26/03/31**
68	**Train#3: Loco, 3LD Falcons (Ballast), 3LD Bass (Pipes), 3LD Falcons (Peas), 10MT Falcons - EAST SECTION**	**16 hrs**	**Wed 26/03/31**	**Wed 26/03/31**
69	**Train#4: Loco, 20MT Falcons - EAST SECTION**	**15 hrs**	**Wed 26/03/31**	**Wed 26/03/31**
70	**Train#5: Loco, 20LD Falcons (BB & TB) - WEST SECTION**	**14 hrs**	**Wed 26/03/31**	**Wed 26/03/31**
71	**Train#6: Loco (TSO), 15MT Falcons, Loco - WEST SECTION**	**8 hrs**	**Wed 26/03/31**	**Wed 26/03/31**
72				
73	**SITE MOBILISATION**			
74	Brief staff, check tools etc.	1 hr	Wed 26/03/31	Wed 26/03/31
75	Take possession & set up worksite	30 mins	Wed 26/03/31	Wed 26/03/31



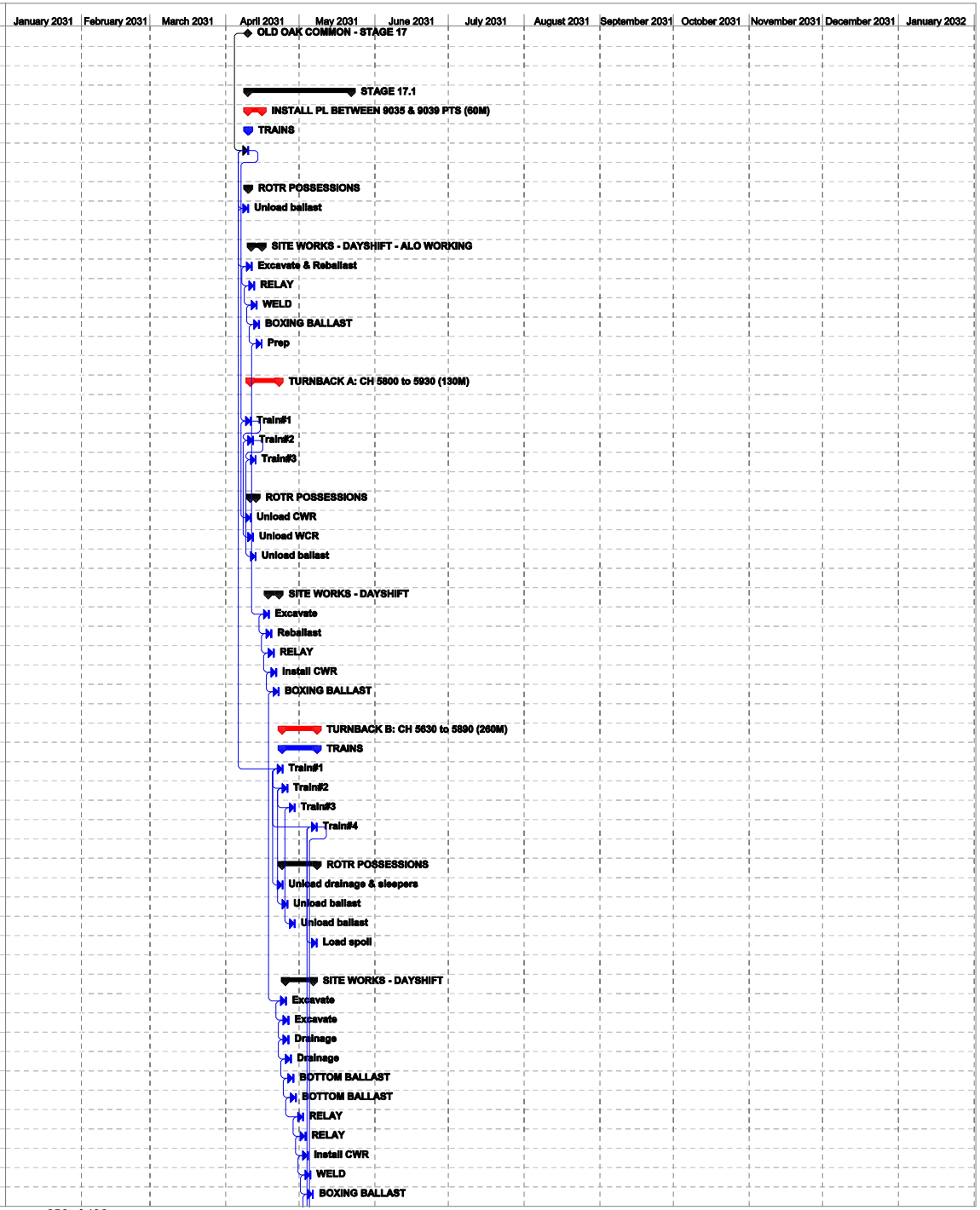
STAGE 16 -2031

ID	Task Name	Duration	Start	Finish
76	Take Isolation & issue C Permits	1 hr	Wed 26/03/31	Wed 26/03/31
77	S&T disconnections	3 hrs	Wed 26/03/31	Wed 26/03/31
78	Train#1 into site on the Dn Main, convey East to pegging point and stable	30 mins	Wed 26/03/31	Wed 26/03/31
79	Train#2 into site on the Dn Main, convey East to pegging point behind Train#1 & cascade Loco	45 mins	Wed 26/03/31	Wed 26/03/31
80	Train#3 into site on the Dn Main, convey East to pegging point behind Train#2 & cascade Loco	45 mins	Wed 26/03/31	Wed 26/03/31
81	Train#4 into site on the Dn Main, convey East to pegging point behind Train#3 & cascade Loco	45 mins	Wed 26/03/31	Wed 26/03/31
82	Train#5 into site on the Dn Main, convey East to pegging point behind Train#4 & cascade Loco	45 mins	Wed 26/03/31	Wed 26/03/31
83	Train#6 into site on the Dn Main, position for West section, cascade Loco onto Train#5	45 mins	Wed 26/03/31	Wed 26/03/31
84				
85	**WEST SECTION: CH 5750 to 5980 (230M)**			
86	**LIFT OUT / EXCAVATE**			
87	On track manpower & burners	30 mins	Wed 26/03/31	Wed 26/03/31
88	Burn / disc cut existing Dn Relief section to be recovered into 18m panels	4 hrs	Wed 26/03/31	Wed 26/03/31
89	Lift out existing panels with McCullochs Panel Lifters and stack in wideway working W to E (off critical path)	6 hrs	Wed 26/03/31	Wed 26/03/31
90	Position Train#6 and excavation plant for loading spoil	15 mins	Wed 26/03/31	Wed 26/03/31
91	Excavate & load spoil to Train#6 working E to W	2.5 hrs	Wed 26/03/31	Wed 26/03/31
92	Once loaded convey Train#6 to West marker boards on the Up Main via 9046 x-over	30 mins	Wed 26/03/31	Wed 26/03/31
93				
94	**BOTTOM BALLAST / RELAY**			
95	Position Train#5 and plant for unloading bottom ballast	15 mins	Wed 26/03/31	Wed 26/03/31
96	Unload bottom ballast from front 10 wagons, 3D doze & compact working E to W	2.5 hrs	Wed 26/03/31	Wed 26/03/31
97	Relay panels from wideway with Panel Lifters behind dozer working E to W (13 panels)	2.5 hrs	Wed 26/03/31	Wed 26/03/31
98	Unclip and remove existing rails	2.5 hrs	Wed 26/03/31	Wed 26/03/31
99	Thread in new CWR (1 pair of 218m and pair of closures) & clip up & clamp	2 hrs	Wed 26/03/31	Wed 26/03/31
100				
101	**BOXING BALLAST**			
102	Unload boxing ballast from remaining wagons on Train#5 & profile	90 mins	Wed 26/03/31	Wed 26/03/31
103	Once unloaded convey Train#5 to West marker boards on the Up Main via 9046 x-over	30 mins	Wed 26/03/31	Wed 26/03/31
104				
105	**TAMP**			
106	Convey Tamper into site on the Dn Relief via 8113 x-over & set up	1 hr	Wed 26/03/31	Wed 26/03/31
107	Tamp West PL section - 2 runs (working W to E)	2.5 hrs	Wed 26/03/31	Wed 26/03/31
108	Tamp 9039 Pts - 2 runs	3 hrs	Wed 26/03/31	Wed 26/03/31
109	Tamp 9031 Pts & Platform 5 - 2 runs	4 hrs	Wed 26/03/31	Thu 27/03/31
110				
111	**EAST SECTION: CH 4680 to 5000 (320M)**			
112	**EXCAVATE / INSTALL DRAINAGE**			
113	Position Train#4 and excavation plant for loading spoil	15 mins	Wed 26/03/31	Wed 26/03/31
114	Excavate & load spoil to Train#4 working E to W (additional time due to drainage trench & wideway)	5 hrs	Wed 26/03/31	Wed 26/03/31
115	Once loaded convey Train#4 West behind Train#5	15 mins	Wed 26/03/31	Wed 26/03/31
116	Convey Train#4 to West marker boards on the Up Mian via 9046 x-over	30 mins	Wed 26/03/31	Wed 26/03/31
117	Complete excavation into Train#3, install drainage and backfill with peas and ballast	5 hrs	Wed 26/03/31	Wed 26/03/31
118	Once unloaded convey Train#3 to West marker boards on the Up Main via 9046 x-over	30 mins	Wed 26/03/31	Wed 26/03/31
119				
120	**BOTTOM BALLAST / RELAY**			
121	Position Train#2 and plant for unloading bottom ballast	15 mins	Wed 26/03/31	Wed 26/03/31
122	Unload bottom ballast from Train#2, 3D doze & compact working E to W	3.5 hrs	Wed 26/03/31	Wed 26/03/31
123	Once unloaded convey Train#2 to West marker boards on the Up Main via 9046 x-over	30 mins	Wed 26/03/31	Wed 26/03/31
124	Position Train#1 for relaying	15 mins	Wed 26/03/31	Wed 26/03/31
125	Relay sleepers behind bottom ballast from Train#1 working E to W	2.5 hrs	Wed 26/03/31	Wed 26/03/31
126	Install CWR, clip up and clamp	3 hrs	Wed 26/03/31	Wed 26/03/31
127				
128	**BOXING BALLAST**			
129	Reposition & unload boxing ballast from remaining wagons on Train#1 & profile	2 hrs	Wed 26/03/31	Thu 27/03/31
130	Once unloaded convey Train#1 to West marker boards on the Up Main via 9046 x-over	30 mins	Thu 27/03/31	Thu 27/03/31
131				
132	**TAMP**			
133	Position & set up Tamper for East section	30 mins	Thu 27/03/31	Thu 27/03/31
134	Tamp East PL section & 9020 Pts - 2 runs (working W to E)	6 hrs	Thu 27/03/31	Thu 27/03/31
135	Tie up Tamper & convey to marker boards	1 hr	Thu 27/03/31	Thu 27/03/31
136				
137	**INSTALL S&C IRONWORK - 9020 & 9040 PTS - INSTALLATION ONLY (NOT COMMISSIONED)**			
138	**STANDALONE ACTIVITIES SEPARATE FROM TRACK RELAYS**			
139	On track burners, manpower and plant	1 hr	Wed 26/03/31	Wed 26/03/31
140	Remove existing plain line rails	2 hrs	Wed 26/03/31	Wed 26/03/31
141	Install new switches and S&C ironwork	8 hrs	Wed 26/03/31	Wed 26/03/31
142	Fettle up, cut in closure, clamp up etc	4 hrs	Wed 26/03/31	Wed 26/03/31
143	Off track manpower & plant	1 hr	Wed 26/03/31	Wed 26/03/31
144				
145	**WELD / OHLE / S&T**			
146	OHLE works	20 hrs	Thu 27/03/31	Fri 28/03/31
147	Weld & Stress	20 hrs	Thu 27/03/31	Fri 28/03/31
148	S&T Reconnections & Testing	20 hrs	Thu 27/03/31	Fri 28/03/31
149	Give up isolation	30 mins	Fri 28/03/31	Fri 28/03/31
150	Give up worksite & possession	30 mins	Fri 28/03/31	Fri 28/03/31



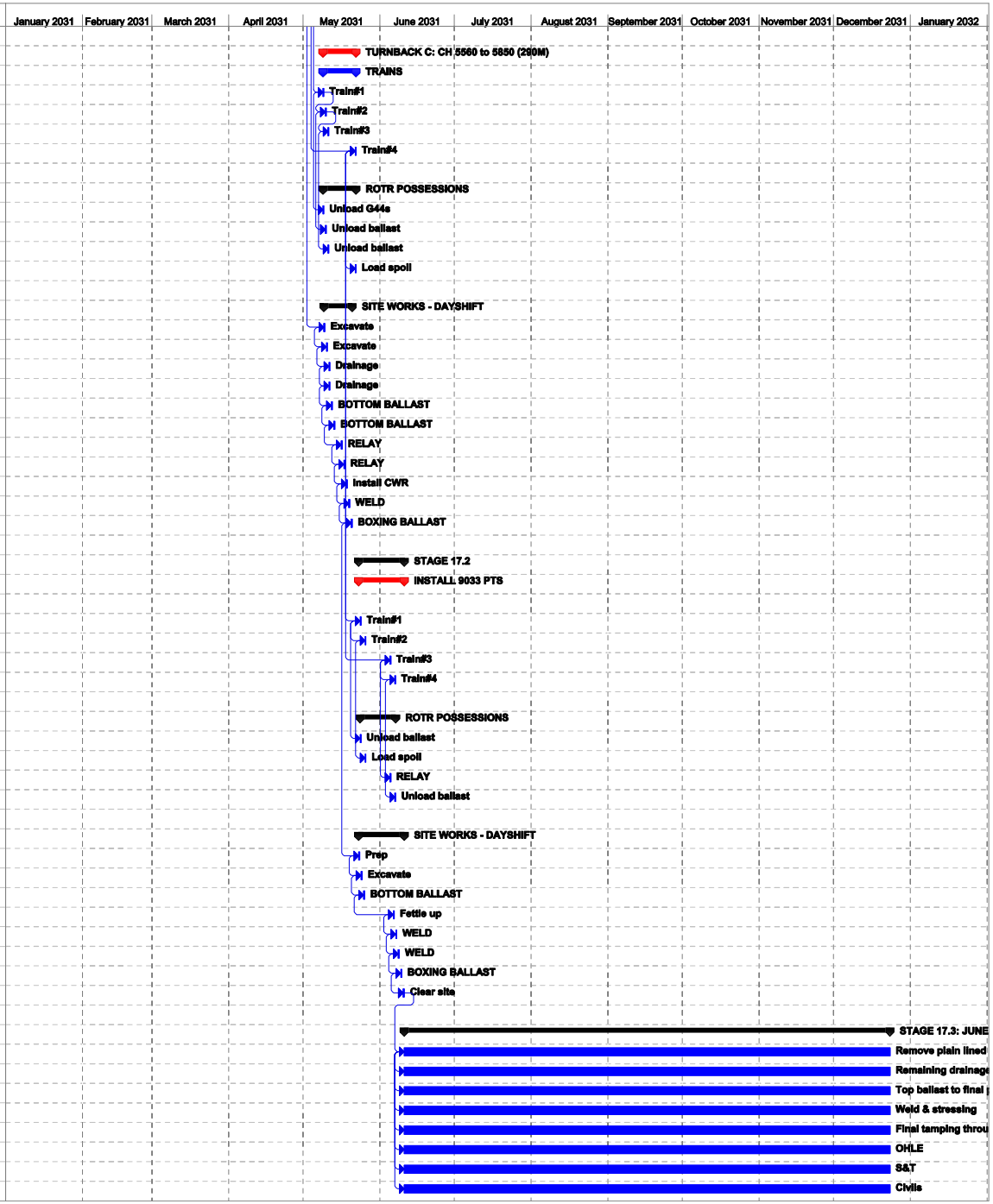
Stage 17

ID	Task Name	Duration	Start	Finish
1	**OLD OAK COMMON - STAGE 17**			
2	**APRIL TO DECEMBER 2031**			
3				
4	**STAGE 17.1**			
5	**INSTALL PL BETWEEN 9035 & 9039 PTS (60M)**			
6	**TRAINS**			
7	**Train#1: Loco, 5D Falcons (Ballast) Train on Dn Relief**	**8 hrs**	**Thu 10/04/31**	**Thu 10/04/31**
8				
9	**ROTR POSSESSIONS**			
10	Unload ballast from Train#1 on the Dn Relief into wideway East of 9039 Pts	8 hrs	Thu 10/04/31	Thu 10/04/31
11				
12	**SITE WORKS - DAYSHIFT - ALO WORKING**			
13	Excavate & reballast 60M section between 9035 & 9039Pts. Run spoil to loading area at 9039 Pts	10 hrs	Fri 11/04/31	Fri 11/04/31
14	Relay recovered panels from Stage 16 with Panel Lifters & cut in closures as required, plate & clamp	10 hrs	Sat 12/04/31	Sat 12/04/31
15	Weld	10 hrs	Sun 13/04/31	Sun 13/04/31
16	Unload boxing ballast from stockpile & profile	10 hrs	Mon 14/04/31	Mon 14/04/31
17	Site tidy, set up site for commencing Turnback A	10 hrs	Tue 15/04/31	Tue 15/04/31
18				
19	**TURNBACK A: CH 5800 to 5930 (130M)**			
20	**TRAINS**			
21	**Train#1: Loco, LWRT (6 x 108m strings) Train on Up Relief**	**8 hrs**	**Fri 11/04/31**	**Fri 11/04/31**
22	**Train#2: Loco, LWRT (6 x 108m strings) Train on Up Relief**	**8 hrs**	**Sat 12/04/31**	**Sat 12/04/31**
23	**Train#3: Loco, 10LD Falcons (Ballast) Train on Dn Relief**	**8 hrs**	**Sun 13/04/31**	**Sun 13/04/31**
24				
25	**ROTR POSSESSIONS**			
26	Unload CWR from Train#1, TRTs position in site	8 hrs	Fri 11/04/31	Fri 11/04/31
27	Unload CWR from Train#2, TRTs position in site (All CWR unloaded for Turnbacks A, B & C)	8 hrs	Sat 12/04/31	Sat 12/04/31
28	Unload ballast from Train#3 on the Dn Relief into wideway West of CL UB	8 hrs	Sun 13/04/31	Sun 13/04/31
29				
30	**SITE WORKS - DAYSHIFT**			
31	Excavate and run spoil to loading area West of CL UB	10 hrs	Fri 18/04/31	Fri 18/04/31
32	Run out bottom ballast from stockpile, 3D doze and compact	10 hrs	Sat 19/04/31	Sat 19/04/31
33	Relay recovered panels from Stage 16 with Panel Lifters (8 no)	10 hrs	Sun 20/04/31	Sun 20/04/31
34	Unclip, remove slave rails and install new CWR	10 hrs	Mon 21/04/31	Mon 21/04/31
35	Run out boxing ballast from stockpile & profile	10 hrs	Tue 22/04/31	Tue 22/04/31
36				
37	**TURNBACK B: CH 5630 to 5890 (260M)**			
38	**TRAINS**			
39	**Train#1: Loco, 6LD Bass (pipes), 8LD Falcons (Peas), 3LD Salmon (G44s) Train on Dn Relief**	**8 hrs**	**Thu 24/04/31**	**Thu 24/04/31**
40	**Train#2: Loco, 15LD Falcons (Ballast) Train on Dn Relief**	**8 hrs**	**Sat 26/04/31**	**Sat 26/04/31**
41	**Train#3: Loco, 10LD Falcons (Ballast) Train on Dn Relief**	**8 hrs**	**Tue 29/04/31**	**Tue 29/04/31**
42	**Train#4: Loco, 20MT Falcons (Spoil) Train on Dn Relief**	**8 hrs**	**Thu 08/05/31**	**Thu 08/05/31**
43				
44	**ROTR POSSESSIONS**			
45	Unload drainage materials (All Turnbacks) and G44s into wideway from Train#1 on Dn Relief	8 hrs	Thu 24/04/31	Thu 24/04/31
46	Unload ballast into wideway from Train#2 on Dn Relief	8 hrs	Sat 26/04/31	Sat 26/04/31
47	Unload ballast into wideway from Train#3 on Dn Relief	8 hrs	Tue 29/04/31	Tue 29/04/31
48	Load stockpiled spoil to Train#4 on Dn Relief (Turnback A & B Spoil)	8 hrs	Thu 08/05/31	Thu 08/05/31
49				
50	**SITE WORKS - DAYSHIFT**			
51	Excavate (incl 6ft drain betwenn TB A&B) and run spoil to loading area West of CL UB - Shift 1 of 2	10 hrs	Fri 25/04/31	Fri 25/04/31
52	Excavate (incl 6ft drain betwenn TB A&B) and run spoil to loading area West of CL UB - Shift 2 of 2	10 hrs	Sat 26/04/31	Sat 26/04/31
53	Install drainage & backfill - Shift 1 of 2	10 hrs	Sat 26/04/31	Sat 26/04/31
54	Install drainage & backfill - Shift 2 of 2	10 hrs	Sun 27/04/31	Sun 27/04/31
55	Run out bottom ballast from stockpile, 3D doze & compact - Shift 1 of 2	10 hrs	Mon 28/04/31	Mon 28/04/31
56	Run out bottom ballast from stockpile, 3D doze & compact - Shift 2 of 2	10 hrs	Tue 29/04/31	Tue 29/04/31
57	Relay sleeepers from stockpile - Shift 1 of 2	10 hrs	Fri 02/05/31	Fri 02/05/31
58	Relay sleeepers from stockpile - Shift 2 of 2	10 hrs	Sat 03/05/31	Sat 03/05/31
59	Install CWR, clip up & clamp	10 hrs	Sun 04/05/31	Sun 04/05/31
60	Weld	10 hrs	Mon 05/05/31	Mon 05/05/31
61	Run out boxing ballast from stockpile & profile	10 hrs	Tue 06/05/31	Tue 06/05/31



Stage 17

ID	Task Name	Duration	Start	Finish
62				
63	TURNBACK C: CH 5560 to 5850 (290M)			
64	TRAINS			
65	Train#1: Loco, 3LD Salmon (G44e) Train on Dn Relief	8 hrs	Fri 09/05/31	Fri 09/05/31
66	Train#2: Loco, 10LD Falcons (Ballast) Train on Dn Relief	8 hrs	Sat 10/05/31	Sat 10/05/31
67	Train#3: Loco, 10LD Falcons (Ballast) Train on Dn Relief	8 hrs	Sun 11/05/31	Sun 11/05/31
68	Train#4: Loco, 20MT Falcons (Spoil) Train on Dn Relief	8 hrs	Thu 22/05/31	Thu 22/05/31
69				
70	ROTR POSSESSIONS			
71	Unload G44s into wideway from Train#1 on Dn Relief	8 hrs	Fri 09/05/31	Fri 09/05/31
72	Unload ballast into wideway from Train#2 on Dn Relief	8 hrs	Sat 10/05/31	Sat 10/05/31
73	Unload ballast into wideway from Train#3 on Dn Relief	8 hrs	Sun 11/05/31	Sun 11/05/31
74	Load stockpiled spoil to Train#4 on Dn Relief	8 hrs	Thu 22/05/31	Thu 22/05/31
75				
76	SITE WORKS - DAYSHIFT			
77	Excavate (incl 6ft drain between TB A&B) and run spoil to loading area West of CL UB - Shift 1 of 2	10 hrs	Fri 09/05/31	Fri 09/05/31
78	Excavate (incl 6ft drain between TB A&B) and run spoil to loading area West of CL UB - Shift 2 of 2	10 hrs	Sat 10/05/31	Sat 10/05/31
79	Install drainage & backfill - Shift 1 of 2	10 hrs	Sun 11/05/31	Sun 11/05/31
80	Install drainage & backfill - Shift 2 of 2	10 hrs	Sun 11/05/31	Sun 11/05/31
81	Run out bottom ballast from stockpile, 3D doze & compact - Shift 1 of 2	10 hrs	Mon 12/05/31	Mon 12/05/31
82	Run out bottom ballast from stockpile, 3D doze & compact - Shift 2 of 2	10 hrs	Tue 13/05/31	Tue 13/05/31
83	Relay sleepers from stockpile - Shift 1 of 2	10 hrs	Fri 16/05/31	Fri 16/05/31
84	Relay sleepers from stockpile - Shift 2 of 2	10 hrs	Sat 17/05/31	Sat 17/05/31
85	Install CWR, clip up & clamp	10 hrs	Sun 18/05/31	Sun 18/05/31
86	Weld	10 hrs	Mon 19/05/31	Mon 19/05/31
87	Run out boxing ballast from stockpile & profile	10 hrs	Tue 20/05/31	Tue 20/05/31
88				
89	STAGE 17.2			
90	INSTALL 9033 PTS			
91	TRAINS			
92	Train#1: Loco, 5LD Falcons (Bottom Ballast)	8 hrs	Sat 24/05/31	Sat 24/05/31
93	Train#2: Loco, 5MT Falcons (Spoil)	8 hrs	Mon 26/05/31	Mon 26/05/31
94	Train#3: Loco, 4LD Tilting Wagons, 4LD Salmon, Kirow Consist, Loco	8 hrs	Thu 05/06/31	Thu 05/06/31
95	Train#4: Loco, 5LD Falcons (Boxing Ballast)	8 hrs	Sat 07/06/31	Sat 07/06/31
96				
97	ROTR POSSESSIONS			
98	Unload ballast into wideway from Train#1 on Dn Relief	8 hrs	Sat 24/05/31	Sat 24/05/31
99	Load stockpiled spoil into Train#2 on Dn Relief	8 hrs	Mon 26/05/31	Mon 26/05/31
100	Relay S&C panels: Tilting wagons on Up Relief Loop, Kirow relays overend from Dn Relief Loop	8 hrs	Thu 05/06/31	Thu 05/06/31
101	Unload ballast into wideway from Train#4 on Dn Relief	8 hrs	Sat 07/06/31	Sat 07/06/31
102				
103	SITE WORKS - DAYSHIFT			
104	Set up section, create ALO zones, RRAPS, material loading areas etc	10 hrs	Fri 23/05/31	Fri 23/05/31
105	Excavate and run spoil to loading area	10 hrs	Sat 24/05/31	Sat 24/05/31
106	Run out ballast from stockpile, 3D doze and compact	10 hrs	Sun 25/05/31	Sun 25/05/31
107	Fettle up S&C, cut in closures, remove temp rails etc	10 hrs	Fri 06/06/31	Fri 06/06/31
108	Weld - Shift 1 of 2	10 hrs	Sat 07/06/31	Sat 07/06/31
109	Weld - Shift 1 of 2	10 hrs	Sun 08/06/31	Sun 08/06/31
110	Run out boxing ballast & profile	10 hrs	Mon 09/06/31	Mon 09/06/31
111	Site tidy, clear section, final snagging. SECTION COMPLETE	10 hrs	Tue 10/06/31	Tue 10/06/31
112				
113	STAGE 17.3: JUNE TO DECEMBER			
114	Remove plain lined switches & install ironwork (1 switch per weeeknd NBS shift?)	28 wks	Tue 10/06/31	Tue 23/12/31
115	Remaining drainage	28 wks	Tue 10/06/31	Tue 23/12/31
116	Top ballast to final profile throughout (series of Autoballaster shifts?)	28 wks	Tue 10/06/31	Tue 23/12/31
117	Weld & stressing	28 wks	Tue 10/06/31	Tue 23/12/31
118	Final tamping throughout prior to commissioning (series of PL & S&C tamping shifts?)	28 wks	Tue 10/06/31	Tue 23/12/31
119	OHLE	28 wks	Tue 10/06/31	Tue 23/12/31
120	S&T	28 wks	Tue 10/06/31	Tue 23/12/31
121	Civils	28 wks	Tue 10/06/31	Tue 23/12/31



APPENDIX G

Train Consists

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Task Name	Start	Finish	Stage	Loco	Osprey	Salmon	60t Oper	Bass	Tamper	Auto Bal	Tilters	Kirow	LWRT
WEST RAIL HEAD													
LWRT - 1 (6 x 108m rail strings)	Sun 07/01/24	Sun 07/01/24	5A	0									1
LWRT - 2 (4 x 108m rail strings)	Sun 07/01/24	Mon 08/01/24	5A	0									1
Train#1: Loco, 15MT Falcons (Spoil), Loco	Mon 08/01/24	Tue 09/01/24	5A	2			15						
Train#2: Loco, 15LD Falcons (Bottom ballast), Loco	Mon 08/01/24	Tue 09/01/24	5A	2			15						
Train#3: Loco, 15MT Falcons (Spoil), Loco	Mon 08/01/24	Tue 09/01/24	5A	2			15						
Train#4: Loco, 15LD Falcons (Bottom ballast), Loco	Mon 08/01/24	Tue 09/01/24	5A	2			15						
Train#5: Loco, 5LD Salmon (G44s), Loco	Wed 10/01/24	Wed 10/01/24	5A	2		5							
Train#6: Loco (TSO), 15LD Falcons (Type 1), Loco	Thu 11/01/24	Thu 11/01/24	5A	2			15						
Train#7: Loco (TSO), 15LD Falcons (Type 1), Loco	Fri 12/01/24	Fri 12/01/24	5A	2			15						
PLATFORMS 4 & 5 WEST DRAINAGE (450m)													
Train#8: Loco, 5LD Bass (Pipes), 5LD Falcons (Peas), 5LD Falcons (Ballast) (MATERIALS FOR P3,4&5), Loco	Sat 24/02/24	Sat 24/02/24	5A	2			10	5					
Train#9: Loco, 15MT (Spoil), Loco	Sat 24/02/24	Sat 24/02/24	5A	2			15						
PLATFORM 3 WEST (200m)													
LWRT - 1 (6 x 108m rail strings)	Sun 11/02/24	Sun 11/02/24	5A	0									1
LWRT - 2 (6 x 108m rail strings)	Mon 12/02/24	Mon 12/02/24	5A	0									1
LWRT - 3 (6 x 108m rail strings)	Tue 13/02/24	Tue 13/02/24	5A	0									1
LWRT - 4 (6 x 108m rail strings)	Wed 14/02/24	Wed 14/02/24	5A	0									1
Train#10: Loco, 2LD Salmon (336 No. G44s), 10LD Falcons, Loco	Thu 15/02/24	Thu 15/02/24	5A	2		2	10						
Train#11: Loco, 15LD (Type 1), Loco	Fri 16/02/24	Fri 16/02/24	5A	2			15						
PLATFORMS 6 & 7 WEST DRAINAGE (230m)													
Train#12: Loco, 5LD Bass (Pipes), 6LD Falcons (Peas), 6LD Falcons (Ballast) (DRAINAGE MATERIALS FOR P6,7&8)	Sun 18/02/24	Sun 18/02/24	5A	1			12	5					
Train#13: Loco, 15LD (Type 1), Loco	Fri 16/02/24	Fri 16/02/24	5A	2			10						
PLATFORM 4 WEST (470m)													
Train#14: Loco, 15LD Falcons (Ballast), Loco	Mon 19/02/24	Tue 20/02/24	5A	2			15						
Train#15: Loco, 10LD Falcons, 5LD Salmon (840 No. G44s), Loco	Tue 20/02/24	Wed 21/02/24	5A	2		5	10						
Train#16: Loco, 15LD Falcons (Type 1), Loco	Wed 21/02/24	Thu 22/02/24	5A	2			15						
PLATFORM 5 WEST (500m)													
Train#17: Loco, 2 x S&C Tilters, 5LD Salmon (slaves & ironwork), 5LD Salmon (G44s), Loco	Sat 16/03/24	Sun 17/03/24	5A	1		10					2		
Train#18: Loco, 12LD Falcons (Ballast), Loco	Mon 18/03/24	Tue 19/03/24	5A	1			12						
Train#19: Loco, 12LD Falcons (Ballast), Loco	Tue 19/03/24	Wed 20/03/24	5A	1			12						
Train#20: Loco, 15LD Falcons (Type 1), Loco	Mon 18/03/24	Tue 19/03/24	5A	1			12						
DOWN RELIEF TEMP (520m)													
LWRT - 1 (6 x 108m rail strings) - Up Relief	Mon 01/04/24	Tue 02/04/24	5B										1
LWRT - 2 (6 x 108m rail strings) - Up Relief	Tue 02/04/24	Wed 03/04/24	5B										1
Train#20: Loco, 15LD Falcons, Loco - Rail Head	Wed 03/04/24	Thu 04/04/24	5B	1			15						
Train#21: Loco, 10LD Falcons, 5LD Salmon, Loco - Rail Head	Thu 04/04/24	Fri 05/04/24	5B	1		5	10						
Train#22: Loco, 10MT Falcons, 2LD Bass (Pipes), 2LD Falcons (Peas), Loco - Rail Head	Fri 05/04/24	Sat 06/04/24	5B	1			12	2					
Train#23: Loco, 15LD Falcons (Type 1), Loco - Rail Head	Sat 06/04/24	Sat 06/04/24	5B	1			15						
UP RELIEF TEMP (260m)													
LWRT - 1 (6 x 108m rail strings) - Up Relief	Mon 15/04/24	Tue 16/04/24	5B										1
LWRT - 2 (6 x 108m rail strings) - Up Relief	Tue 16/04/24	Wed 17/04/24	5B										1
Train#24: Loco, 10LD Falcons, Loco - Rail Head	Wed 17/04/24	Thu 18/04/24	5B	2			10						0
Train#25: Loco, 5LD Falcons, 3LD Salmon, Loco - Rail Head	Thu 18/04/24	Fri 19/04/24	5B	2		3	5						0
Train#26: Loco, 15MT Falcons, Loco - Rail Head	Sat 27/04/24	Sun 28/04/24	5B	2			15						0
Train#27: Loco, 15LD Falcons (Type 1), Loco - Rail Head	Sat 27/04/24	Sun 28/04/24	5B	2			10	8					0
S&C DELIVERY													0
Train#28: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head	Mon 29/04/24	Tue 30/04/24	5B	2			5				4		0
Train#29: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head	Tue 30/04/24	Wed 01/05/24	5B	2			5				4		0
Train#30: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head	Wed 01/05/24	Thu 02/05/24	5B	2			5				4		0
Train#31: Loco, 4LD Tilting Wagons, 5LD Salmon, Loco - Rail Head	Thu 02/05/24	Fri 03/05/24	5B	2			5				4		0
UP RELIEF TEMP (240m)													0
Train#32: Loco, 12LD Falcons, 2LD Salmon, Loco - Rail Head	Sun 05/05/24	Mon 06/05/24	5B	2		2	12						0
Train#33: Loco, 15LD Falcons (Type 1), Loco - Rail Head	Fri 10/05/24	Fri 10/05/24	5B	2			15						0
Train#34: Loco, 15LD Falcons (Type 1), Loco - Rail Head	Wed 15/05/24	Wed 15/05/24	5B	2			15						0
REMAINING S&C FOOTPRINT - 9 PT ENDS													0
Train#35: Loco, 10LD Falcons, Loco - Rail Head	Mon 27/05/24	Tue 28/05/24	5B	2			15						0
Train#36: Loco, 10LD Falcons, Loco - Rail Head	Tue 28/05/24	Wed 29/05/24	5B	2			15						0
Train#37: Loco, 10LD Falcons, Loco - Rail Head	Wed 29/05/24	Thu 30/05/24	5B	2			15						0
Train#38: Loco, 10LD Falcons, Loco - Rail Head	Thu 30/05/24	Fri 31/05/24	5B	2			15						0
Train#39: Loco, 15MT Falcons (Spoil), Loco	Sat 08/06/24	Sun 09/06/24	5B	2			15						0
Train#40: Loco, 15MT Falcons (Spoil), Loco	Sat 08/06/24	Sun 09/06/24	5B	2			15						0
TURNBACK 'A' (180m)													0

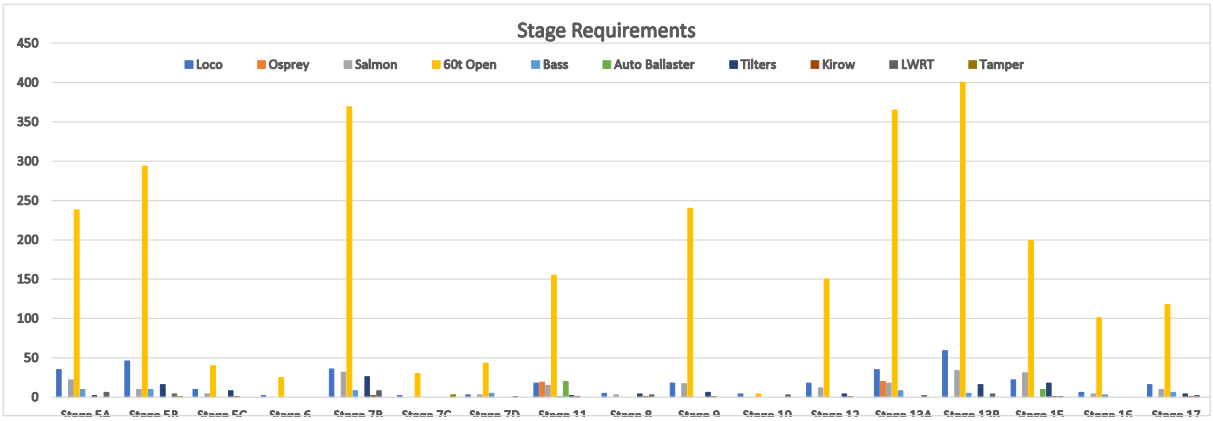
Train#41: Loco, 5MT Falcons, 2LD Salmon, Loco - Rail Head	Sat 22/06/24	Sun 23/06/24	5B	2			5						0
Train#42: Loco, 15LD Falcons (Type 1), Loco - Rail Head	Sun 23/06/24	Mon 24/06/24	5B	2			15						0
Train#43: Loco, 15MT Falcons, Loco	Sat 08/06/24	Sun 09/06/24	5B	2			15						0
Train44: Loco, 15MT Falcons, Loco	Sun 09/06/24	Mon 10/06/24	5B	2			15						0
TEMP RELIEF FOLLOW UP (DECEMBER)													0
Train#45: Loco, 10LD Falcons, Loco - Rail Head	Sun 24/11/24	Mon 25/11/24	5C	2			10						0
Train#46: Loco, 10LD Falcons, Loco - Rail Head	Mon 25/11/24	Tue 26/11/24	5C	2			10						0
Train#47: Loco, 10LD Falcons, Loco - Rail Head	Tue 26/11/24	Wed 27/11/24	5C	2			10						0
STAGE 6 PREP	Sun 08/12/24												0
Train#48: Loco, Kirow Consist, Tilting Wagons Consist (2 sets of 4), 4LD Salmon (stubs) - 9016& 9017 Pts, Loco	Mon 09/12/24	Mon 09/12/24	5C	2		4					8	1	0
Train#49: Loco, 10LD Falcons (ballast), Loco	Wed 11/12/24	Wed 11/12/24	5C	2			10						0
													0
STAGE 6													0
Train#1: Loco, 25MT Falcons (TPAT on Up Relief), Loco	Wed 25/12/24	Wed 25/12/24	6	2			25						0
Tamper	Thu 26/12/24	Thu 26/12/24	6						1				0
													0
PLATFORM 6 & 7: EAST													
Train#1: Loco, 12 Tilting Wagons (9025 & 9026AB), 2LD Salmon (PL Panels), Kirow, Support, Salmon	Sat 15/02/25	Sat 15/02/25	7B	1		2					12	1	
LWRT - 1 (6 x 108m rail strings)	Sun 16/02/25	Sun 16/02/25	7B										1
LWRT - 2 (6 x 108m rail strings)	Mon 17/02/25	Mon 17/02/25	7B										1
LWRT - 3 (6 x 108m rail strings)	Tue 18/02/25	Tue 18/02/25	7B										1
LWRT - 4 (6 x 108m rail strings)	Wed 19/02/25	Wed 19/02/25	7B										1
Train#2: Loco, 10LD Falcons (Peas), 8 LD Bass (192 x 6m Pipes)	Thu 20/02/25	Thu 20/02/25	7B	1			10	8					
Train#3: Loco, 20MT Falcons (Spoil)	Start	Finish	7B	1			20						
Train#4: Loco, 8 Tilting Wagons (9018A), 2LD Salmon (PL Panels), Kirow, Support, Salmon	Fri 21/02/25	Sat 22/02/25	7B	1		2					8	1	
Train#5: Loco, 20LD Falcons (Ballast)	Sat 22/02/25	Sun 23/02/25	7B	1			20						
Train#6: Loco, 15LD Falcons (Ballast), 4LD Salmon (672 No. G44s)	Wed 26/02/25	Thu 27/02/25	7B	1		4	15						
PLATFORMS 3 & 4			7B										
LWRT - 1 (6 x 108m rail strings)	Sat 08/03/25	Sun 09/03/25	7B										1
LWRT - 2 (6 x 108m rail strings)	Mon 10/03/25	Tue 11/03/25	7B										1
Train#7: Loco, 20LD Falcons	Wed 12/03/25	Thu 13/03/25	7B	1			20						
Train#8: Loco, 12LD Falcons, 6LD Salmon (1008 No. G44s)	Fri 14/03/25	Sat 15/03/25	7B	1		6	12						
Train#9: Loco, 20MT Falcons	Mon 17/03/25	Tue 18/03/25	7B	1			20						
Train#10: Loco, 20MT Falcons	Wed 19/03/25	Fri 21/03/25	7B	1			20						
PLATFORMS 6 & 7			7B										
LWRT - 1 (6 x 108m rail strings)	Sat 08/03/25	Sun 09/03/25	7B										1
LWRT - 2 (6 x 108m rail strings)	Mon 10/03/25	Tue 11/03/25	7B										1
Train#11: Loco, 20LD Falcons	Wed 12/03/25	Thu 13/03/25	7B	1			20						
Train#12: Loco, 12LD Falcons, 6LD Salmon (1008 No. G44s)	Fri 14/03/25	Sat 15/03/25	7B	1		6	12						
Train#13: Loco, 20MT Falcons	Mon 17/03/25	Tue 18/03/25	7B	1			20						
Train#14: Loco, 20MT Falcons	Wed 19/03/25	Fri 21/03/25	7B	1			20						
PLATFORM 5: EAST	Fri 07/03/25	Sun 30/03/25	7B										
Train#15 Loco, 5LD Salmon (G44s), Loco	Sat 15/03/25	Sat 15/03/25	7B	2		5							
Train#16: Loco, 20LD Falcons, Loco	Sun 16/03/25	Sun 16/03/25	7B	2			20						
Train#17: Loco, 20MT Falcons, Loco	Mon 17/03/25	Mon 17/03/25	7B	2			20						
Train#18: Loco, 20MT Falcons, Loco	Mon 17/03/25	Mon 17/03/25	7B	2			20						
PLATFORM 4: EAST			7B										
Train#19 Loco, 4LD Salmon (G44s), Loco	Sun 30/03/25	Sun 30/03/25	7B	2		4							
Train#20: Loco, 20LD Falcons, Loco	Mon 31/03/25	Mon 31/03/25	7B	2			20						
Train#21: Loco, 20MT Falcons, Loco	Tue 01/04/25	Fri 16/05/25	7B	2			20						
Train#22: Loco, 20MT Falcons, Loco	Tue 01/04/25	Fri 16/05/25	7B	2			20						
PLATFORM 8: EAST			7B										
TRAINS			7B										
Train#23 Loco, 6 Tilting Wagons, 1LD Salmon (PL panels), 2LD Salmon (G44s), Loco	Fri 11/04/25	Sat 12/04/25	7B	2		3					6		
Train#24: Loco, 20LD Falcons, Loco	Mon 14/04/25	Tue 15/04/25	7B	2			20						
Train#25: Loco, 20MT Falcons, Loco	Wed 16/04/25	Thu 17/04/25	7B	2			20						
FOLLOW UP WORKS													
Train#26: Loco, 15LD Falcons	Sat 31/05/25	Sun 01/06/25	7C	1			15						
Train#27: Loco: 15LD Falcons	Wed 04/06/25	Thu 05/06/25	7C	1			15						
PLATFORM 8				0									
LWRT (6 x 108m rail strings)	Sat 20/09/25	Sun 21/09/25	7D	0									1
Train#28: Loco, 6LD Falcons (Peas), 5 LD Bass (120 x 6m Pipes)	Mon 22/09/25	Tue 23/09/25	7D	1			6	5					
Train#29: Loco, 17LD Falcon (Ballast), 3LD Salmon (504 No. G44s)	Wed 24/09/25	Thu 25/09/25	7D	1		3	17						

Train#30: Loco, 20MT Falcons (Spoil)	Sun 28/09/25	Mon 29/09/25	7D	1			20						
2025: 54H POSSESSION - UP RELIEF RENEWAL CH 5700-6450 (750m)													
Train#1: Loco, 8LD Salmon (G44s), Loco (FSO)	Sat 13/12/25	Sun 14/12/25	11	2		8							
Train#2: Loco, 20LD Falcons (BB)	Sat 13/12/25	Sat 13/12/25	11	1			20						
Train#3: Loco, 20LD Falcons (BB)	Sat 13/12/25	Sat 13/12/25	11	1			20						
Train#4: Loco, 20MT Falcons	Sat 13/12/25	Sat 13/12/25	11	1			20						
Train#5: Loco (TSO), 10MT Osprey, 10MT Falcons, Loco	Sat 13/12/25	Sat 13/12/25	11	2	10		10						
Train#6: Loco: 20LD Autoballasters	Sun 14/12/25	Sun 14/12/25	11	1						20			
TAMPER	Sun 14/12/25	Sun 14/12/25	11						1				
2025: 54H POSSESSION - DN RELIEF RENEWAL: CH 6020-6480 (460m)													
TRAINS													
Train#1: Loco, 15LD Falcons (Top), 5LD Salmon (G44s), Loco (FSO)	Sat 20/12/25	Sun 21/12/25	11	2		5	15						
Train#2: Loco, 15LD (BB) Falcons	Sat 20/12/25	Sat 20/12/25	11	1			15						
Train#3: Loco, 10LD (BB) Falcons, 10MT Falcons	Sat 20/12/25	Sat 20/12/25	11	1			20						
Train#4: Loco, 20MT Falcons	Sat 20/12/25	Sat 20/12/25	11	1			20						
Train#5: Loco (TSO), 12MT Falcons, 8MT Osprey, Loco	Sat 20/12/25	Sat 20/12/25	11	2	8		12						
TAMPER	Sat 20/12/25	Sun 21/12/25	11						1				
2025: 72H POSSESSION - INSTALL X-OVERS (8112AB & 8113AB)													
Train#1: Loco, 2LD Salmon, 5LD Tilters, KIROW consist, 5MT Falcons, 4MT Osprey, Loco	Sat 27/12/25	Sat 27/12/25	11	1	1	1	1				1	1	
Train#2: Loco, 4LD Falcons (TP), 5MT Falcons, 4MT Osprey, Loco (FSO)	Sat 27/12/25	Sun 28/12/25	11	1			1						
Train#3: Loco (TSO), 4LD Falcons (TB), 2LD Salmon, 10LD Tilters, Loco	Sat 27/12/25	Sun 28/12/25	11	1		1	1				1		
TAMPERS (2 x S&C)	Sun 28/12/25	Sun 28/12/25	11					1	1				
STAGE 8 - PREP Works													
Train#1: Loco, LWRT (Up Relief) 4 x 108m	Sat 05/12/26	Sat 05/12/26	8	1									1
Train#2: Loco, LWRT (Up Relief) 4 x 108m	Sun 06/12/26	Sun 06/12/26	8	1									1
Train#3: Loco, LWRT (Up Relief) 4 x 108m	Mon 07/12/26	Mon 07/12/26	8	1									1
Train#4: Loco, KIROW Consist, Tilting Wagon Consist (set of 4), 3LD Salmon, Loco	Fri 11/12/26	Fri 11/12/26	8	2		3					4	1	
TRAINS (UP RELIEF EAST RENEWAL)													
Train#1: Loco, 10LD Falcons (Top Stone) , 3LD Salmon, 10LD Falcons (Bottom), Loco (FSO)	Sat 19/12/26	Sun 20/12/26	9	2		3	10						
Train#2: Loco, 10LD Falcons (BB), 15MT Falcons (Type 1, reloaded with spoil)	Sat 19/12/26	Sat 19/12/26	9	1			25						
Train#3: Loco (TSO), 15LD Falcons (Type 1), 10MT Falcons (Spoil),	Sat 19/12/26	Sat 19/12/26	9	1			25						
Train#4: Loco, 10MT Falcons (spoil), 15MT Falcons (Scrap), Loco	Sat 19/12/26	Sat 19/12/26	9	2			25						
TRAINS (UP RELIEF WEST RENEWAL)			9										
Train#5: Loco, 6LD Falcons (Top Stone), 3LD Salmon (G44s), 12LD Falcons (BB), Loco (FSO)	Sat 19/12/26	Sat 19/12/26	9	2		3	18						
Train#6: Loco (TSO), 25MT Falcons (Scrap & Spoil), Loco	Sat 19/12/26	Sat 19/12/26	9	2			25						
TRAINS (DN RELIEF WEST RENEWAL)													
Train#7: Loco, 4LD Falcons (Top Stone) , 2LD Salmon (G44s), 8LD Falcons (BB), Loco (FSO)	Sat 19/12/26	Sun 20/12/26	9	2		2	12						
Train#8: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco	Sun 20/12/26	Sun 20/12/26	9	2			20						
TRAINS (DN RELIEF EAST RENEWAL)													
Train#9: Loco, Kirow & Support, 6LD Salmon, 6 Tilters, Loco (FSO)	Sun 20/12/26	Tue 22/12/26	9	2		6					6	1	
Train#10: Loco, 3LD Salmon, 15LD Falcons	Sun 20/12/26	Tue 22/12/26	9			3	15						
Train#11: Loco , 20LD Falcons	Sun 20/12/26	Mon 21/12/26	9				20						
Train#12: Loco, 25MT Falcons	Sun 20/12/26	Mon 21/12/26	9				25						
Train#13: Loco (TSO), 20MT Falcons, Loco	Sun 20/12/26	Mon 21/12/26	9	2			20						
RECOVER RELIEFS (CH 4950 - 5740: 790m)													
Train#1: Loco, 15MT Falcons, Loco	Wed 13/01/27	Wed 13/01/27	10	1			1						
Train#2: Loco, 15MT Falcons, Loco	Thu 14/01/27	Thu 14/01/27	10	1			1						
Train#3: Loco, 15MT Falcons, Loco	Fri 15/01/27	Fri 15/01/27	10	1			1						
Train#4: Loco, 15MT Falcons, Loco	Sat 16/01/27	Sat 16/01/27	10	1			1						
STAGE 12 PREP (DECEMBER)													
LWRT - 1 (6 x 108m)	Tue 07/12/27	Tue 07/12/27	10										1
LWRT - 2 (4 x 108m)	Wed 08/12/27	Wed 08/12/27	10										1
LWRT - 3 (4 x 108m)	Thu 09/12/27	Thu 09/12/27	10										1
POSSESSION - XMAS BLOCKADE 2027													
TRAINS (UP MAIN EAST RENEWAL)													
Train#1: Loco (TSO), 20MT Falcons (Scrap), Loco	Fri 24/12/27	Fri 24/12/27	12	1			1						
Train#2: Loco, 25MT Falcons (Spoil)	Sat 25/12/27	Sat 25/12/27	12	1			1						
Train#3: Loco, 10MT Falcons (Spoil), 15LD Falcons (Bottom Ballast)	Sat 25/12/27	Sun 26/12/27	12	1			1						
Train#4: Loco, 15LD Falcons (Bottom Ballast)	Sat 25/12/27	Sun 26/12/27	12	1			1						
Train#5: Loco, 15LD Falcons (Top Ballast), 6LD Salmon (G44s), Loco (FSO)	Sat 25/12/27	Sun 26/12/27	12	1		1	1						

TRAINS (UP MAIN WEST RENEWAL)													
Train#6: Loco, 5LD Falcons (Top) 2LD Salmon (G44s), 10LD Falcons (BB), Loco (FSO)	Sat 25/12/27	Sun 26/12/27	12	1		1	1						
Train#7: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco	Sat 25/12/27	Sat 25/12/27	12	1			1						
UP MAIN WEST (CH 5800 - 5970: 170M)													
TRAINS (DN MAIN EAST RENEWAL)													
Train#8: Loco, Kirow Consist, Tilting Wagons (set of 4), 2LD Salmon	Sun 26/12/27	Tue 28/12/27	12	1		2					4	1	
Train#9: Loco, 18LD Falcons (Top), 6LD Salmon (G44s)	Sun 26/12/27	Tue 28/12/27	12	1		6	18						
Train#10: Loco, 20LD Falcons (BB)	Sun 26/12/27	Mon 27/12/27	12	1			20						
Train#11: Loco, 10MT Falcons (Spoil), 10LD Falcons (BB)	Sun 26/12/27	Mon 27/12/27	12	1			20						
Train#12: Loco, 25MT Falcons (Spoil)	Sun 26/12/27	Mon 27/12/27	12	1			25						
Train#13: Loco (TSO), 20MT Falcons (Scrap), Loco	Sun 26/12/27	Mon 27/12/27	12	2			20						
DN MAIN EAST (CH 4320 - 4920: 600M INCL TEMP TURNOUT TO SOUTH RAIL HEAD)													
TRAINS (DN MAIN WEST RENEWAL)													
Train#14: Loco, 8LD Falcons (Top), 2LD Salmon (G44s), 12LD Falcons (BB), Loco (FSO)	Tue 28/12/27	Wed 29/12/27	12	2		2	20						
Train#15: Loco (TSO), 20MT Falcons (Scrap & Spoil), Loco	Tue 28/12/27	Tue 28/12/27	12	2			20						
2029: 54H POSSESSION - DOWN MAIN RENEWAL CH: 5900-6460 (560M)	Tue 09/01/29	Thu 11/01/29											
Train#1: Loco, 15LD Falcons, 6LD Salmon, Loco (FSO)	Tue 09/01/29	Wed 10/01/29	13A	2		6	15						
Train#2: Loco, 20LD Falcons (Type 1)	Tue 09/01/29	Tue 09/01/29	13A	1			20						
Train#3: Loco, 5LD Falcons, 15MT Falcons	Tue 09/01/29	Tue 09/01/29	13A	1			20						
Train#4: Loco, 20MT Falcons	Tue 09/01/29	Tue 09/01/29	13A	1			20						
Train#5: Loco (TSO), 10MT Osprey, 10MT Falcons, Loco	Tue 09/01/29	Tue 09/01/29	13A	2	10		10						
2029: 54H POSSESSION - UP MAIN RENEWAL: CH 5960-6480 (520M)	Tue 16/01/29	Thu 18/01/29											
Train#1: Loco (TSO), 10MT Falcon, 10MT Osprey	Tue 16/01/29	Tue 16/01/29	13A	1	10		10						
Train#2: Loco, 20MT Falcons	Tue 16/01/29	Tue 16/01/29	13A	1			20						
Train#3: Loco, 10LD Falcons (Type 1), 10MT Falcons	Tue 16/01/29	Tue 16/01/29	13A	1			20						
Train#4: Loco, 15LD Falcons	Tue 16/01/29	Tue 16/01/29	13A	1			15						
Train#5: Loco (TSO), 5LD Salmon, 15LD Falcons, Loco	Tue 16/01/29	Wed 17/01/29	13A	2		5	15						
RECOVER UP MAIN (CH 4850 - 5750: 900m), DELIVER MATERIALS													
TRAINS													
Train#1: Loco, 7LD Salmon, Loco	Wed 24/01/29	Wed 24/01/29	13A	1		7							
Train#2: Loco, 8LD Bass (Pipes), 10LD Falcons (Peas)	Thu 25/01/29	Thu 25/01/29	13A	1			10	8					
Train#3: Loco, 20MT Falcons, Loco	Fri 26/01/29	Fri 26/01/29	13A	2			20						
Train#4: Loco, 20MT Falcons, Loco	Sat 27/01/29	Sat 27/01/29	13A	2			20						
Train#5: Loco, 20LD Falcons (Type 1), Loco	Sun 28/01/29	Sun 28/01/29	13A	2			20						
Train#6: Loco, 15LD Falcons, Loco	Mon 29/01/29	Mon 29/01/29	13A	2			15						
Train#7: Loco, 15LD Falcons, Loco	Tue 30/01/29	Tue 30/01/29	13A	2			15						
RECOVER DN MAIN / INSTALL DN MAIN LOOP (SOUTH RAIL HEAD)													
LWRT - 1 (8 x 108m)	Fri 09/02/29	Fri 09/02/29	13A										1
LWRT - 2 (8 x 108m)	Sat 10/02/29	Sat 10/02/29	13A										1
Train#1: Loco, 20MT Falcons, Loco - Scrap (Train on Dn Main - East)	Sun 11/02/29	Sun 11/02/29	13A	2			20						
Train#2: Loco, 20MT Falcons, Loco - Scrap (Train on Dn Main - East)	Mon 12/02/29	Mon 12/02/29	13A	2			20						
Train#3: Loco, 20MT Falcons, Loco - Spoil (Train on Dn Main - East)	Fri 23/02/29	Fri 23/02/29	13A	2			20						
Train#4: Loco, 20MT Falcons, Loco - Spoil (Train on Dn Main - East)	Sat 24/02/29	Sat 24/02/29	13A	2			20						
Train#5: Loco, 20MT Falcons, Loco - Spoil (Train on Dn Main - East)	Sun 25/02/29	Sun 25/02/29	13A	2			20						
INSTALL UP MAIN LOOP: CH 4900-5300 (400M)													
LWRT - 1 (16 x 108m)	Wed 21/02/29	Wed 21/02/29	13B										1
LWRT - 2 (8 x 108m)	Thu 22/02/29	Thu 22/02/29	13B										1
Train#1: Loco, 20LD Falcons (Type 1), Loco	Wed 07/03/29	Wed 07/03/29	13B	2			20						
Train#2: Loco, 4LD Salmon, Loco	Thu 08/03/29	Thu 08/03/29	13B	2		4							
Train#3: Loco, 15LD Falcons, Loco	Fri 09/03/29	Fri 09/03/29	13B	2			15						
Train#4: Loco, 20MT Falcons, Loco - Spoil	Sat 10/03/29	Sat 10/03/29	13B	2			20						
Train#5: Loco, 20MT Falcons, Loco - Spoil	Sun 11/03/29	Sun 11/03/29	13B	2			20						

INSTALL DN MAIN: CH 4850-5490 (640M)													
Train#1: Loco, 7LD Salmon, Loco	Wed 21/03/29	Wed 21/03/29	13B	2		7							
Train#2: Loco, 20LD Falcons (Type 1), Loco	Fri 23/03/29	Fri 23/03/29	13B	2			20						
Train#3: Loco, 15LD Falcons, Loco	Sat 24/03/29	Sat 24/03/29	13B	2			15						
Train#4: Loco, 15LD Falcons, Loco	Sun 25/03/29	Sun 25/03/29	13B	2			15						
Train#5: Loco, 20MT Falcons, Loco - Spoil	Mon 26/03/29	Mon 26/03/29	13B	2			20						
Train#6: Loco, 20MT Falcons, Loco - Spoil	Tue 27/03/29	Tue 27/03/29	13B	2			20						
9046 AB CROSSOVER													
Train#1: Loco, 5LD Bass (Pipes), 5LD Falcons (Type 1), 5LD Falcons (Peas)	Fri 06/04/29	Fri 06/04/29	13B	1			10	5					
Train#2: Loco, 15LD Falcons, Loco	Sat 07/04/29	Sat 07/04/29	13B	2			15						
Train#3: Loco, 4LD Tilting Wagons, 6LD Salmon, Loco	Wed 18/04/29	Wed 18/04/29	13B	2		6					4		
Train#4: Loco, 15MT Falcons, Loco	Thu 19/04/29	Thu 19/04/29	13B	2			15						
UP & DN MAINS - 140M PL													
LWRT - 6 x 108m Rails	Fri 20/04/29	Fri 20/04/29	13B										1
Train#1: Loco, 5LD Salmon (G44s), Loco	Sat 21/04/29	Sat 21/04/29	13B	2		5							
Train#2: Loco, 15LD Falcons, Loco	Sun 22/04/29	Sun 22/04/29	13B	2			15						
Train#3: Loco, 20MT Falcons, Loco	Wed 02/05/29	Wed 02/05/29	13B	2			20						
Train#4: Loco, 15LD Falcons (Type 1), Loco	Thu 03/05/29	Thu 03/05/29	13B	2			15						
DOWN RELIEF - 200M PL													
LWRT - 4 x 108m Rails	Fri 04/05/29	Fri 04/05/29	13B										1
Train#1: Loco, 15LD Falcons, Loco	Sat 05/05/29	Sat 05/05/29	13B	2			15						
Train#2: Loco, 15MT Falcons, Loco	Thu 17/05/29	Thu 17/05/29	13B	2			15						
Train#3: Loco, 15LD Falcons (Type 1), Loco	Thu 17/05/29	Fri 18/05/29	13B	2			15						
9043PTS - G TURNOUT													
Train#1: Loco, 6LD Tilters, 6LD Salmon, Loco	Thu 17/05/29	Fri 18/05/29	13B	2		6					6		
Train#2: Loco, 15LD Falcons, Loco	Sat 19/05/29	Sun 20/05/29	13B	2			15						
Train#3: Loco, 15LD Falcons (Type 1), Loco	Fri 01/06/29	Fri 01/06/29	13B	2			15						
Train#4: Loco, 20MT Falcons, Loco	Fri 01/06/29	Sat 02/06/29	13B	2			20						
9044PTS - G TURNOUT													
Train#1: Loco, 6LD Tilters, 6LD Salmon, Loco	Thu 31/05/29	Fri 01/06/29	13B	2		6					6		
Train#2: Loco, 15LD Falcons, Loco	Sat 02/06/29	Sun 03/06/29	13B	2			15						
Train#3: Loco, 15LD Falcons (Type 1), Loco	Thu 14/06/29	Fri 15/06/29	13B	2			15						
Train#4: Loco, 20MT Falcons, Loco	Sat 16/06/29	Sun 17/06/29	13B	2			20						
DN MAIN EAST (CH 4710 to 4850: 9023 Pts)													
Train#1: Loco, 5LD Falcons (Top), 6LD Salmon, 6LD S&C Tilting Wagons, Kirow Consist, Loco (FSO)	Mon 24/12/29	Mon 24/12/29	15	2		6	5				6	1	
Train#2: Loco (TSO), 4LD Falcons (BB), 6MT Falcons (Spoil), 6MT Salmon, Loco	Mon 24/12/29	Tue 25/12/29	15	2		6	10						
9047 AB X-OVER (WEST MAINS)													
Train#3: Loco, 20MT Falcons (Scrap& Spoil)	Tue 25/12/29	Wed 26/12/29	15	1			20						
Train#4: Loco, 8MT Falcons, 12LD Falcons	Tue 25/12/29	Wed 26/12/29	15	1			20						
Train#5: Loco, 6LD Tilting Wagons, 6LD Salmon	Wed 26/12/29	Wed 26/12/29	15	1		6					6		
Train#6: Loco, 10LD Falcons	Wed 26/12/29	Thu 27/12/29	15	1			10						
UP MAIN EAST (CH 4680 to 5020: 9024 Pts)													
Train#7: Loco, 6LD Falcons (Top), 7LD Salmon (PL Panels), Loco (FSO) - Dn Main	Thu 27/12/29	Sat 29/12/29	15	2		7	6						
Train#8: Loco, 6LD Salmon, 6LD Tilting Wagons - Dn Main	Thu 27/12/29	Fri 28/12/29	15	1		6					6		
Train#9: Loco, 20MT Falcons (Scrap) - Dn Relief	Thu 27/12/29	Thu 27/12/29	15	1			20						
Train#10: Loco, 20MT Falcons (Spoil) - Dn Main	Thu 27/12/29	Thu 27/12/29	15	1			20						
Train#11: Loco, 20MT Falcons (Spoil) - Dn Main	Thu 27/12/29	Thu 27/12/29	15	1			20						
Train#12: Loco (TSO), 20LD Falcons (BB), Loco - Dn Main	Thu 27/12/29	Thu 27/12/29	15	1			20						
Train#13: Loco, 10LD Autoballasters - Up Main	Fri 28/12/29	Sat 29/12/29	15	1						10			
RECOVER TEMP UP & DN MAINS & RELAY PL SECTIONS													
Train#1: LWRT: 4 x 218m strings CWR	Thu 09/01/31	Thu 09/01/31	16										1
Train#2: Loco, 10MT Falcons (Spoil) Train on Up Main	Sat 11/01/31	Sat 11/01/31	16	1			10						
Train#3: Loco, 8LD Falcons (Bottom Ballast) Train on Up Main	Sun 12/01/31	Sun 12/01/31	16	1			8						
Train#4: Loco, 6LD Falcons (Top Ballast) Train on Up Main	Wed 15/01/31	Wed 15/01/31	16	1			6						
Train#5: Loco, 10MT Falcons (Spoil) Train on Dn Relief	Sat 18/01/31	Sat 18/01/31	16	1			10						
Train#6: Loco, 8LD Falcons (Bottom Ballast) Train on Dn Relief	Sun 19/01/31	Sun 19/01/31	16	1			8						
Train#7: Loco, 6LD Falcons (Top Ballast) Train on Dn Relief	Wed 22/01/31	Wed 22/01/31	16	1			6						

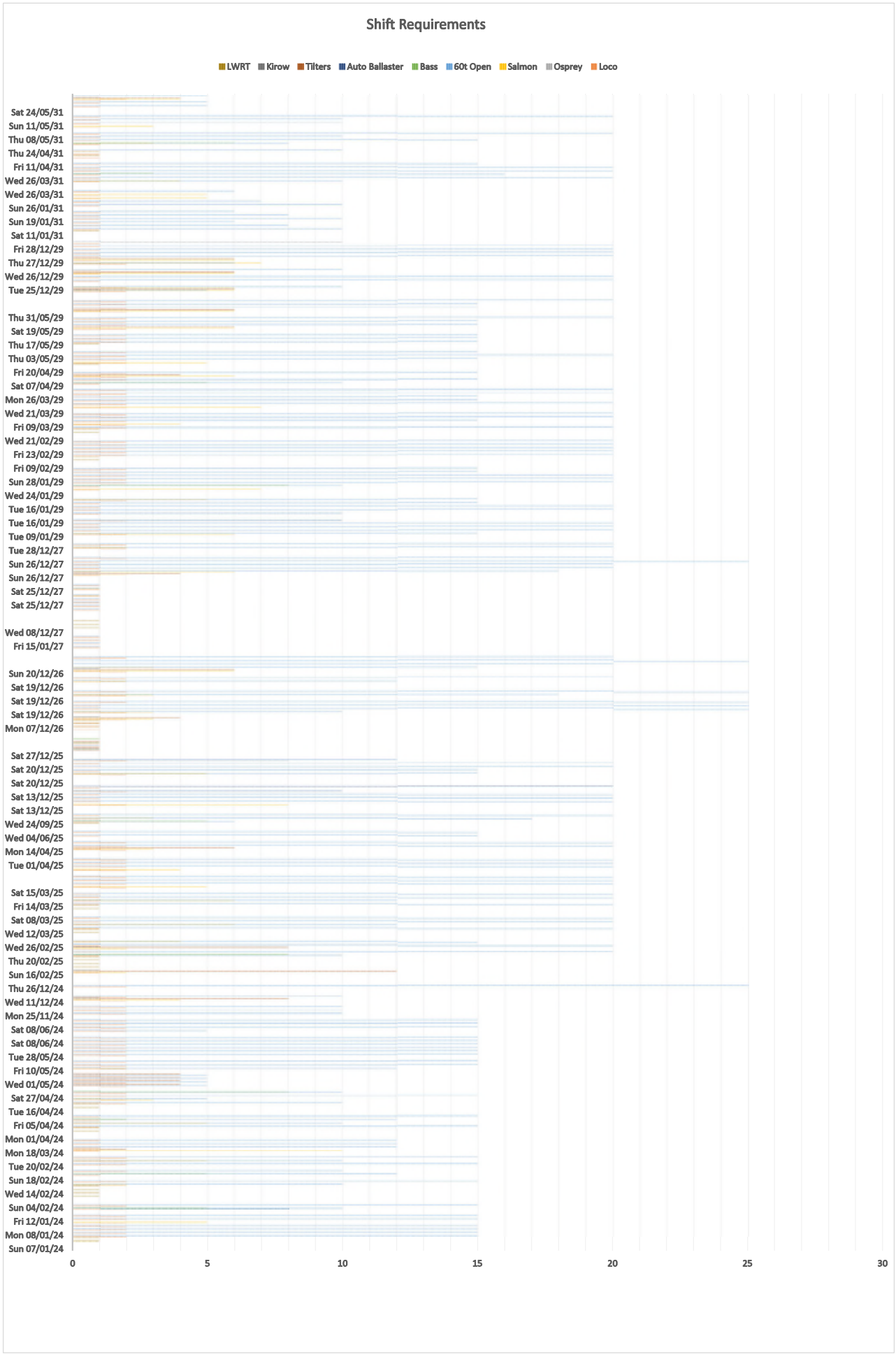
9039 PTS													
Train#1: Loco, 10MT Falcons (Spoil) Train on Up Main	Sat 25/01/31	Sat 25/01/31	16	1			10						
Train#2: Loco, 7LD Falcons (Bottom Ballast) Train on Up Main	Sun 26/01/31	Sun 26/01/31	16	1			7						
Train#3: Loco, 5LD Salmon (9039 Pts in slave panels & Ironwork) Train on Dn Main	Mon 27/01/31	Mon 27/01/31	16	1		5							
Train#4: Loco, 5LD Salmon (9039 Pts in slave panels & Ironwork) Train on Dn Main	Tue 28/01/31	Tue 28/01/31	16	1		5							
Train#5: Loco, 6LD Falcons (Top Ballast) Train on Up Main	Thu 06/02/31	Thu 06/02/31	16	1			6						
STAGE 16.2													
DOWN RELIEF TO FINAL - EASTER 2031													
Train#1: Loco, 10LD Falcons, 4LD Salmon, Loco (FSO) - EAST SECTION	Wed 26/03/31	Thu 27/03/31	16	1		4	10						
Train#2: Loco, 20LD Falcons (BB) - EAST SECTION	Wed 26/03/31	Wed 26/03/31	16	1			20						
Train#3: Loco, 3LD Falcons (Ballast), 3LD Bass (Pipes), 3LD Falcons (Peas), 10MT Falcons - EAST SECTION	Wed 26/03/31	Wed 26/03/31	16	1			16	3					
Train#4: Loco, 20MT Falcons - EAST SECTION	Wed 26/03/31	Wed 26/03/31	16	1			20						
Train#5: Loco, 20LD Falcons (BB & TB) - WEST SECTION	Wed 26/03/31	Wed 26/03/31	16	1			20						
Train#6: Loco (TSO), 15MT Falcons, Loco - WEST SECTION	Wed 26/03/31	Wed 26/03/31	16	1			15						
TURNBACK A: CH 5800 to 5930 (130M)													
Train#1: Loco, LWRT (6 x 108m strings) Train on Up Relief	Fri 11/04/31	Fri 11/04/31	17	1									1
Train#2: Loco, LWRT (6 x 108m strings) Train on Up Relief	Sat 12/04/31	Sat 12/04/31	17	1									1
Train#3: Loco, 10LD Falcons (Ballast) Train on Dn Relief	Sun 13/04/31	Sun 13/04/31	17	1			10						
TURNBACK B: CH 5630 to 5890 (260M)													
Train#1: Loco, 6LD Bass (pipes), 6LD Falcons (Peas), 3LD Salmon (G44s) Train on Dn Relief	Thu 24/04/31	Thu 24/04/31	17	1		3	8	6					
Train#2: Loco, 15LD Falcons (Ballast) Train on Dn Relief	Sat 26/04/31	Sat 26/04/31	17	1			15						
Train#3: Loco, 10LD Falcons (Ballast) Train on Dn Relief	Tue 29/04/31	Tue 29/04/31	17	1			10						
Train#4: Loco, 20MT Falcons (Spoil) Train on Dn Relief	Thu 08/05/31	Thu 08/05/31	17	1			20						
TURNBACK C: CH 5560 to 5850 (290M)													
Train#1: Loco, 3LD Salmon (G44s) Train on Dn Relief	Fri 09/05/31	Fri 09/05/31	17	1		3							
Train#2: Loco, 10LD Falcons (Ballast) Train on Dn Relief	Sat 10/05/31	Sat 10/05/31	17	1			10						
Train#3: Loco, 10LD Falcons (Ballast) Train on Dn Relief	Sun 11/05/31	Sun 11/05/31	17	1			10						
Train#4: Loco, 20MT Falcons (Spoil) Train on Dn Relief	Thu 22/05/31	Thu 22/05/31	17	1			20						
STAGE 17.2													
INSTALL 9033 PTS													
Train#1: Loco, 5LD Falcons (Bottom Ballast)	Sat 24/05/31	Sat 24/05/31	17	1			5						
Train#2: Loco, 5MT Falcons (Spoil)	Mon 26/05/31	Mon 26/05/31	17	1			5						
Train#3: Loco, 4LD Tilting Wagons, 4LD Salmon, Kirow Consist, Loco	Thu 05/06/31	Thu 05/06/31	17	2		4					4	1	
Train#4: Loco, 5LD Falcons (Boxing Ballast)	Sat 07/06/31	Sat 07/06/31	17	1			5						



	Loco	Osprey	Salmon	60t Open	Bass	Tamper	Auto Ballaster	Tilters	Kirow	LWRT
Stage 5A	35	0	22	238	10	0	0	2	0	6
Stage 5B	46	0	10	294	10	0	0	16	0	4
Stage 5C	10	0	4	40	0	0	0	8	1	0
Stage 6	2	0	0	25	0	1	0	0	0	0
Stage 7B	36	0	32	369	8	0	0	26	2	8
Stage 7C	2	0	0	30	0	0	0	0	0	0
Stage 7D	3	0	3	43	5	0	0	0	0	1
Stage 11	18	19	15	155	1	3	20	2	1	0
Stage 8	10	0	6	128	0	0	0	0	0	0
Stage 9	8	0	11	112	0	0	0	6	1	0
Stage 10	4	0	0	4	0	0	0	0	0	3
Stage 12	18	0	12	150	0	0	0	4	1	0
Stage 13A	36	21	18	381	8	0	0	0	0	3
Stage 13B	50	0	34	361	5	0	0	16	0	4
Stage 15	22	0	31	199	0	0	10	18	1	1
Stage 16	6	0	4	101	3	0	0	0	0	0
Stage 17	16	0	10	118	6	0	0	4	1	2

	Loco	Osprey	Salmon	60t Open	Bass	Tamper	Auto Ballaster	Tilters	Kirow	LWRT
2024	93	0	36	597	20	1	0	26	1	10
2025	59	19	50	597	14	3	20	28	3	9
2026	18	0	17	240	0	0	0	6	1	0
2027	22	0	12	154	0	0	0	4	1	3
2029	102	21	83	893	13	0	10	34	1	6
2031	33	0	24	290	9	0	0	4	1	3

	Loco	Osprey	Salmon	60t Open	Bass	Tamper	Auto Ballaster	Tilters	Kirow	LWRT
Xmas 2024	2	0	0	25	0	1	0	0	0	0
Xmas 2025	18	19	15	155	1	3	20	2	1	0
Xmas 2026	8	0	11	112	0	0	0	6	1	0
Xmas 2027	18	0	12	150	0	0	0	4	1	0
Xmas 2029	16	0	31	151	0	0	10	18	1	0


Shift Requirements
LWRT
Kirow
Tilters
Auto Ballaster
Bass
60t Open
Salmon
Osprey
Loco
Sat 24/05/31
Sun 11/05/31
Thu 08/05/31
Thu 24/04/31
Fri 11/04/31
Wed 26/03/31
Wed 26/03/31
Sun 26/01/31
Sun 19/01/31
Sat 11/01/31
Fri 28/12/29
Thu 27/12/29
Wed 26/12/29
Tue 25/12/29
Thu 31/05/29
Sat 19/05/29
Thu 17/05/29
Thu 03/05/29
Fri 20/04/29
Sat 07/04/29
Mon 26/03/29
Wed 21/03/29
Fri 09/03/29
Wed 21/02/29
Fri 23/02/29
Fri 09/02/29
Sun 28/01/29
Wed 24/01/29
Tue 16/01/29
Tue 16/01/29
Tue 09/01/29
Tue 28/12/27
Sun 26/12/27
Sun 26/12/27
Sat 25/12/27
Sat 25/12/27
Wed 08/12/27
Fri 15/01/27
Sun 20/12/26
Sat 19/12/26
Sat 19/12/26
Sat 19/12/26
Mon 07/12/26
Sat 27/12/25
Sat 20/12/25
Sat 20/12/25
Sat 13/12/25
Sat 13/12/25
Wed 24/09/25
Wed 04/06/25
Mon 14/04/25
Tue 01/04/25
Sat 15/03/25
Fri 14/03/25
Sat 08/03/25
Wed 12/03/25
Wed 26/02/25
Thu 20/02/25
Sun 16/02/25
Thu 26/12/24
Wed 11/12/24
Mon 25/11/24
Sat 08/06/24
Sat 08/06/24
Tue 28/05/24
Fri 10/05/24
Wed 01/05/24
Sat 27/04/24
Tue 16/04/24
Fri 05/04/24
Mon 01/04/24
Mon 18/03/24
Tue 20/02/24
Sun 18/02/24
Wed 14/02/24
Sun 04/02/24
Fri 12/01/24
Mon 08/01/24
Sun 07/01/24
0
5
10
15
20
25
30

APPENDIX H

Safety and Security Management Plan

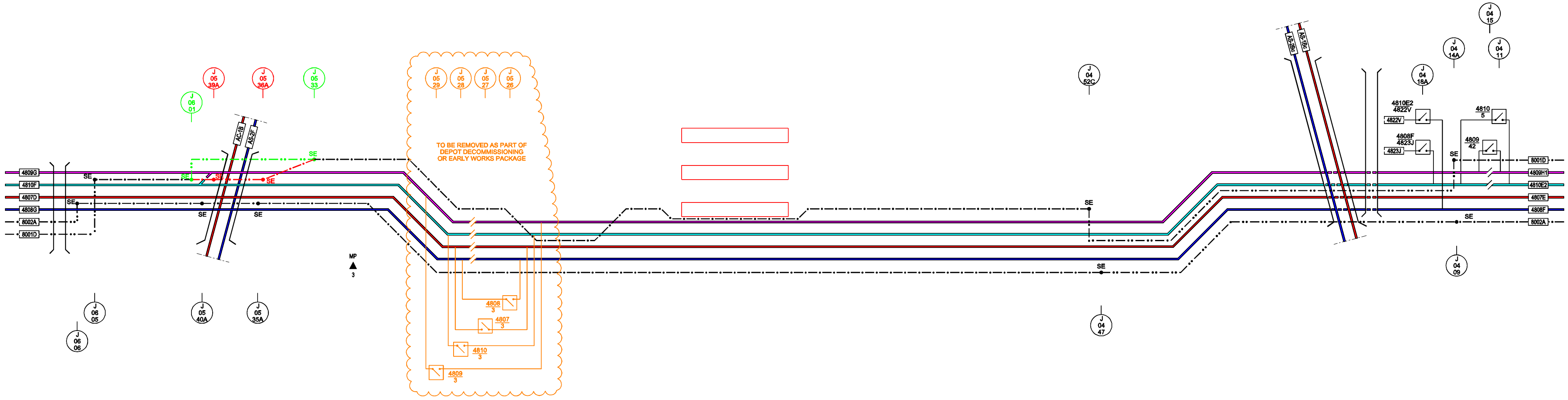
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APPENDIX I

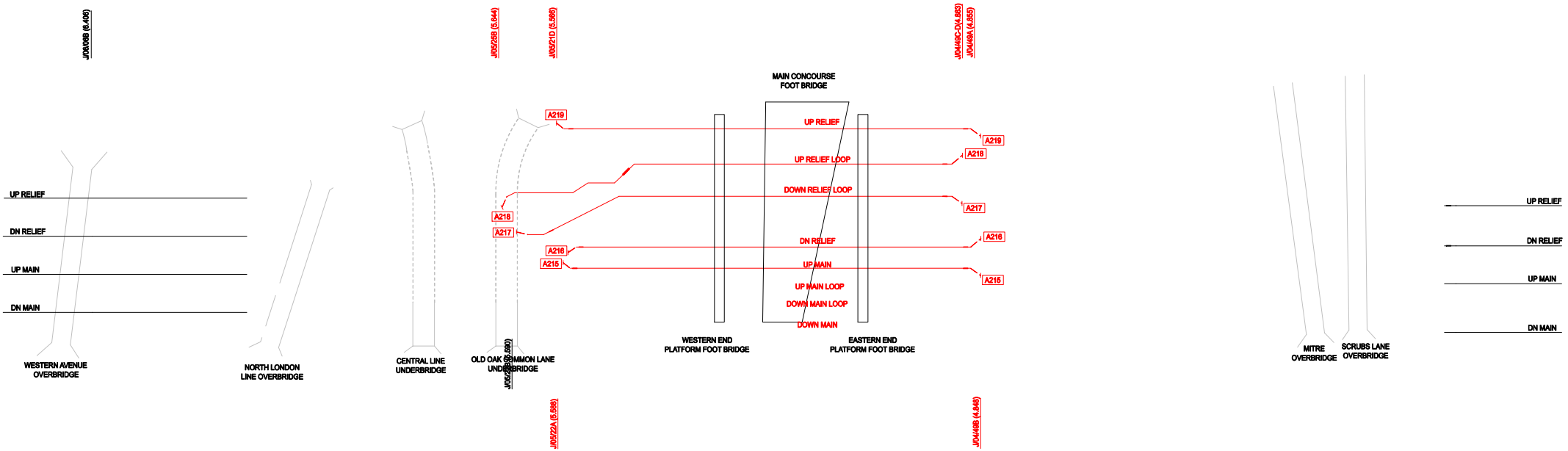
OLE Wire Runs and Sectioning

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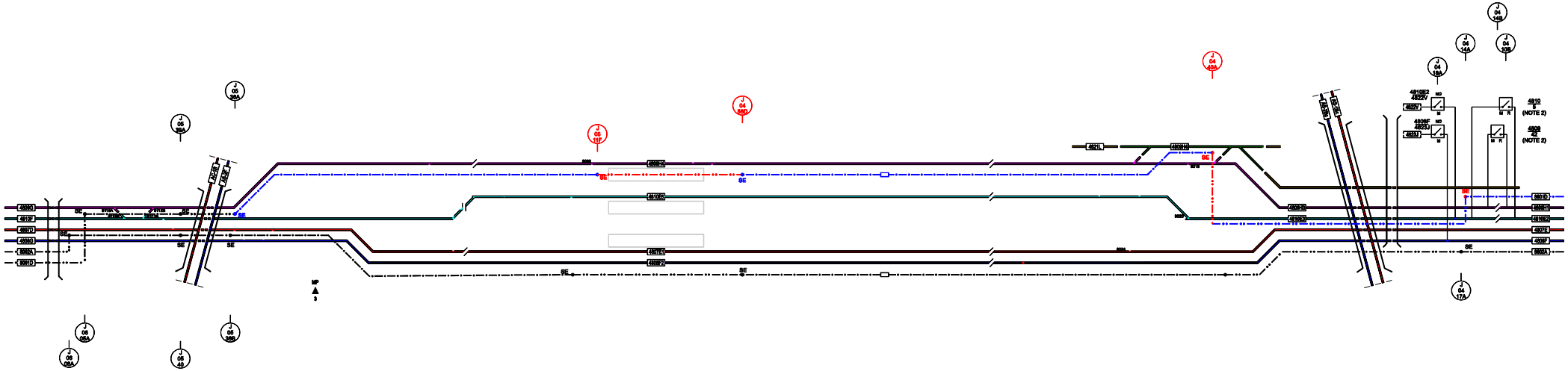
Stage 5D

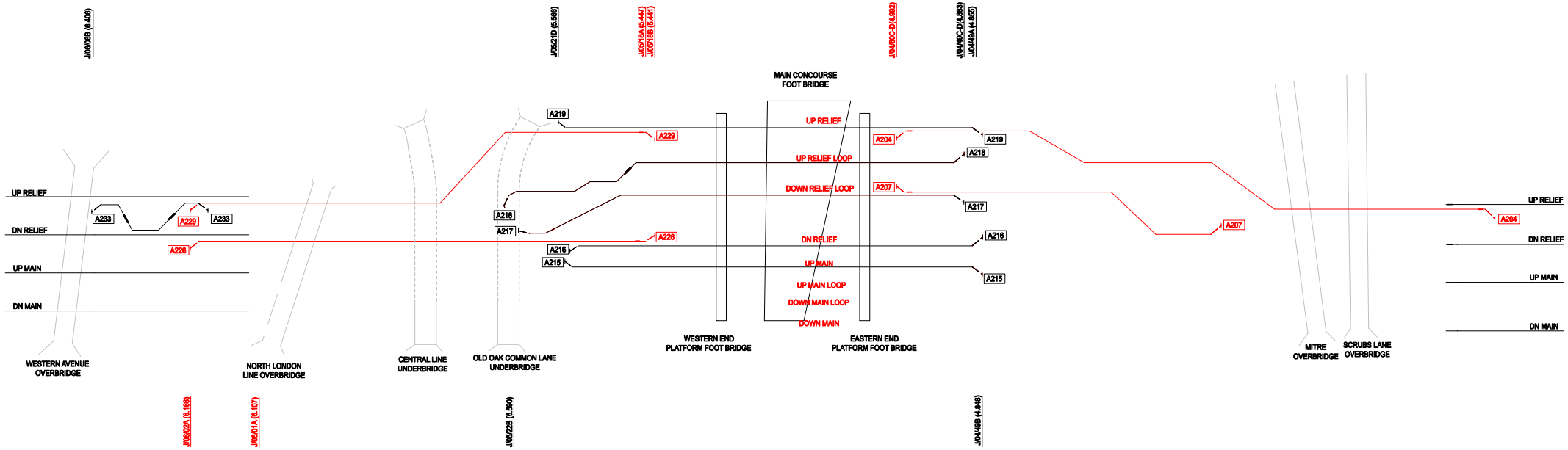

TO BE REMOVED AS PART OF
DEPOT DECOMMISSIONING
OR EARLY WORKS PACKAGE
4809G
4810F
4807D
4808G
8002A
8001D
8001D
4809H1
4810E2
4807E
4808F
8002A
4810E2
4822V
4808F
4823J
4810
5
MP
3
SE

Stage 8

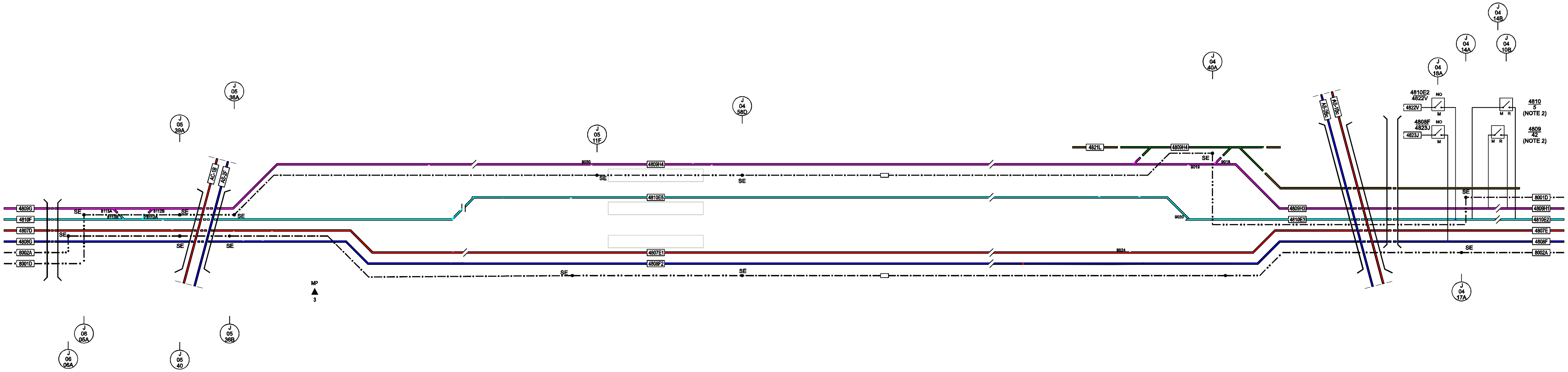

J060/068 (8.406)
J052/259 (5.644)
J052/210 (5.566)
J04/46C-D/4.883)
J04/46A (4.855)
MAIN CONCOURSE FOOT BRIDGE
A219
UP RELIEF
A219
A218
UP RELIEF LOOP
DOWN RELIEF LOOP
A217
A218
A217
A216
A215
DN RELIEF
A216
UP MAIN
A215
UP MAIN LOOP
DOWN MAIN LOOP
DOWN MAIN
UP RELIEF
DN RELIEF
UP MAIN
DN MAIN
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
J052/22A (5.588)
J04/46B (4.846)

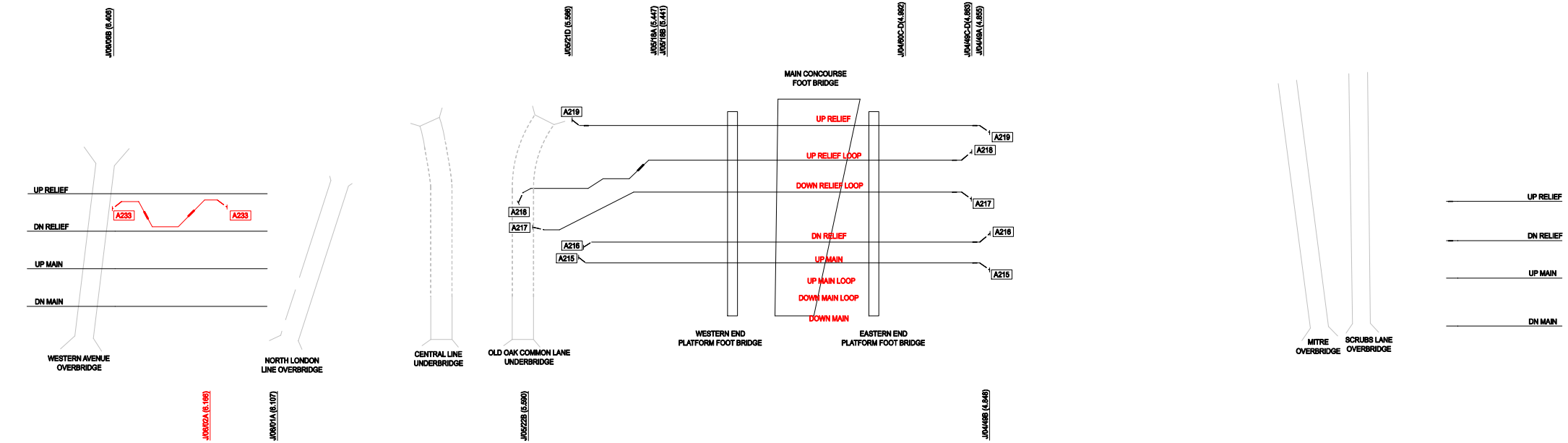
Stage 9


J 05 /05A
J 06 /06A
J 04 /05D
J 06 /17F
J 04 /03A
J 04 /14B
J 04 /10B
J 04 /18A
J 04 /17A
J 06 /06A
J 06 /06B
J 06 /40
4809G1
4810F
4807D
4809C
4809D
4891D
4809E1
4809E2
4807E1
4809F2
4809E3
4809E4
4821L
4809E5
4809E6
4816E2
4807E2
4809F1
4809A
4807D
4809E1
4816E2
4807E1
4809F1
4809A
4821BF
4822V
4809F
4822U
4810
B
(NOTE 2)
4809
42
(NOTE 2)
NO
R
N
SE
NP

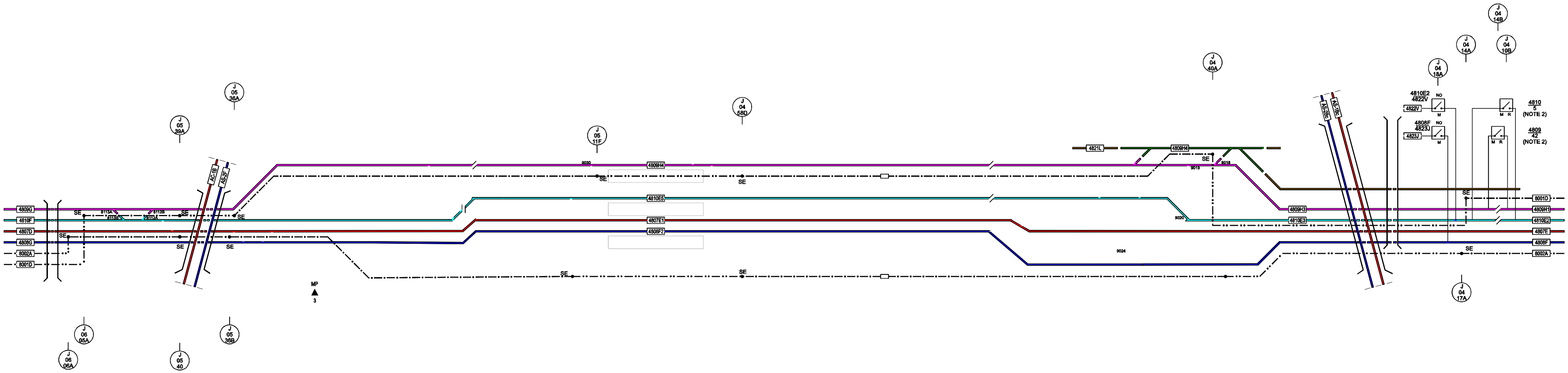

JI06/06B (6.406)
JI05/21D (5.599)
JI05/19A (5.447)
JI05/18B (5.441)
JI04/60C-D (4.992)
JI04/49C-D (4.863)
JI04/49A (4.655)
MAIN CONCOURSE FOOT BRIDGE
UP RELIEF
DN RELIEF
UP MAIN
DN MAIN
A233
A229
A226
A219
A218
A217
A216
A215
A204
A207
UP RELIEF LOOP
DOWN RELIEF LOOP
UP MAIN LOOP
DOWN MAIN LOOP
DOWN MAIN
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
JI06/02A (6.189)
JI06/01A (6.107)
JI05/22B (5.580)
JI04/49B (4.949)

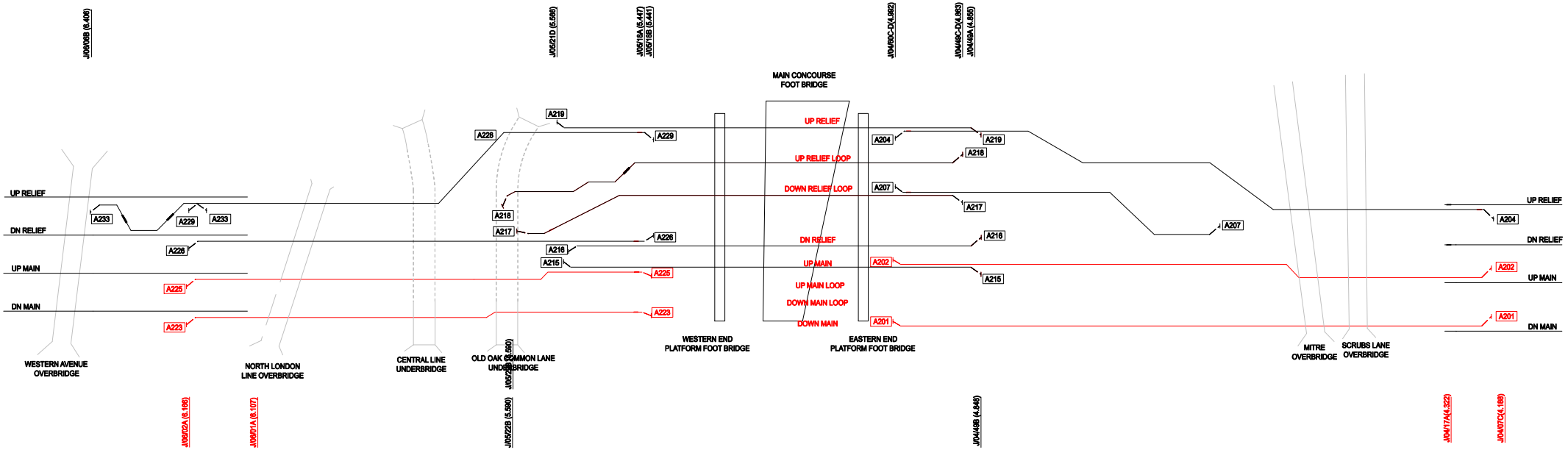
Stage 11


4809G
4810F
4807D
4808G
8002A
8001D
4809H4
4810E5
4807E1
4808F2
4809H3
4810E3
4821L
4809H1
4810E2
4807E
4808F
8001D
8002A
4810E2
4822V
4808F
4823J
4810
5
(NOTE 2)
4809
42
(NOTE 2)
SE
MP
3

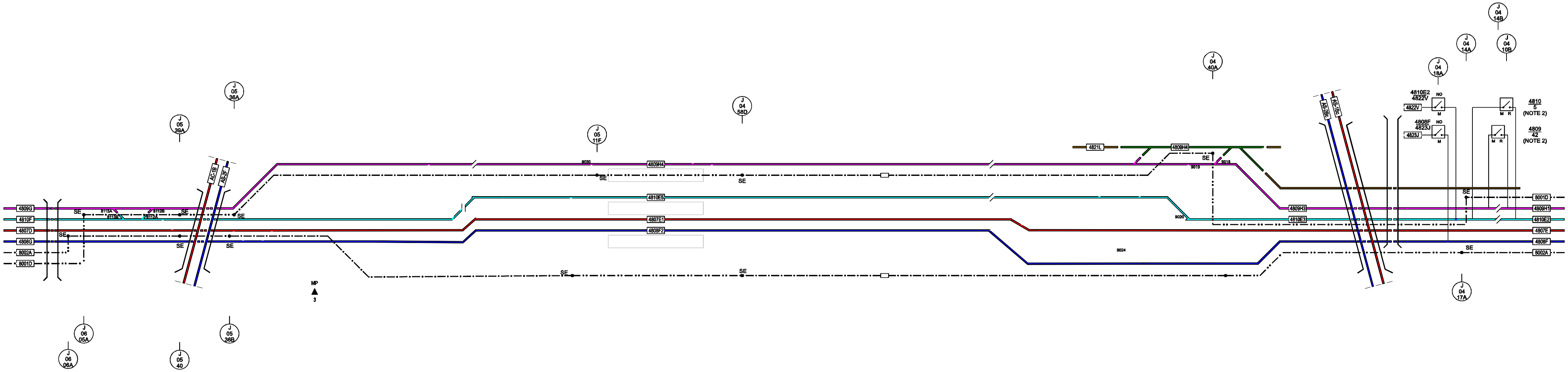

JI09/03B (6.405)
JI05/21D (5.588)
JI05/19A (5.447)
JI05/19B (5.441)
JI04/60C-D(4.992)
JI04/49C-D(4.883)
JI04/49A (4.855)
MAIN CONCOURSE
FOOT BRIDGE
A219
UP RELIEF
A219
A218
UP RELIEF LOOP
DOWN RELIEF LOOP
A217
A216
A217
DN RELIEF
A216
A216
A215
UP MAIN
A215
UP MAIN LOOP
DOWN MAIN LOOP
DOWN MAIN
UP RELIEF
DN RELIEF
UP MAIN
DN MAIN
A233
A233
WESTERN END
PLATFORM FOOT BRIDGE
EASTERN END
PLATFORM FOOT BRIDGE
WESTERN AVENUE
OVERBRIDGE
NORTH LONDON
LINE OVERBRIDGE
CENTRAL LINE
UNDERBRIDGE
OLD OAK COMMON LANE
UNDERBRIDGE
MITRE
OVERBRIDGE
SCRUBS LANE
OVERBRIDGE
JI06/02A (6.166)
JI09/01A (6.107)
JI05/22B (5.590)
JI04/49B (4.846)

Stage 12

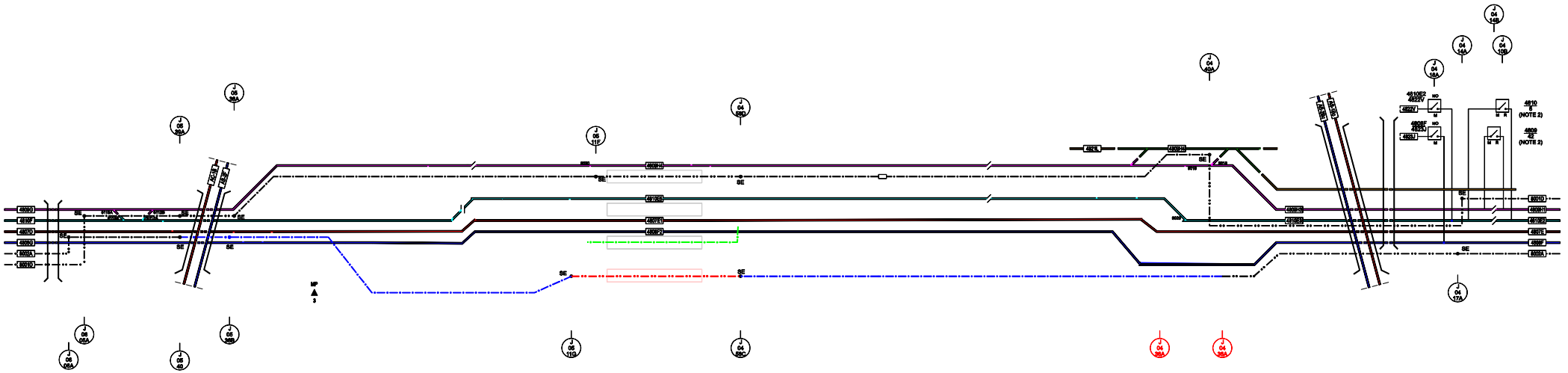

4809G
4810F
4807D
4808G
8002A
8001D
4809H4
4810E5
4807E1
4808F2
4821L
4809H3
4810E3
4809H1
4810E2
4807E
4808F
8001D
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4809
42
(NOTE 2)
MP
3

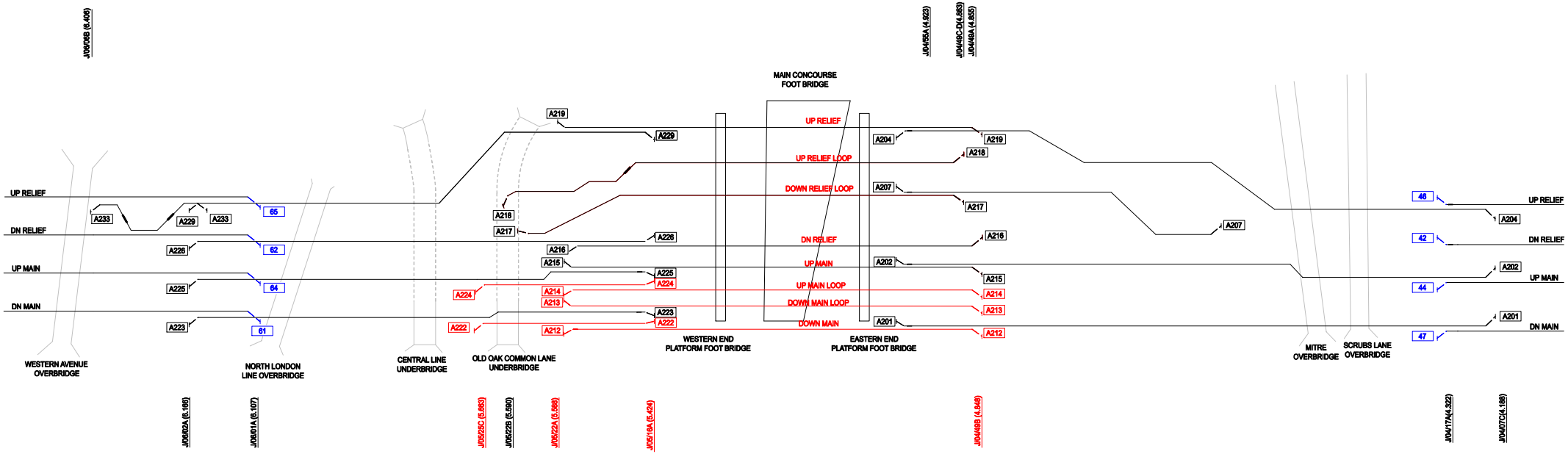

JI06/06B (6.406)
JI05/21D (5.598)
JI05/19A (5.447)
JI05/19B (5.441)
JI04/80C-D(4.882)
JI04/80C-D(4.863)
JI04/49A (4.855)
MAIN CONCOURSE FOOT BRIDGE
UP RELIEF
UP RELIEF LOOP
DOWN RELIEF LOOP
DN RELIEF
UP MAIN
UP MAIN LOOP
DOWN MAIN LOOP
DOWN MAIN
A233
A229
A226
A225
A223
A219
A218
A217
A216
A215
A204
A207
A202
A201
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
JI06/02A (6.166)
JI06/01A (6.107)
JI05/22B (5.590)
JI04/49B (4.846)
JI04/17A(4.322)
JI04/07C(4.189)

Stage 13

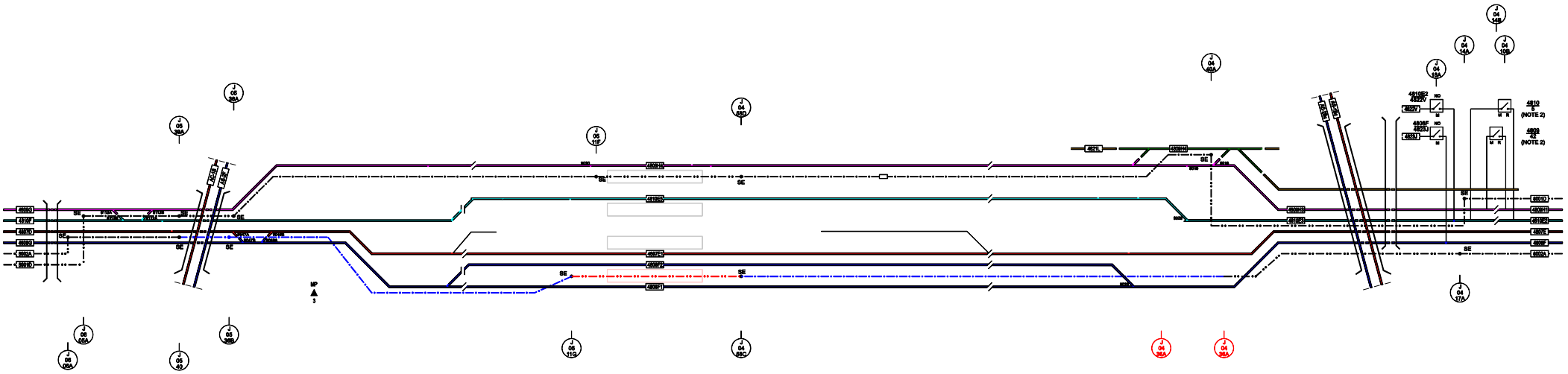

4809G
4810F
4807D
4808G
8002A
8001D
4809H4
4810E5
4807E1
4808F2
4809H3
4810E3
4809H1
4810E2
4807F
4808F
8001D
8002A
4821L
4810E2
4822V
4808F
4823J
4810
5
(NOTE 2)
4809
42
(NOTE 2)
SE
MP
3

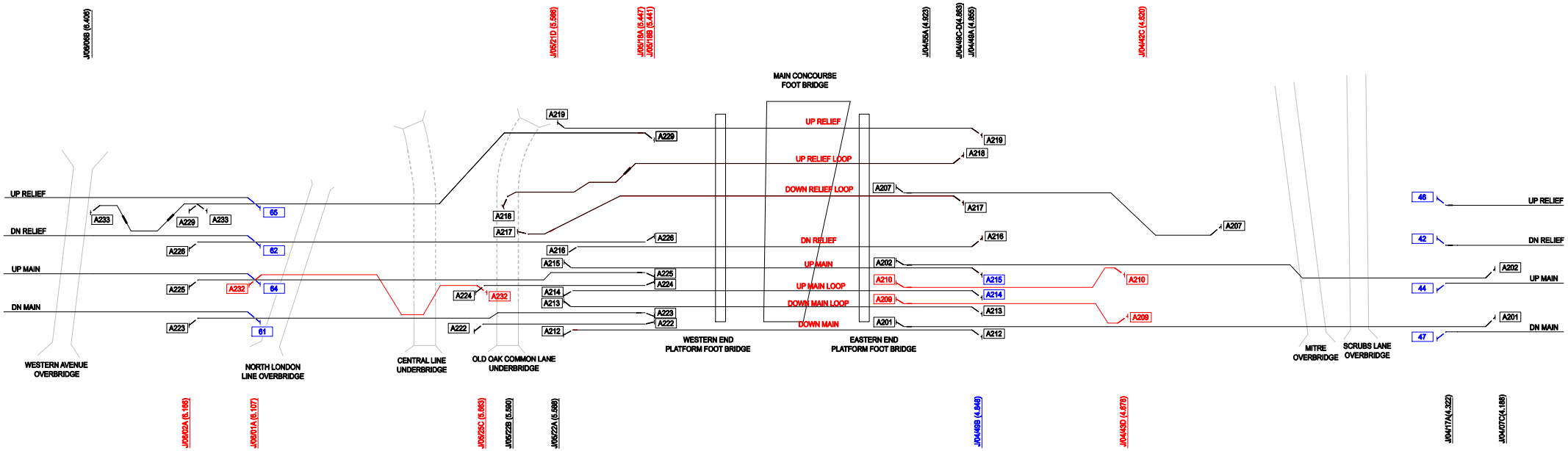
Stage 14


J 05 004A
J 05 003A
J 05 002A
J 05 001A
J 05 004A
J 05 003
J 05 002
J 05 001
J 05 11C
J 04 003
J 04 002
J 04 001
J 04 004
J 04 10A
J 04 11A
J 04 10B
J 04 12B
J 04 12A
4809Q
4810F
4807G
4809D
8002A
8001D
4810E2
4809E1
4807E1
4809E2
4807A1
4809C2
4807A2
4809C1
4809E3
4810E3
4809F
8003A
8001D
4809H1
4810E2
4807E2
4809F
8003A
4824L
4809H2
4825L
4825V
4810E2
4825V
4808F
4825J
4825J
4810
E
(NOTE 2)
4809
E
(NOTE 2)
SE
NO
M
R
MP
3

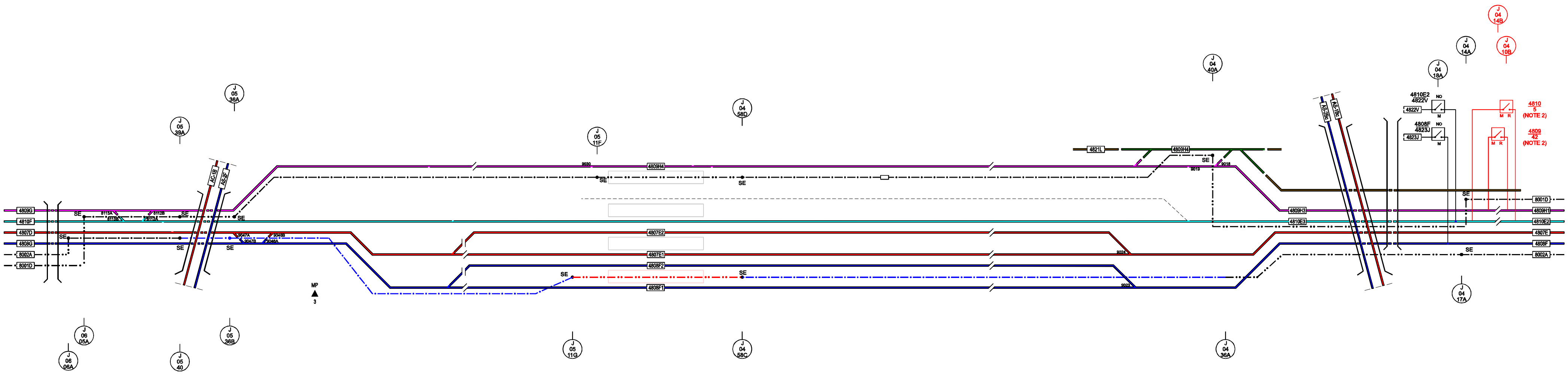

JD0/09B (6.406)
JD0/55A (4.923)
JD04/49C (T4.865)
JD04/49A (4.855)
MAIN CONCOURSE FOOT BRIDGE
UP RELIEF
UP RELIEF LOOP
DOWN RELIEF LOOP
DN RELIEF
UP MAIN
UP MAIN LOOP
DOWN MAIN LOOP
DN MAIN
DOWN MAIN
A219
A229
A204
A219
A218
A207
A217
A233
A229
A233
A218
A217
A226
A216
A216
A215
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A214
A213
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A213
A223
A222
A212
A201
A212
A207
65
62
64
61
46
42
44
47
UP RELIEF
A204
DN RELIEF
A202
UP MAIN
A201
DN MAIN
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
JD0/02A (6.166)
JD0/01A (6.107)
JD05/25C (5.653)
JD05/22B (5.590)
JD05/22A (5.586)
JD06/18A (5.424)
JD04/49B (4.949)
JD04/17A(4.922)
JD04/07C(4.188)

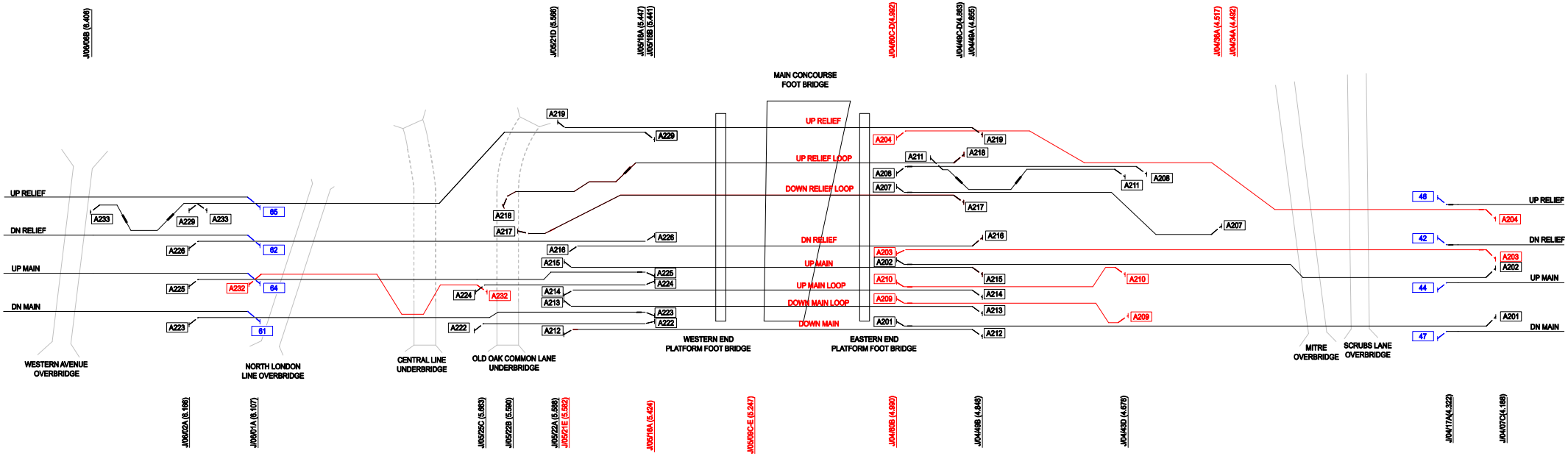
Stage 15


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J 05 35A
J 05 11C
J 04 28D
J 04 40A
J 04 14B
J 04 14A
J 04 10B
J 04 18A
J 05 12A
J 05 12B
J 05 13A
J 05 13B
4810E2 4822V
4822V
4809F 4823J
4823J
4810 E (NOTE 2)
4809 F (NOTE 2)
4821L
4809H
4809G
4809F2
4809F1
4807E
4807F2
4807F1
4809H
4809G
4810E2
4807E
4809F
4810D
4809H1
4810E2
4807E
4809F
4802A
4809D
4807D
4809G
4802A
4810D
SE
MP A 1
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J 06 05A
J 05 40
J 05 34B
J 06 11G
J 04 28C
J 04 30A
J 04 30A
J 04 17A

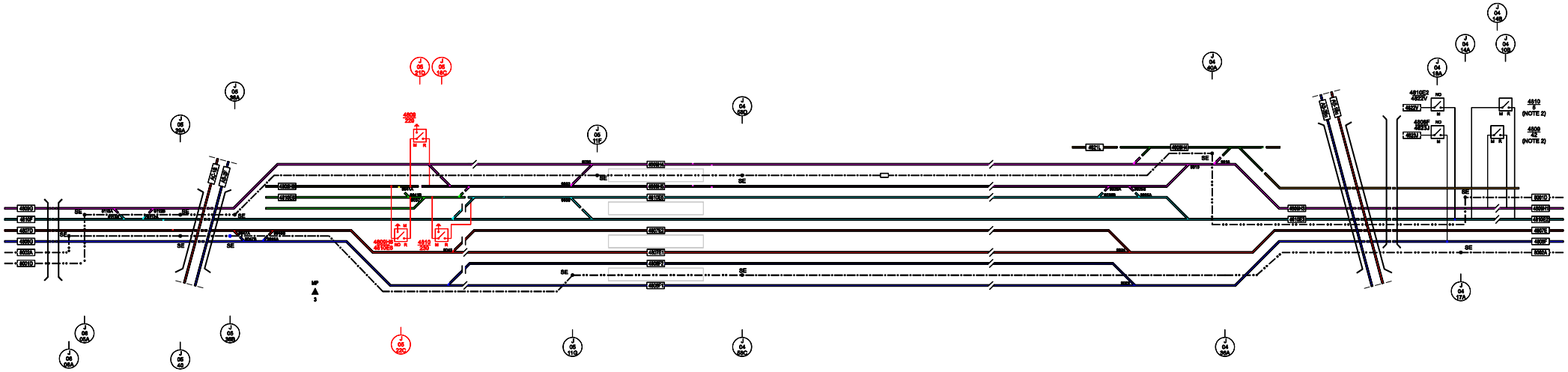

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JD05/21D (5.598)
JD05/19A (5.447)
JD05/18B (5.441)
JD04/55A (4.923)
JD04/49C-D(4.863)
JD04/49A (4.855)
JD04/42C (4.626)
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UP RELIEF
UP RELIEF LOOP
DOWN RELIEF LOOP
DN RELIEF
UP MAIN
UP MAIN LOOP
DOWN MAIN LOOP
DOWN MAIN
A219
A229
A218
A207
A217
A216
A226
A202
A215
A225
A224
A214
A213
A223
A222
A212
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A228
A225
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65
62
64
61
A232
A224
A222
A216
A215
A214
A213
A212
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
46
42
44
47
UP RELIEF
DN RELIEF
UP MAIN
DN MAIN
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
JD06/02A (6.166)
JD06/01A (6.107)
JD05/25C (5.653)
JD05/22B (5.590)
JD05/22A (5.598)
JD04/49B (4.849)
JD04/43D (4.675)
JD04/17A(4.322)
JD04/07C(4.188)

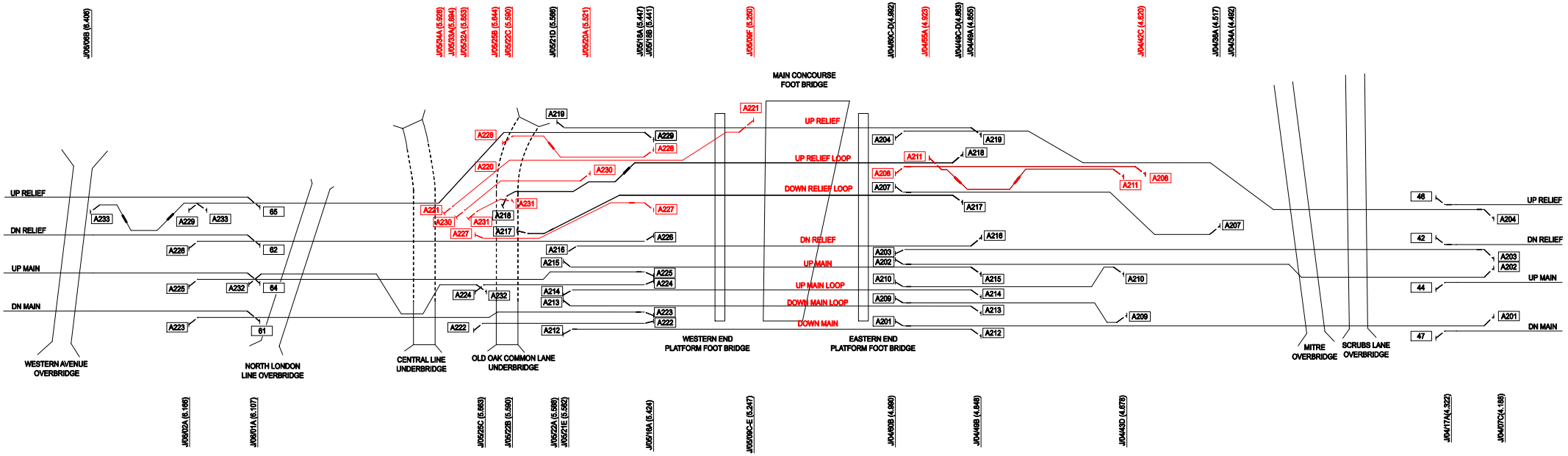
Stage 16


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AC-5E
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4808F2
4808F1
4821L
4809H3
4810E3
AS-2Bc
AS-1Bc
4810E2
4822V
4808F
4823J
8001D
4809H1
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4808F
8002A
4810
5
(NOTE 2)
4809
42
(NOTE 2)
MP
3
SE

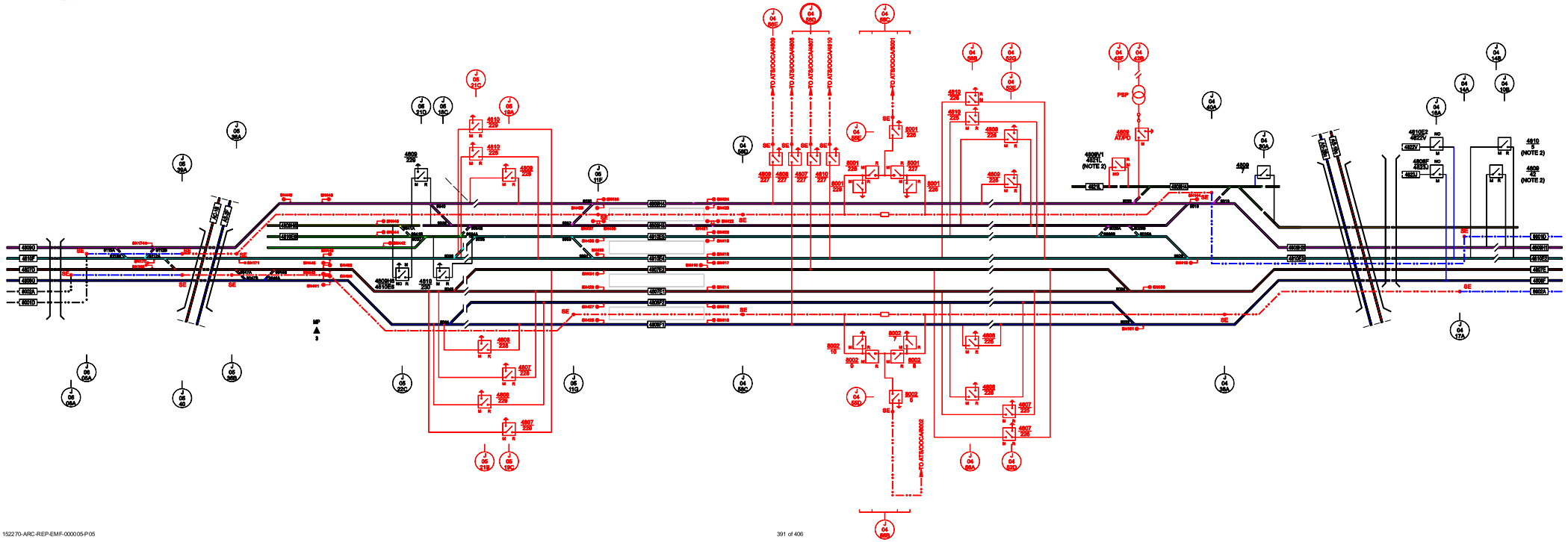

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J053/16A (5.447)
J059/16B (5.441)
J04/49C-D (4.983)
J04/49A (4.895)
J04/50A (4.402)
J04/50A (4.517)
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UP RELIEF
UP RELIEF LOOP
DOWN RELIEF LOOP
DN RELIEF
UP MAIN
UP MAIN LOOP
DOWN MAIN LOOP
DOWN MAIN
A219
A229
A204
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A210
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A212
46
42
44
47
UP RELIEF
A204
DN RELIEF
A203
A202
UP MAIN
A201
DN MAIN
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
J060/02A (6.166)
J060/01A (6.107)
J062/25C (5.663)
J062/22B (5.580)
J062/22A (5.588)
J062/21E (5.592)
J053/16A (5.424)
J053/08C-E (5.247)
J04/49B (4.950)
J04/49B (4.849)
J04/49D (4.576)
J04/47A(4.322)
J04/47C(4.188)

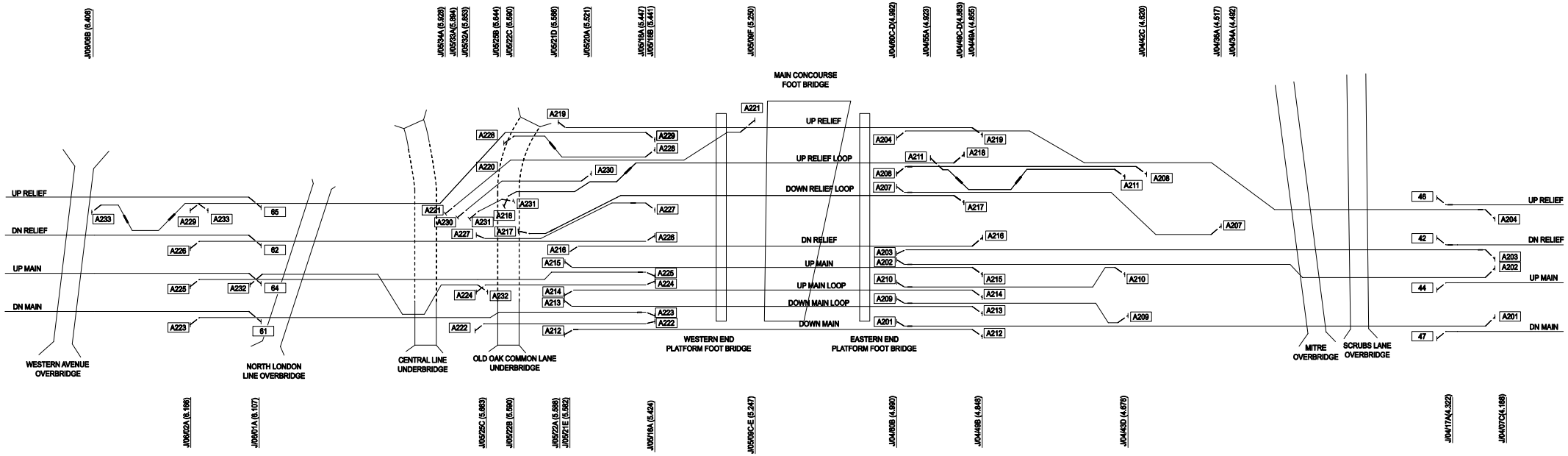
Stage 17


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4810F
4807D
4809Q
8002A
8001D
4809A
4809B
4810B2
4809C
4809D
4809E
4809F
4807E1
4809F2
4809F1
4807E2
4809E3
4810B3
8001D
4809H
4810B2
4807E
4809F
8002A
4809E4
4810B4
4809E5
4810B5
4809E6
4810B6
4809E7
4810B7
4809E8
4810B8
4809E9
4810B9
4809E10
4810B10
4809E11
4810B11
4809E12
4810B12
4809E13
4810B13
8021L
4809E14
4810B14
4809E15
4810B15
4809E16
4810B16
4809E17
4810B17
4809E18
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4810B29
4809E30
4810B30
4809E31
4810B31
4809E32
4810B32
4809E33
4810B33


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JI/5/04A (5.939)
JI/0/030A (5.894)
JI/0/032A (5.853)
JI/5/02B (5.844)
JI/5/22C (5.590)
JI/5/21D (5.589)
JI/5/20A (5.521)
JI/0/018A (5.447)
JI/0/018B (5.441)
JI/0/09F (5.250)
JI/4/60C-D (4.992)
JI/4/55A (4.923)
JI/4/49C-D (4.863)
JI/4/49A (4.855)
JI/4/42C (4.820)
JI/4/39A (4.517)
JI/4/34A (4.492)
MAIN CONCOURSE FOOT BRIDGE
UP RELIEF
UP RELIEF LOOP
DOWN RELIEF LOOP
DN RELIEF
UP MAIN
UP MAIN LOOP
DOWN MAIN LOOP
DOWN MAIN
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
JI/0/002A (6.166)
JI/0/001A (6.107)
JI/5/25C (5.853)
JI/5/22B (5.590)
JI/5/22A (5.589)
JI/5/21E (5.582)
JI/5/19A (5.424)
JI/0/09C-E (5.247)
JI/4/49B (4.980)
JI/4/46B (4.846)
JI/4/43D (4.679)
JI/4/17A/4 (4.322)
JI/4/07C/4 (4.166)

Stage 18

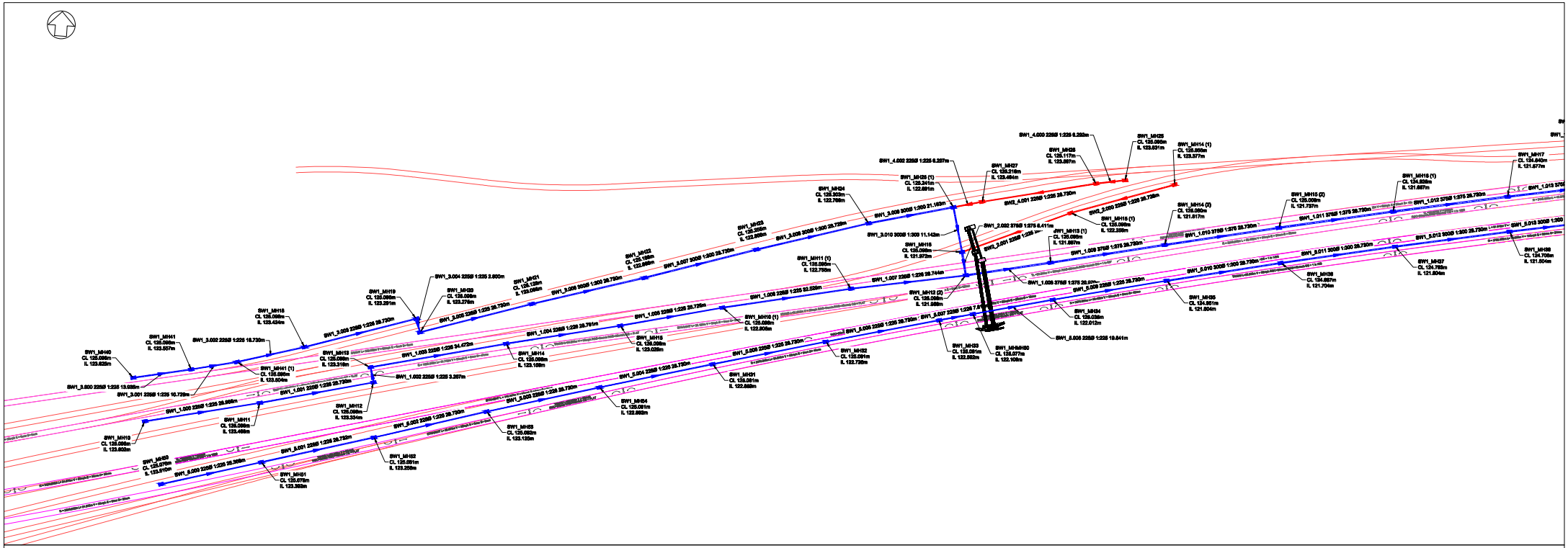

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4809C
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8001D
4809B
4810E
4809A
4810D
4807G
4809D
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4809F2
4809F1
4809E
4810C
4807F2
4807C1
4809F3
4807C2
4809F4
4809E1
4810E1
4809H1
4810E2
4809F
4807E
8002F
8002A
8001D
4809H2
4810E2
4807E
4809F
8002A
SE
SW
NP
TO ATS/OCCA/8009
TO ATS/OCCA/8008
TO ATS/OCCA/8007
TO ATS/OCCA/8010
TO ATS/OCCA/8001
TO ATS/OCCA/8002
PSP
4809 ATP/O
4809J/1 4821L (NOTE 2)
4821L
4822V
4810E2 4822V
4809F 4823L
4823L
4810 (NOTE 2)
4809 (NOTE 2)
4809E2
4809E1
4809H2
4809H1
4810E1
4807E1
4809F1
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4807C2
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4809F4
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4809B
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4810D
4807G
4807H
4809J
4810F
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8002A
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4809F1
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8002A
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4807E

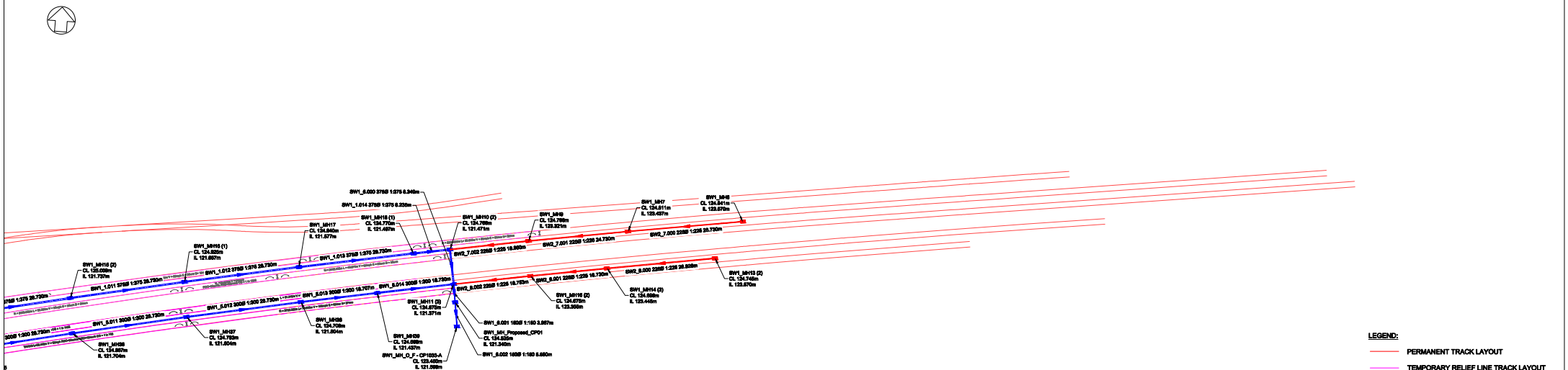

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JD6/293A (6.894)
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JD6/229B (6.644)
JD6/222C (6.590)
JD6/221D (6.588)
JD6/220A (6.521)
JD6/219A (6.447)
JD6/218B (6.441)
JD5/206F (6.250)
JD4/80C-D(4.992)
JD4/65A (4.923)
JD4/49C-D(4.883)
JD4/49A (4.855)
JD4/42C (4.520)
JD4/26A (4.517)
JD4/24A (4.492)
MAIN CONCOURSE FOOT BRIDGE
UP RELIEF
UP RELIEF LOOP
DOWN RELIEF LOOP
DN RELIEF
UP MAIN
UP MAIN LOOP
DOWN MAIN LOOP
DN MAIN
WESTERN END PLATFORM FOOT BRIDGE
EASTERN END PLATFORM FOOT BRIDGE
WESTERN AVENUE OVERBRIDGE
NORTH LONDON LINE OVERBRIDGE
CENTRAL LINE UNDERBRIDGE
OLD OAK COMMON LANE UNDERBRIDGE
MITRE OVERBRIDGE
SCRUBS LANE OVERBRIDGE
JD6/202A (6.169)
JD6/201A (6.107)
JD6/226C (5.663)
JD6/222B (5.590)
JD6/222A (5.588)
JD6/221E (5.582)
JD5/218A (5.424)
JD5/209C-E (5.247)
JD4/80B (4.990)
JD4/49B (4.849)
JD4/43D (4.579)
JD4/417A(4.322)
JD4/407C(4.169)

APPENDIX J

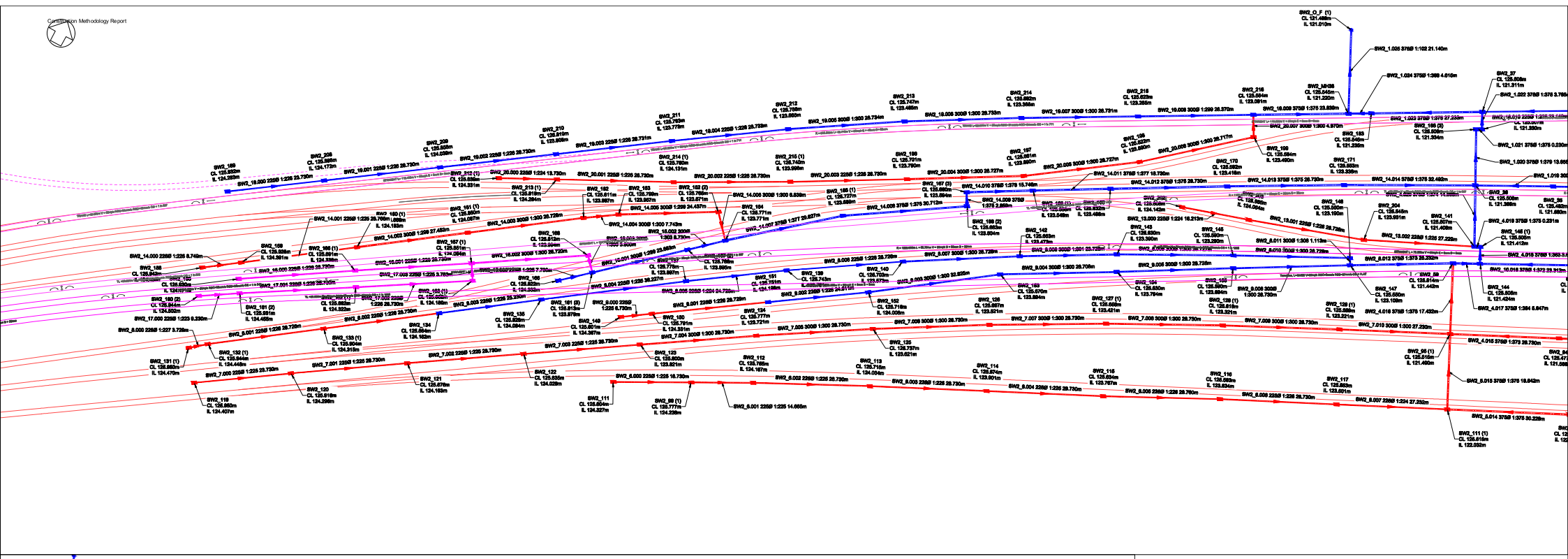
Temporary Drainage Design

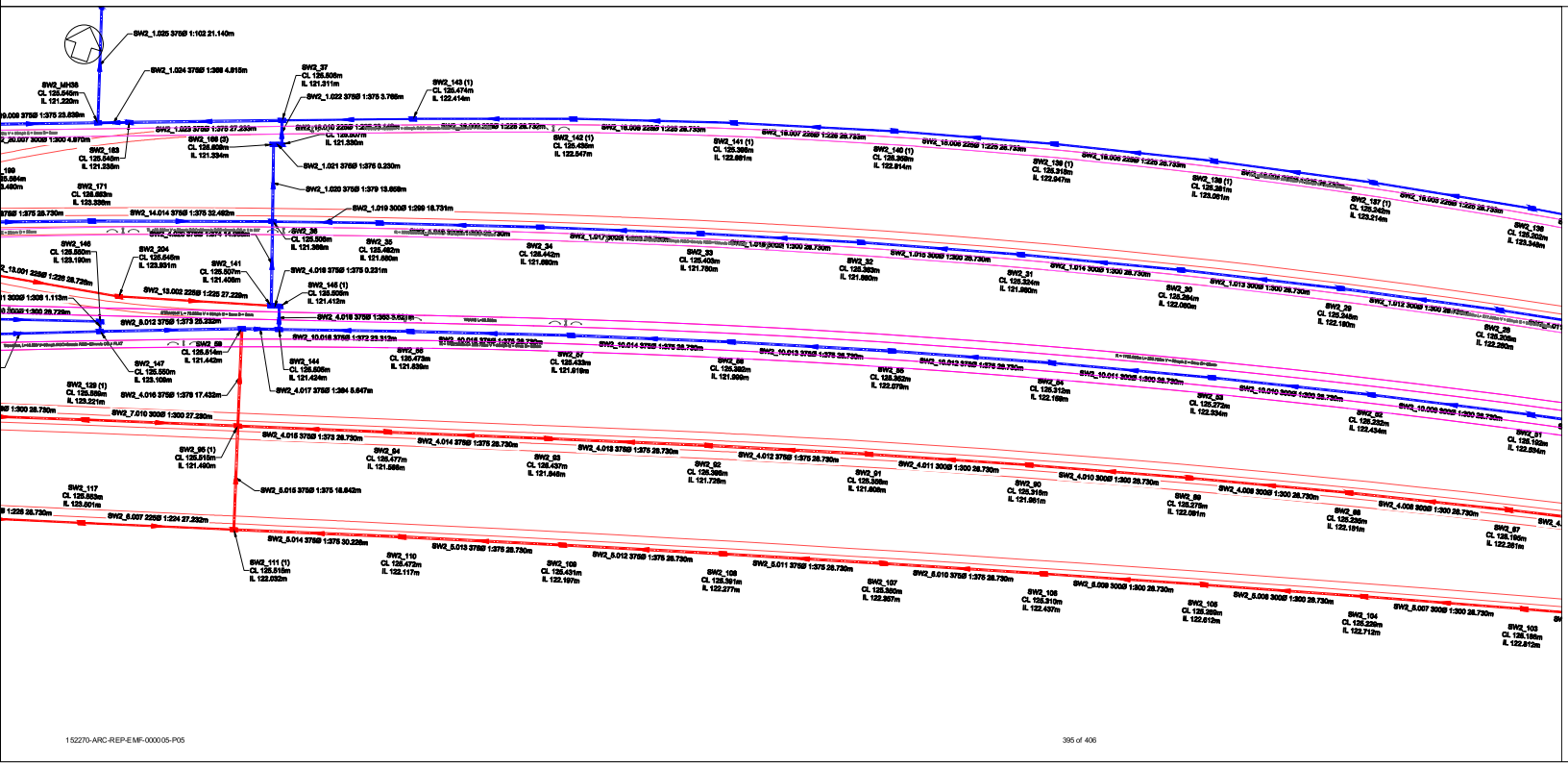
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OUTFALL 1 STAGING LAYOUT SCALE 1:500

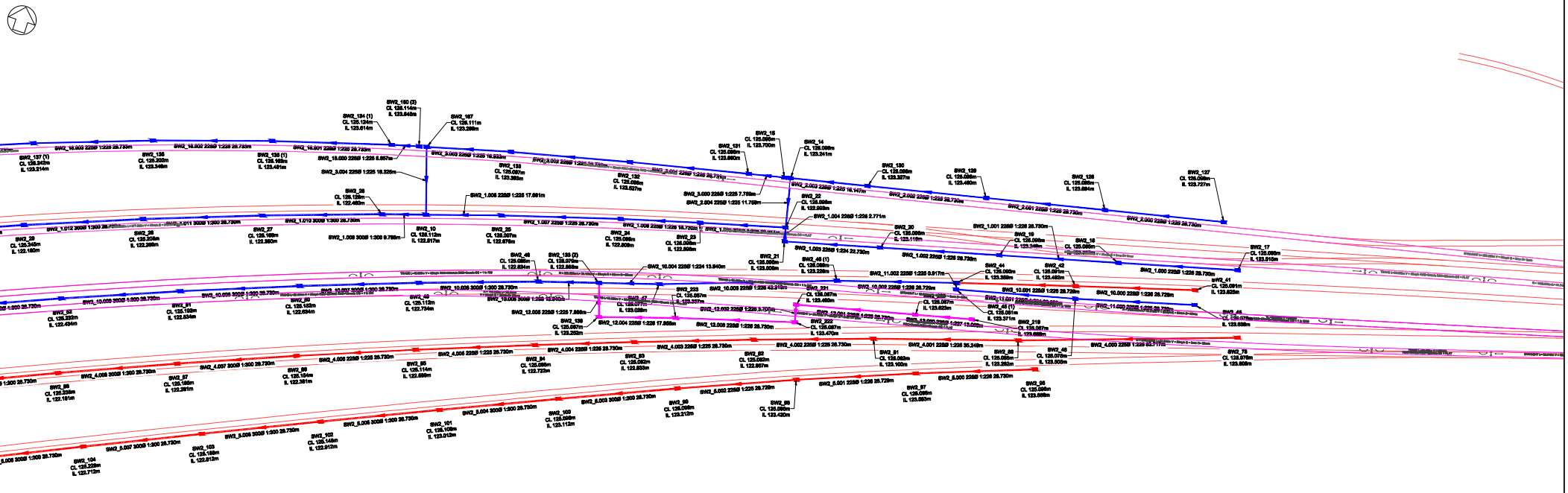




LEGEND:

- PERMANENT TRACK LAYOUT
- TEMPORARY RELIEF LINE TRACK LAYOUT
- TEMPORARY MAIN LINE TRACK LAYOUT
- PERMANENT TRACK DRAINAGE
- TEMPORARY TRACK DRAINAGE
- PERMANENT TRACK DRAINAGE TO BE INSTALLED FOR TEMPORARY TRACK LAYOUT

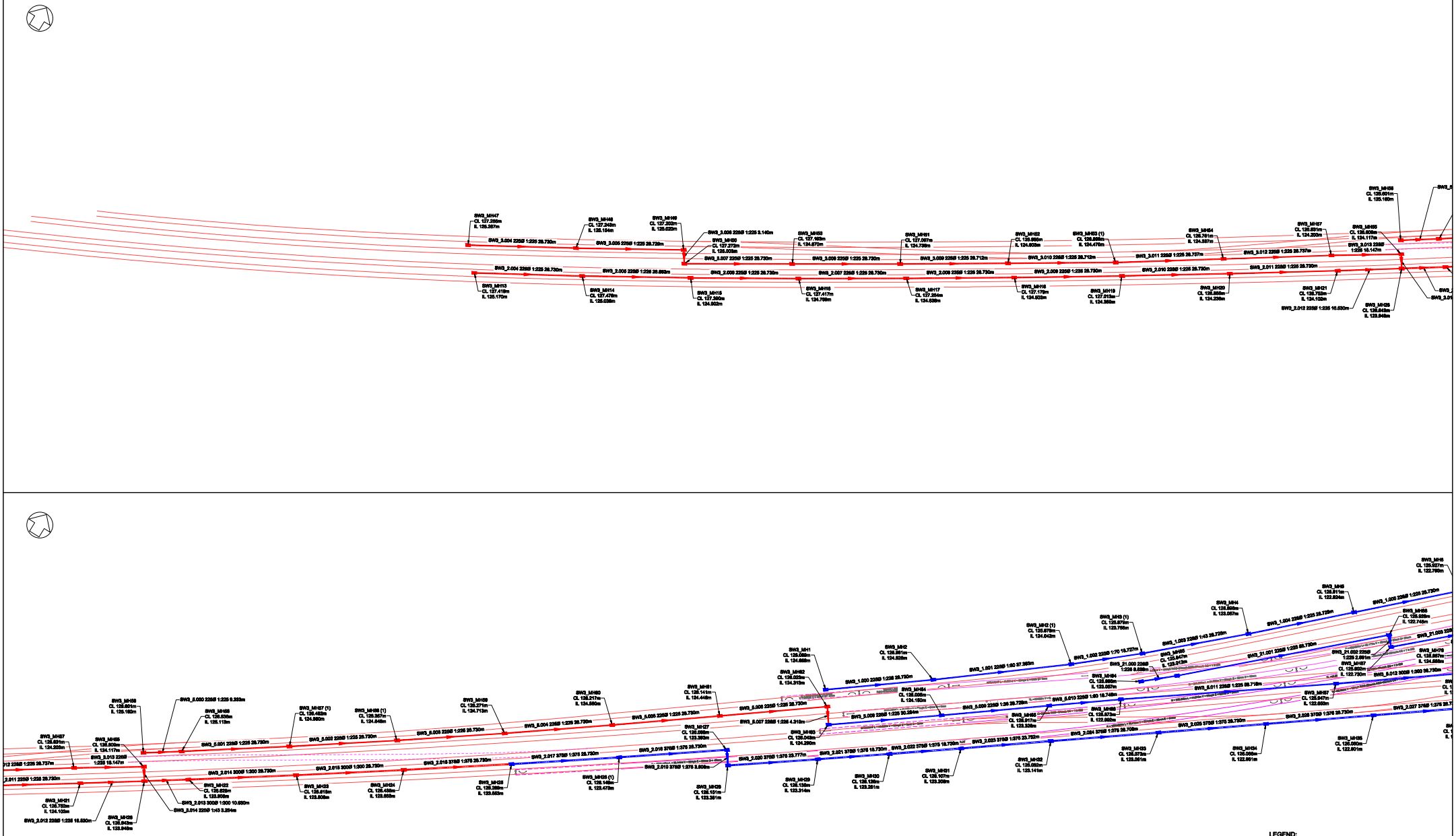
OUTFALL 2 STAGING LAYOUT SHEET 1 SCALE 1:500



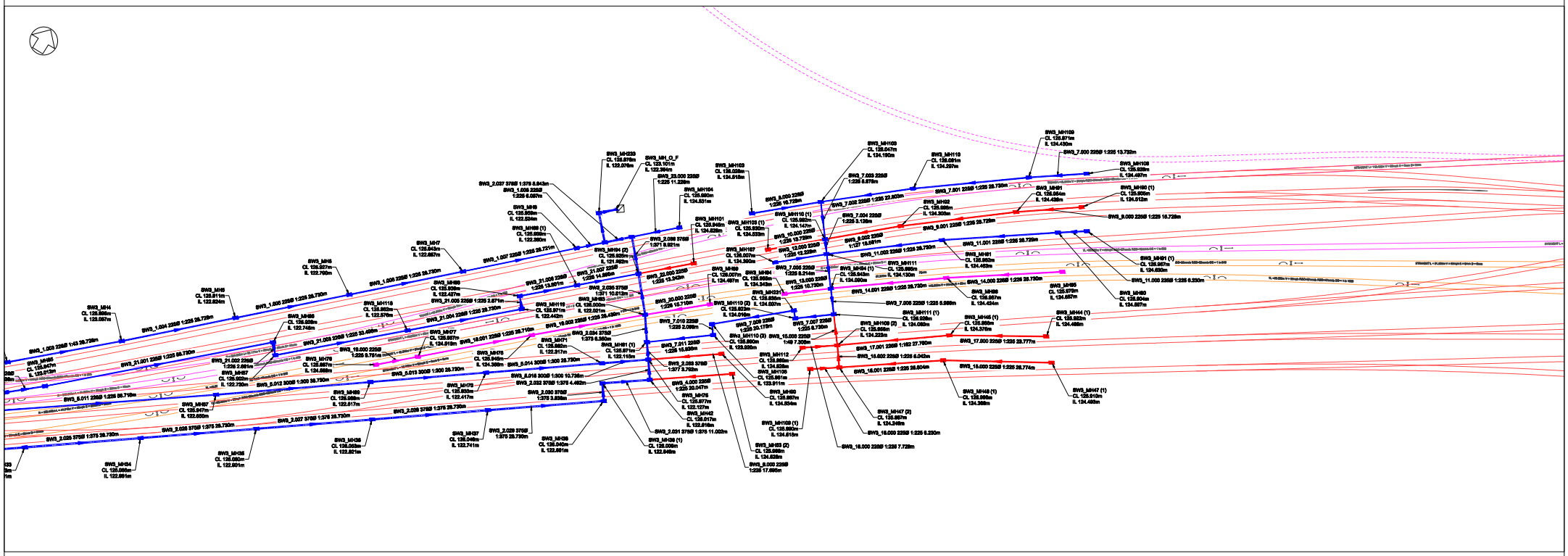
LEGEND:

- PERMANENT TRACK LAYOUT
- TEMPORARY RELIEF LINE TRACK LAYOUT
- TEMPORARY MAIN LINE TRACK LAYOUT
- PERMANENT TRACK DRAINAGE
- TEMPORARY TRACK DRAINAGE
- PERMANENT TRACK DRAINAGE TO BE INSTALLED FOR TEMPORARY TRACK LAYOUT

OUTFALL 2 STAGING LAYOUT SHEET 2 SCALE 1:500



OUTFALL 3 STAGING LAYOUT SHEET 1 SCALE 1:500



OUTFALL 3 STAGING LAYOUT SHEET 2 SCALE 1:500

APPENDIX K

Material Build Up

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	Volume (m^3)				Weight (T)					Wagons (60T No.)				
Stage	Sand	Ballast	Granular	Spoil	Sand	Ballast	Granular	Spoil	Pea	Sand	Ballast	Granular	Spoil	Pea
5	1036	2975	4936	8947	1761	5950	8391	17893	550	29	99	140	298	9
6	71	950	606	1627	121	1900	1030	3254	0	2	32	17	54	0
7	973	2970	3831	7774	1654	5940	6513	15548	883	28	99	109	259	15
8	105	1400	893	2398	179	2800	1517	4795	0	3	47	25	80	0
13	1864	4780	6637	13281	3169	9560	11283	26562	2467	53	159	188	443	41
14	38	500	319	856	64	1000	542	1713	1000	1	17	9	29	17

- The above takes the meterage of change from staged scheme sketches
- Densities taken as:
  - Sand: 1700kg/m^3
  - Ballast: 2000kg/m^3
  - Granular Fill: 1700kg/m^3
  - Spoil: 2000kg/m^3
  - Pea Gravel: 1800kg/m^3

LINE	START CH	END CH	LINEAR METERS	SPOIL (trim)	CAPPING (T)	BALLAST (T)	PL SLEEPERS	RAIL	Sand (T)	Granular	Geocell	Geotext
DN MAIN	4260	6550	2290	6400	2560	10240	3390	226	1460	1870	27	100
UP MAIN	4230	6730	2500	6950	2650	11120	3660	244	1212	5338	37	109
DN RELIEF	4160	6580	2420	6750	2550	10800	3390	226	3955	1976	30	106
UP RELIEF	4165	6560	2395	6700	2630	10720	3360	224	3817	886	39	105
TURNBACK A	5360	5920	560	1600	370	2560	960	64	922	460	13	25
TURNBACK B	5550	5890	340	950	330	1520	570	38	563	281	10	15
TURNBACK C	5500	5840	340	950	330	1520	570	38	563	281	12	15
DN MAIN LOOP	4735	5610	875	2450	740	3920	1470	98	560	2869	11	39
UP MAIN LOOP	4685	5610	925	2600	700	4160	1560	104	592	3244	11	41
UP RELIEF LOOP	4650	5360	570	1600	600	2560	960	64	455	2665	23	25
DOWN RELIEF LOOP	4570	5610	510	1450	540	2320	870	58	665	3953	13	23
TOTAL			27450	38400	14000	61440	20760	1384	14761	23824	226	603

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APPENDIX L

Overhead Line Installation Schedule

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January - December 2022				Description of Work					
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration
J-04-29A	East of Station	4.438	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-32C	East of Station	4.472	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-36A	East of Station	4.517	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-36A Tie/Strut	East of Station	4.522	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-04-43D	East of Station	4.678	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-43D Tie/Strut	East of Station	4.683	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-04-44A	East of Station	4.711	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-44B	East of Station	4.755	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-46D	East of Station	4.800	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-49B	East of Station	4.848	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-49B Tie/Strut	East of Station	4.853	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-04-52D	East of Station	4.897	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-58A	East of Station	4.944	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-60B Tie/Strut	East of Station	4.985	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-04-60B	East of Station	4.990	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-61H	Station	5.025	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect STC Mast	1.0 hrs
J-05-05F	Station	5.158	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect STC Mast	1.0 hrs
J-05-07H	Station	5.191	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect STC Mast	1.0 hrs
J-05-11A	Station	5.283	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect SSA Mast	1.0 hrs
J-05-11D	West of Station	5.319	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-12D	West of Station	5.364	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-16A	West of Station	5.424	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-16A Tie/Strut	West of Station	5.429	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-05-19C	West of Station	5.483	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-21B Tie/Strut	West of Station	5.445	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-05-25A	West of Station	5.618	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-25C Tie/Strut	West of Station	5.658	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-05-25C	West of Station	5.663	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-27B	West of Station	5.695	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-29B	West of Station	5.740	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-31A	West of Station	5.783	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-31B	West of Station	5.818	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-32A Tie/Strut	West of Station	5.848	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-05-32A	West of Station	5.853	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-33A Tie/Strut	West of Station	5.889	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-05-33A	West of Station	5.894	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-34A Tie/Strut	West of Station	5.923	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-05-34A	West of Station	5.928	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-05-36B	West of Station	5.928	Down Main	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect SSA Mast	1.0 hrs
J-06-01A	Acton Cutting	6.106	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-01A	Acton Cutting	6.106	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-01A Tie/Strut	Acton Cutting	6.111	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Install Tie/Strut	0.5 hrs
J-06-01A Tie/Strut	Acton Cutting	6.111	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Install Tie/Strut	0.5 hrs
J-06-02A Tie/Strut	Acton Cutting	6.161	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Install Tie/Strut	0.5 hrs
J-06-02A Tie/Strut	Acton Cutting	6.161	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Install Tie/Strut	0.5 hrs
J-06-02A	Acton Cutting	6.166	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-02A	Acton Cutting	6.166	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-03A	Acton Cutting	6.203	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-03A	Acton Cutting	6.203	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-04A	Acton Cutting	6.257	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-04A	Acton Cutting	6.257	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-05B	Acton Cutting	6.343	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-05B	Acton Cutting	6.343	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-06C	Acton Cutting	6.377	Down Main	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs
J-06-06C	Acton Cutting	6.377	Up Relief	Dig Trial Hole	3.0 hrs	Install Augured Foundation	3.0 hrs	Erect Portal Mast	1.0 hrs

Christmas 2022				Description of Work					
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration
J-04-40A	East of Station	4.562	Relief/Main 10 foot	Dig Trial Hole	3.0 hrs	Install Steel Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-40A Tie/Strut	East of Station	4.567	Relief/Main 10 foot	Dig Trial Hole	3.0 hrs	Install Steel Pile Foundation	1.5 hrs	Install Tie/Strut	0.5 hrs
J-04-42A	East of Station	4.598	Relief/Main 10 foot	Dig Trial Hole	3.0 hrs	Install Steel Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-04-43A	East of Station	4.636	Relief/Main 10 foot	Dig Trial Hole	3.0 hrs	Install Steel Pile Foundation	1.5 hrs	Erect Portal Mast	1.0 hrs
J-06-01A	Acton Cutting	6.106	All	Erect Portal Boom (*ALB Required*)	2.0 hrs				
J-06-02A	Acton Cutting	6.166	All	Erect Portal Boom (*ALB Required*)	2.0 hrs				
J-06-03A	Acton Cutting	6.203	All	Erect Portal Boom (*ALB Required*)	2.0 hrs				
J-06-04A	Acton Cutting	6.257	All	Erect Portal Boom (*ALB Required*)	2.0 hrs				
J-06-05B	Acton Cutting	6.343	All	Erect Portal Boom (*ALB Required*)	2.0 hrs				
J-06-06C	Acton Cutting	6.377	All	Erect Portal Boom (*ALB Required*)	2.0 hrs				

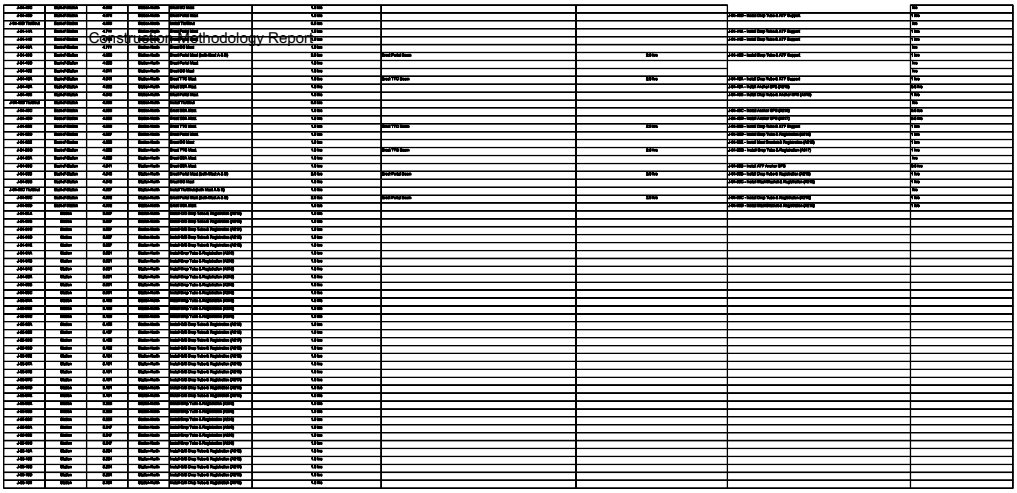
September - December 2025				Description of Work					
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration
J-05-09F	West of Station	5.250	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-11C	West of Station	5.311	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-11B	West of Station	5.312	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-11F	West of Station	5.312	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-11D	West of Station	5.319	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-11E	West of Station	5.320	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-12A	West of Station	5.343	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-12B	West of Station	5.343	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-12C	West of Station	5.358	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-12D	West of Station	5.364	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-12E	West of Station	5.371	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-13A	West of Station	5.375	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-13B	West of Station	5.379	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-15A	West of Station	5.408	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-15B	West of Station	5.408	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-16A	West of Station	5.424	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-16A Tie/Strut	West of Station	5.429	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-18A	West of Station	5.447	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-18B	West of Station	5.441	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-18B Tie/Strut	West of Station	5.446	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-18C	West of Station	5.474	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-19A	West of Station	5.475	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-19B	West of Station	5.483	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-19C	West of Station	5.483	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-19D	West of Station	5.491	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-19E	West of Station	5.497	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-20A	West of Station	5.521	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-20A Tie/Strut	West of Station	5.526	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-20B	West of Station	5.519	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-21C	West of Station	5.541	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-21D	West of Station	5.556	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-21D Tie/Strut	West of Station	5.561	Station North	Dig Trial Hole	3.0 hrs	Install Steel Pile Foundation	1.5 hrs		
J-05-21E	West of Station	5.582	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-22B	West of Station	5.590	Station North	Dig Trial Hole	3.0 hrs	Install Pad Foundation	4.0 hrs		
J-05-22B Tie/Strut	West of Station	5.595	Station North	Dig Trial Hole	3.0 hrs	Install Pad Foundation	4.0 hrs		
J-05-22C Tie/Strut	West of Station	5.585	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-22C	West of Station	5.590	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pad Foundation (both Mast A & B)	8.0 hrs		
J-05-22D	West of Station	5.592	Station North	Dig Trial Hole	3.0 hrs	Install Pad Foundation	4.0 hrs		
J-05-25A	West of Station	5.618	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-25B	West of Station	5.644	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-26B Tie/Strut	West of Station	5.649	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-27A	West of Station	5.679	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-29A	West of Station	5.709	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-29C	West of Station	5.751	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-05-31A	West of Station	5.783	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-31B	West of Station	5.818	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-32A Tie/Strut	West of Station	5.848	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-32A	West of Station	5.853	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-33A Tie/Strut	West of Station	5.889	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-33A	West of Station	5.894	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-34A Tie/Strut	West of Station	5.923	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-05-34A	West of Station	5.928	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		

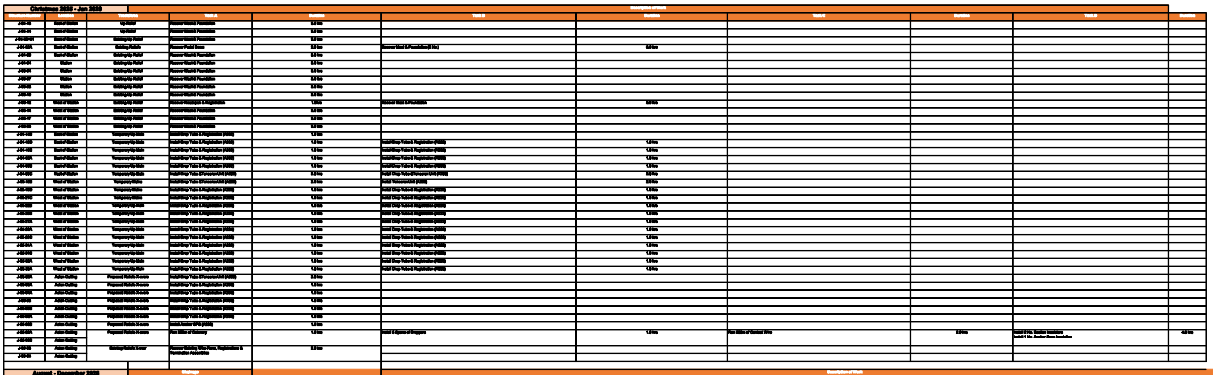
July - August 2024				Description of Work					
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration
J-05-09F	West of Station	5.250	Station North	Erect SSA Mast	1				
J-05-11C	West of Station	5.311	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-11B	West of Station	5.312	Station North	Erect DC Mast	1				
J-05-11F	West of Station	5.312	Station North	Erect SSA Mast	1				
J-05-11D	West of Station	5.319	Station North	Erect Portal Mast	1				
J-05-11E	West of Station	5.320	Station North	Erect SSA Mast	1				
J-05-12A	West of Station	5.343	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-12B	West of Station	5.343	Station North	Erect STC Mast	1				
J-05-12C	West of Station	5.358	Station North	Erect STC Mast	1				
J-05-12D	West of Station	5.364	Station North	Erect Portal Mast	1				
J-05-12E	West of Station	5.371	Station North	Erect STC Mast	1				
J-05-13A	West of Station	5.375	Station North	Erect STC Mast	1				
J-05-13B	West of Station	5.379	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-15A	West of Station	5.408	Station North	Erect SSA Mast	1				
J-05-15B	West of Station	5.408	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-16A	West of Station	5.424	Station North	Erect Portal Mast	1				
J-05-16A Tie/Strut	West of Station	5.429	Station North	Install Tie/Strut	0.5				
J-05-18A	West of Station	5.447	Station North	Erect SSA Mast	1				
J-05-18B	West of Station	5.441	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-18B Tie/Strut	West of Station	5.446	Station North	Install Tie/Strut	0.5				
J-05-18C	West of Station	5.474	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-19A	West of Station	5.475	Station North	Erect DC Mast	1				
J-05-19B	West of Station	5.483	Station North	Erect TTC Mast	1	Erect TTC Boom	2.0 hrs		
J-05-19C	West of Station	5.483	Station North	Erect Portal Mast	1				
J-05-19D	West of Station	5.491	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-19E	West of Station	5.497	Station North	Erect DC Mast	1				
J-05-20A	West of Station	5.521	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-20A Tie/Strut	West of Station	5.526	Station North	Install Tie/Strut (both Mast A & B)	0.5				
J-05-21A	West of Station	5.519	Station North	Erect DC Mast	1				
J-05-21C	West of Station	5.541	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-21D	West of Station	5.556	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-21D Tie/Strut	West of Station	5.561	Station North	Install Tie/Strut	0.5				
J-05-21E	West of Station	5.582	Station North	Erect SSA Mast	1				
J-05-22B	West of Station	5.590	Station North	Erect TTC Mast	1	Erect TTC Boom	2.0 hrs		
J-05-22B Tie/Strut	West of Station	5.595	Station North	Install Tie/Strut	0.5				
J-05-22C Tie/Strut	West of Station	5.585	Station North	Install Tie/Strut	0.5				
J-05-22C	West of Station	5.590	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-22D	West of Station	5.592	Station North	Erect DC Mast	1				
J-05-25A	West of Station	5.618	Station North	Erect Portal Mast	1				
J-05-25B	West of Station	5.644	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-26B Tie/Strut	West of Station	5.649	Station North	Install Tie/Strut (both Mast A & B)	1				
J-05-27A	West of Station	5.679	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-29A	West of Station	5.709	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-29C	West of Station	5.751	Station North	Erect Portal Mast (both Mast A & B)	2	Erect Portal Boom	2.0 hrs		
J-05-31A	West of Station	5.783	Station North	Erect Portal Mast	1	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-31B	West of Station	5.818	Station North	Erect Portal Mast	1	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-32A Tie/Strut	West of Station	5.848	Station North	Install Tie/Strut	0.5				
J-05-32A	West of Station	5.853	Station North	Erect Portal Mast	1	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-33A Tie/Strut	West of Station	5.889	Station North	Install Tie/Strut	0.5				
J-05-33A	West of Station	5.894	Station North	Erect Portal Mast	1	Erect Portal Boom (*ALB Required*)	2.0 hrs		

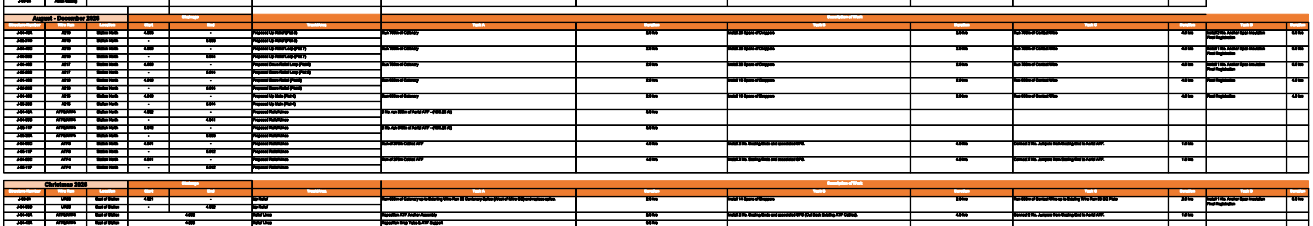
Christmas 2024				Description of Work					
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration
J-04-29A	East of Station	4.438	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-32C	East of Station	4.472	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-36A	East of Station	4.517	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-40A	East of Station	4.562	Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-42A	East of Station	4.598	Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-43A	East of Station	4.636	Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-43D	East of Station	4.678	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-44A	East of Station	4.711	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-44B	East of Station	4.755	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-46D	East of Station	4.800	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-49B	East of Station	4.848	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-04-52D	East of Station	4.897	Mains and Reliefs	Erect Portal Boom (ALB Required)	2.0 hrs				
J-05-31A	West of Station	5.783	Mains and Reliefs	Erect Portal Mast	1.0 hrs	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-31B	West of Station	5.818	Mains and Reliefs	Erect Portal Mast	1.0 hrs	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-32A Tie/Strut	West of Station	5.848	Mains and Reliefs	Install Tie/Strut	0.5 hrs				
J-05-32A	West of Station	5.853	Mains and Reliefs	Erect Portal Mast	1.0 hrs	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-33A Tie/Strut	West of Station	5.889	Mains and Reliefs	Install Tie/Strut	0.5 hrs				
J-05-33A	West of Station	5.894	Mains and Reliefs	Erect Portal Mast	1.0 hrs	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-34A Tie/Strut	West of Station	5.923	Mains and Reliefs	Install Tie/Strut	0.5 hrs				
J-05-34A	West of Station	5.928	Mains and Reliefs	Erect Portal Mast	1.0 hrs	Erect Portal Boom (*ALB Required*)	2.0 hrs		
J-05-35A	-	5.951	Acton Cutting	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect SSA Mast	1.0 hrs
J-05-36A	-	5.981	Acton Cutting	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect STC Mast	1.0 hrs
J-05-39A	-	6.004	Acton Cutting	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs	Erect SSA Mast	1.0 hrs
J-05-35A	-	5.951	Acton Cutting	Install Mast Bracket & Cantilevre	2.0 hrs	Transfer WR 63 & 65 from J-05-36	2.0 hrs	Remove Existing Cantilevers from J-05-36	1.0 hrs
J-05-33	ATF3/ATF4	5.880	Acton Cutting	Install Drop Tube and ATF Support	1.0 hrs				
J-05-34	ATF3/ATF4	5.916	Acton Cutting	Install Drop Tube and ATF Support	1.0 hrs				
J-05-35	ATF3/ATF4	5.933	Acton Cutting	Install Drop Tube and ATF Support	1.0 hrs				
J-05-40	ATF3/ATF4	6.028	Acton Cutting	Install Drop Tube and ATF Support	1.0 hrs				
J-06-01	ATF3/ATF4	6.089	Acton Cutting	Install Drop Tube and ATF Support	1.0 hrs				
J-06-02	ATF3/ATF4	6.127	Acton Cutting	Install Drop Tube and ATF Support	1.0 hrs				
J-05-33	ATF3/ATF4	5.879	Acton Cutting	Splice 2 No. run 80m of Aerial ATF - (19/3.25 Al) a	4.0 hrs				
J-05-35A	ATF3/ATF4	-	Acton Cutting						
J-05-39A	ATF3/ATF4	6.004	Acton Cutting	Splice 2 No. run 130m of Aerial ATF - (19/3.25 Al)	4.0 hrs				
J-06-02	ATF3/ATF4	-	Acton Cutting						
J-05-35A	ATF3/ATF4	5.951	Acton Cutting	2 No. Run of 70m Cabled ATF	4.0 hrs	Install 4 No. Sealing Ends and associated SPS.	4.0 hrs	Connect 4 No. Jumpers from Sealing End to Aerial ATF.	2.0 hrs
J-05-39A	ATF3/ATF4	-	Acton Cutting						

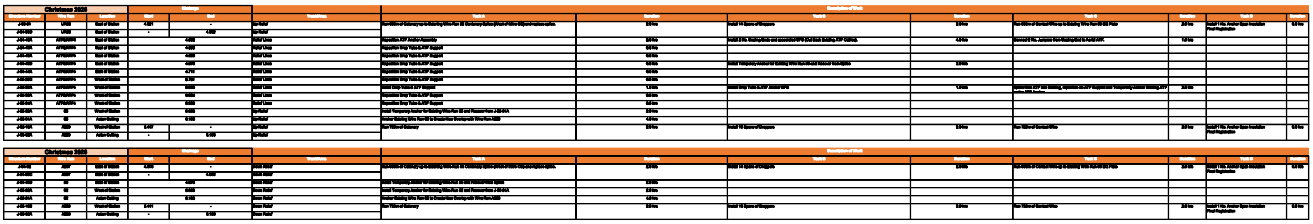
January - March 2025				Description of Work					
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration
J-04-32C	East of Station	4.472	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-35A	East of Station	4.497	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-36A	East of Station	4.517	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-36A Tie/Strut	East of Station	4.522	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-36B	East of Station	4.519	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-36C	East of Station	4.540	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-36D	East of Station	4.540	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-40A	East of Station	4.562	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-40A Tie/Strut	East of Station	4.567	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-40B	East of Station	4.573	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-42A	East of Station	4.598	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-42B	East of Station	4.603	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-43A	East of Station	4.636	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-43B	East of Station	4.653	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-43C	East of Station	4.659	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-43D	East of Station	4.678	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-43D Tie/Strut	East of Station	4.683	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-44A	East of Station	4.711	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-44B	East of Station	4.755	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-46A	East of Station	4.771	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-46C	East of Station	4.800	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-04-46D	East of Station	4.800	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-46E	East of Station	4.811	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-48A	East of Station	4.841	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-49A	East of Station	4.855	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-49B	East of Station	4.848	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-49B Tie/Strut	East of Station	4.853	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-49C	East of Station	4.863	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-49D	East of Station	4.883	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-52B	East of Station	4.883	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-52D	East of Station	4.897	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-52E	East of Station	4.908	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-52G	East of Station	4.908	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-55A	East of Station	4.923	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-55C	East of Station	4.941	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-56B	East of Station	4.948	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-04-58C	East of Station	4.948	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		
J-04-60C Tie/Strut	East of Station	4.987	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-04-60C	East of Station	4.992	Station North	Dig Trial Hole (both Mast A & B)	6.0 hrs	Install Pile Foundation (both Mast A & B)	3.0 hrs		
J-04-60D	East of Station	4.992	Station North	Dig Trial Hole	3.0 hrs	Install Pile Foundation	1.5 hrs		

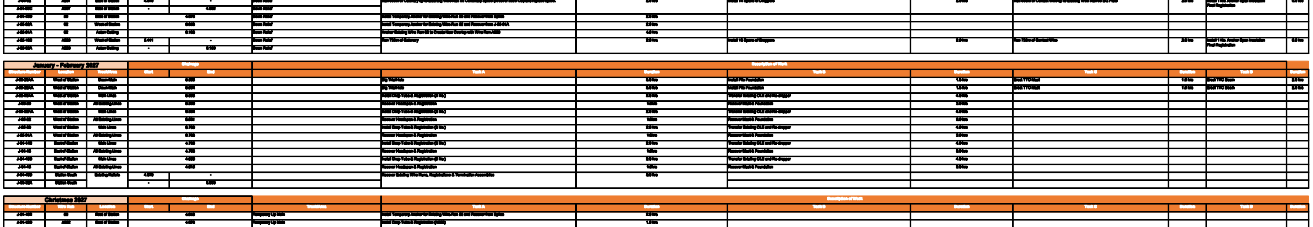
July - August 2025				Description of Work					
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration
J-04-35A	East of Station	4.497	Station North	Erect DC Mast	1.0 hrs				
J-04-36A	East of Station	4.517	Station North	Erect Portal Mast	1.0 hrs				
J-04-36A Tie/Strut	East of Station	4.522	Station North	Install Tie/Strut	0.5 hrs				
J-04-36B	East of Station	4.519	Station North	Erect STC Mast	1.0 hrs				
J-04-36C	East of Station	4.540	Station North	Erect DC Mast	1.0 hrs				
J-04-36D	East of Station	4.540	Station North	Erect STC Mast	1.0 hrs				
J-04-40A	East of Station	4.562	Station North	Erect Portal Mast	1.0 hrs			J-04-40A - Install ATF Anchor SPS	0.5 hrs
J-04-40A Tie/Strut	East of Station	4.567	Station North	Install Tie/Strut	0.5 hrs				hrs
J-04-40B	East of Station	4.573	Station North	Erect STC Mast	1.0 hrs				hrs
J-04-42A	East of Station	[illegible]	[illegible]	[illegible]	1.0 hrs			[illegible]-42A - Install Drop Tube & ATF Support	1 hrs
J-04-42B	East of Station	[illegible]	Station North	Erect STC Mast	1.0 hrs				hrs
J-04-43A	East of Station	4.636	Station North	Erect Portal Mast	1.0 hrs			J-04-43A - Install Drop Tube & ATF Support	1 hrs
J-04-43B	East of Station	4.653	Station North	Erect STC Mast	1.0 hrs				hrs

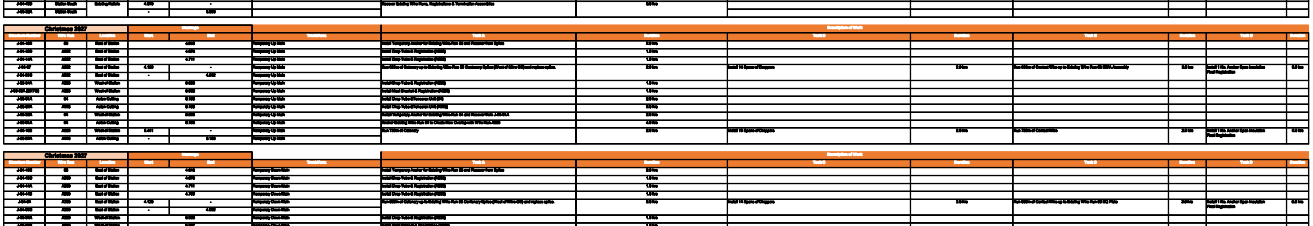


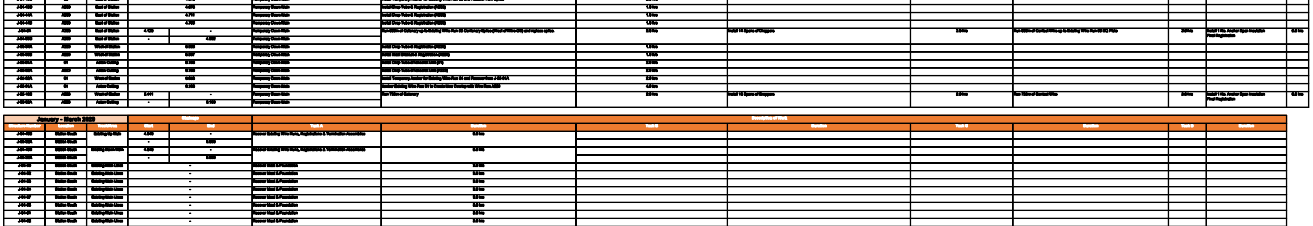


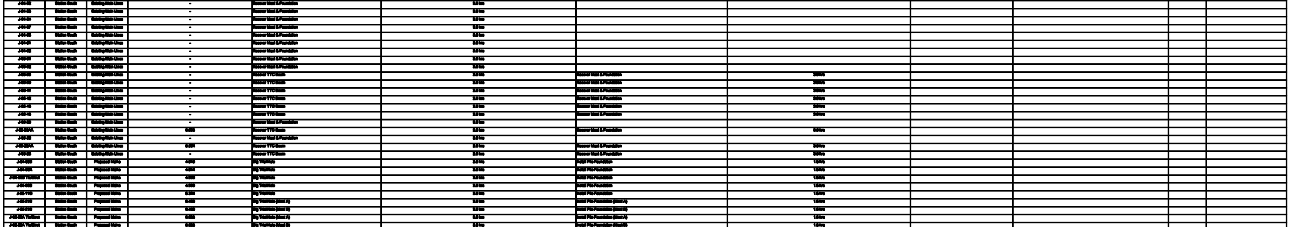


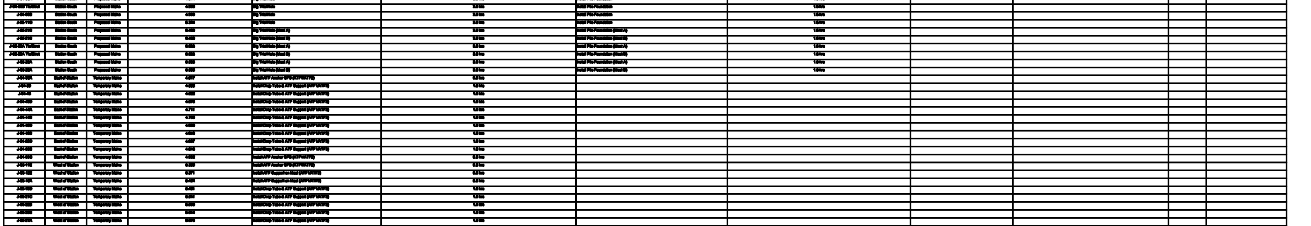












J-04-36A	East of Station	Temporary Mains	4.517	-	Recover Existing Aerial and Cabled ATF	8.0 hrs
J-05-33A	West of Station	Temporary Mains	-	5.894		

August - December 2029				Description of Work															
Structure Number	Location	Chainage	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration	Task D	Duration	Task E	Duration	Task F	Duration	Task G	Duration	Task H	Duration
J-04-29	East of Station	-	Station South	Recover TTC Boom	2.0 hrs	Recover Mast & Foundation	3.0 hrs												
J-04-29A	East of Station	4.438	Station South	Transfer Existing OLE and Re-dropper	4.0 hrs														
J-04-32C	East of Station	4.472	Station South	Transfer Existing OLE and Re-dropper	4.0 hrs														
J-04-34	East of Station	-	Station South	Recover TTC Boom	2.0 hrs	Recover Mast & Foundation	3.0 hrs												
J-04-36A	East of Station	4.517	Station South	Transfer Existing OLE and Re-dropper	4.0 hrs														
J-04-39	East of Station	-	Station South	Recover TTC Boom	2.0 hrs	Recover Mast & Foundation	3.0 hrs												
J-04-40A	East of Station	4.562	Station South	Erect TTC Boom	2.0 hrs	Install Drop Tube & Registration (2 No.)	2.0 hrs	Transfer Existing OLE and Re-dropper	4.0 hrs	Install Drop Tube & ATF Support (ATF1/ATF2)	1.0 hrs	Transfer Existing ATF (ATF1/ATF2)	0.5 hrs						
J-04-42A	East of Station	4.598	Station South	Erect TTC Boom	2.0 hrs	Install Drop Tube & Registration (2 No.)	2.0 hrs	Transfer Existing OLE and Re-dropper	4.0 hrs	Install Drop Tube & ATF Support (ATF1/ATF2)	1.0 hrs	Transfer Existing ATF (ATF1/ATF2)	0.5 hrs						
J-04-43	East of Station	-	Station South	Recover TTC Boom	2.0 hrs	Recover Mast & Foundation	3.0 hrs												
J-04-43A	East of Station	4.636	Station South	Erect TTC Boom	2.0 hrs	Install Drop Tube & Registration (2 No.)	2.0 hrs	Transfer Existing OLE and Re-dropper	4.0 hrs	Install Drop Tube & ATF Support (ATF1/ATF2)	1.0 hrs	Transfer Existing ATF (ATF1/ATF2)	0.5 hrs						
J-04-44	East of Station	-	Station South	Recover TTC Boom	2.0 hrs	Recover Mast & Foundation	3.0 hrs												
J-04-55B	East of Station	4.941	Station South	Erect SSA Mast	1.0 hrs	Install ATF Anchor SPS	0.5 hrs												
J-04-56A	East of Station	4.944	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-04-60B Tie/Strut	East of Station	4.985	Station South	Install Tie/Strut (both Mast A & B)	1.0 hrs														
J-04-60B	East of Station	4.990	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-04-61H	Station	5.025	Station South	Erect STC Mast	1.0 hrs														
J-05-05F	Station	5.158	Station South	Erect STC Mast	1.0 hrs														
J-05-07H	Station	5.191	Station South	Erect STC Mast	1.0 hrs														
J-05-11A	Station	5.283	Station South	Erect SSA Mast	1.0 hrs														
J-05-11D	West of Station	5.319	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-05-11G	West of Station	5.324	Station South	Erect SSA Mast	1.0 hrs	Install ATF Anchor SPS	0.5 hrs												
J-05-12D	West of Station	5.364	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-05-16A	West of Station	5.424	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-05-16A Tie/Strut	West of Station	5.429	Station South	Install Tie/Strut (both Mast A & B)	1.0 hrs														
J-05-19C	West of Station	5.463	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-05-21B	West of Station	5.450	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-05-21E	West of Station	5.582	Station South	Erect SSA Mast	1.0 hrs														
J-05-22A Tie/Strut	West of Station	5.583	Station South	Install Tie/Strut (both Mast A & B)	1.0 hrs														
J-05-22A	West of Station	5.588	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-05-25A	West of Station	5.618	Station South	Erect Portal Mast (both Mast A & B)	2.0 hrs	Erect Portal Boom	2.0 hrs												
J-04-49B	East of Station	4.848	Station South	Install Drop Tube & Anchor SPS (A212)	1.0 hrs	Install Drop Tube & Anchor SPS (A213)	1.0 hrs												
J-04-52D	East of Station	4.897	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A201)	1.0 hrs	Install Drop Tube & Registration (A209)	1.0 hrs	Install Drop Tube & Registration (A210)	1.0 hrs				
J-04-56A	East of Station	4.944	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A201)	1.0 hrs	Install Drop Tube & Registration (A209)	1.0 hrs	Install Drop Tube & Registration (A210)	1.0 hrs				
J-04-60B	East of Station	4.990	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Anchor SPS (A201)	1.0 hrs	Install Drop Tube & Anchor SPS (A209)	1.0 hrs	Install Drop Tube & Anchor SPS (A210)	1.0 hrs				
J-04-61F	Station	5.027	Station South	Install O/B Drop Tube & Registration (A214)	1.0 hrs														
J-04-61G	Station	5.027	Station South	Install O/B Drop Tube & Registration (A213)	1.0 hrs														
J-04-61H	Station	5.025	Station South	Install Mast Bracket & Registration (A212)	1.0 hrs														
J-04-64D	Station	5.061	Station South	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs												
J-04-64E	Station	5.061	Station South	Install Drop Tube & Registration (A212)	1.0 hrs														
J-04-65D	Station	5.091	Station South	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs												
J-04-65E	Station	5.091	Station South	Install Drop Tube & Registration (A212)	1.0 hrs														
J-05-04D	Station	5.128	Station South	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs												
J-05-04E	Station	5.128	Station South	Install Drop Tube & Registration (A212)	1.0 hrs														
J-05-05F	Station	5.158	Station South	Install Mast Bracket & Registration (A212)	1.0 hrs														
J-05-06A	Station	5.169	Station South	Install O/B Drop Tube & Registration (A214)	1.0 hrs														
J-05-06B	Station	5.169	Station South	Install O/B Drop Tube & Registration (A213)	1.0 hrs														
J-05-07F	Station	5.191	Station South	Install O/B Drop Tube & Registration (A214)	1.0 hrs														
J-05-07G	Station	5.191	Station South	Install O/B Drop Tube & Registration (A213)	1.0 hrs														
J-05-07H	Station	5.191	Station South	Install Mast Bracket & Registration (A212)	1.0 hrs														
J-05-08D	Station	5.225	Station South	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs												
J-05-08E	Station	5.225	Station South	Install Drop Tube & Registration (A212)	1.0 hrs														
J-05-09D	Station	5.247	Station South	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs												
J-05-09E	Station	5.247	Station South	Install Drop Tube & Registration (A212)	1.0 hrs														
J-05-10G	Station	5.284	Station South	Install O/B Drop Tube & Registration (A214)	1.0 hrs														
J-05-10H	Station	5.284	Station South	Install O/B Drop Tube & Registration (A213)	1.0 hrs														
J-05-11A	Station	5.283	Station South	Install Mast Bracket & Registration (A212)	1.0 hrs														
J-05-11D	West of Station	5.319	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs										
J-05-11G	West of Station	5.324	Station South	Install ATF Anchor SPS	0.5 hrs														
J-05-12D	West of Station	5.364	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & ATF Support	1.0 hrs								
J-05-16A	West of Station	5.424	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & ATF Support	1.0 hrs	Install Drop Tube &Tensorex Unit (A222)	2.0 hrs	Install Drop Tube &Tensorex Unit (A224)	2.0 hrs	Install Drop	2.0 hrs		
J-05-19C	West of Station	5.463	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A222)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A224)	1.0 hrs	Install Drop Tube & ATF Support	1.0 hrs	Install Drop	1.0 hrs	Install Drop	1.0 hrs
J-05-21B	West of Station	5.450	Station South	Install Drop Tube & Registration (A212)	1.0 hrs	Install Drop Tube & Registration (A222)	1.0 hrs	Install Drop Tube & Registration (A213)	1.0 hrs	Install Drop Tube & Registration (A214)	1.0 hrs	Install Drop Tube & Registration (A224)	1.0 hrs	Install Drop Tube & ATF Support	1.0 hrs	Install Drop	1.0 hrs	Install Drop	1.0 hrs
J-05-22A	West of Station	5.588	Station South	Install Drop Tube &Tensorex Unit (A212)	2.0 hrs	Install Drop Tube &Tensorex Unit (A213)	2.0 hrs	Install Drop Tube &Tensorex Unit (A214)	2.0 hrs	Install Drop Tube & Registration (A222)	1.0 hrs	Install Drop Tube & Registration (A224)	1.0 hrs	Install Drop Tube & ATF Support	1.0 hrs	Install Drop	1.0 hrs	Install Drop	1.0 hrs
J-05-25A	West of Station	5.618	Station South	Install Drop Tube & Registration (A222)	1.0 hrs	Install Drop Tube & Registration (A224)	1.0 hrs	Install Drop Tube & ATF Support	1.0 hrs	Install Drop Tube & Registration (A223)	1.0 hrs	Install Drop Tube & Registration (A225)	1.0 hrs						
J-05-25C	West of Station	5.663	Station South	Install Drop Tube & Anchor SPS (A222)	1.0 hrs	Install Drop Tube & Anchor SPS (A224)	1.0 hrs	Install Drop Tube & ATF Support	1.0 hrs	Install Drop Tube & Registration (A223)	1.0 hrs	Install Drop Tube & Registration (A225)	1.0 hrs						
J-05-27B	West of Station	5.695	Station South	Install Drop Tube & Registration (A223)	1.0 hrs	Install Drop Tube & Registration (A225)	1.0 hrs												
J-05-29B	West of Station	5.740	Station South	Install Drop Tube & Registration (A223)	1.0 hrs	Install Drop Tube & Registration (A225)	1.0 hrs												

August - December 2029			Chainage			Description of Work							
Structure Number	Wire Run	Location	Start	End	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration	Task D	Duration
J-04-49B	A212	Station South	4.848	-	Proposed Down Main Loop (Plat 1)	Run 760m of Catenary	2.0 hrs	Install 18 Spans of Droppers	2.0 hrs	Run 760m of Contact Wire	4.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	8.0 hrs
J-05-22A	A212	Station South	-	5.588	Proposed Down Main Loop (Plat 1)								
J-04-49B	A213	Station South	4.848	-	Proposed Down Main (Plat 2)	Run 760m of Catenary	2.0 hrs	Install 18 Spans of Droppers	2.0 hrs	Run 760m of Contact Wire	4.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	8.0 hrs
J-05-22A	A213	Station South	-	5.588	Proposed Down Main (Plat 2)								
J-04-49B	A214	Station South	4.848	-	Proposed Up Main Loop (Plat 3)	Run 760m of Catenary	2.0 hrs	Install 18 Spans of Droppers	2.0 hrs	Run 760m of Contact Wire	4.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	8.0 hrs
J-05-22A	A214	Station South	-	5.588	Proposed Up Main Loop (Plat 3)								
J-04-55B	ATF1	Station South	4.941	-	Proposed Main Lines	Run of 400m Cabled ATF	4.0 hrs	Install 2 No. Sealing Ends and associated SPS.	4.0 hrs				
J-05-11G	ATF1	Station South	-	5.324	Proposed Main Lines								
J-04-55B	ATF2	Station South	4.941	-	Proposed Main Lines	Run of 400m Cabled ATF	4.0 hrs	Install 2 No. Sealing Ends and associated SPS.	4.0 hrs				
J-05-11G	ATF2	Station South	-	5.324	Proposed Main Lines								
J-05-16A	A222	Station South	5.424	-	Proposed Down Main Loop (Plat 1)	Run 250m of Catenary	1.0 hrs	Install 5 Spans of Droppers	1.0 hrs	Run 250m of Contact Wire	2.0 hrs	Install 1 No. Anchor Span Insulation Final Registration	4.0 hrs
J-05-25C	A222	Station South	-	5.663	Proposed Down Main Loop (Plat 1)								
J-05-16A	A224	Station South	5.424	-	Proposed Up Main Loop (Plat 3)	Run 250m of Catenary	1.0 hrs	Install 5 Spans of Droppers	1.0 hrs	Run 250m of Contact Wire	2.0 hrs	Install 1 No. Anchor Span Insulation Final Registration	4.0 hrs
J-05-25C	A224	Station South	-	5.663	Proposed Up Main Loop (Plat 3)								
J-04-43D	(ATF1/ATF2)	Station South	4.678		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-04-44A	(ATF1/ATF2)	Station South	4.711		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-04-44B	(ATF1/ATF2)	Station South	4.755		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-04-46D	(ATF1/ATF2)	Station South	4.800		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-04-49B	(ATF1/ATF2)	Station South	4.848		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-04-52D	(ATF1/ATF2)	Station South	4.897		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-04-55B	(ATF1/ATF2)	Station South	4.941		Proposed Main Lines	Anchor Aerial repositioned ATF & Connect 2 No. Jumpers from Sealing End.	2.0 hrs						
J-05-11G	(ATF1/ATF2)	Station South	5.324		Proposed Main Lines	Anchor Aerial repositioned ATF & Connect 2 No. Jumpers from Sealing End.	2.0 hrs						
J-05-12D	(ATF1/ATF2)	Station South	5.364		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-16A	(ATF1/ATF2)	Station South	5.424		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-19C	(ATF1/ATF2)	Station South	5.463		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-21B	(ATF1/ATF2)	Station South	5.450		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-22A	(ATF1/ATF2)	Station South	5.588		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-25A	(ATF1/ATF2)	Station South	5.618		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-25C	(ATF1/ATF2)	Station South	5.663		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-27B	(ATF1/ATF2)	Station South	5.695		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-29B	(ATF1/ATF2)	Station South	5.740		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-31A	(ATF1/ATF2)	Station South	5.783		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-31B	(ATF1/ATF2)	Station South	5.818		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-32A	(ATF1/ATF2)	Station South	5.853		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-33A	(ATF1/ATF2)	Station South	5.894		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-05-34A	(ATF1/ATF2)	Station South	5.928		Proposed Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs						
J-04-60C	(ATF1/ATF2)	Station (Plat 3 & 4)	4.992	-	Proposed Main Lines	Recover Cabled ATF and Associated SPS from between Platforms 3 & 4	8.0 hrs						
J-05-11E	(ATF1/ATF2)	Station (Plat 3 & 4)	-	5.320	Proposed Main Lines								

Christmas 2029			Chainage			Description of Work											
Structure Number	Wire Run	Location	Start	End	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration	Task D	Duration	Task E	Duration	Task F	Duration
J-04-04	(ATF1/ATF2)	East of Station	4.131		Main Lines	Reposition Drop Tube & ATF Support	0.5 hrs										
J-04-07C	(ATF1/ATF2)	East of Station	4.188		Main Lines	Install Drop Tube & ATF Support	1.0 hrs	Transfer Existing ATF	0.5 hrs								
J-04-10B	(ATF1/ATF2)	East of Station	4.240		Main Lines	Install Drop Tube & ATF Support	1.0 hrs	Splice New ATF into Existing and run to Anchor at J-04-17A	2.0 hrs								
J-04-14A	(ATF1/ATF2)	East of Station	4.284		Main Lines	Install Drop Tube & ATF Support	1.0 hrs										
J-04-17A	(ATF1/ATF2)	East of Station	4.322		Main Lines	Cut Existing Cabled ATF at J-04-17A & Install 2 No. Sealing End & associated SPS.	4.0 hrs	Connect 2 No. Jumpers from Sealing End to Aerial ATF.	1.0 hrs								
J-04-07	A202 (TEMP)	East of Station	4.180	-	Temporary Up Main	Recover Wire Run & Termination Assemblies	4.0 hrs										
J-04-60C	A202 (TEMP)	East of Station	-	4.992	Temporary Up Main												
J-04-04	A209 (TEMP)	East of Station	4.129	-	Temporary Down Main	Recover Wire Run & Termination Assemblies	4.0 hrs										
J-04-60C	A209 (TEMP)	East of Station	-	4.992	Temporary Down Main												
J-04-07C	-	East of Station	4.188		Main Lines	Install Drop Tube &Tensorex Unit (A209)	2.0 hrs	Install Drop Tube &Tensorex Unit (A202)	2.0 hrs	Install Drop Tube & Registration (47)	4.0 hrs	Install Drop Tube & Registration (44)	4.0 hrs				
J-04-10B	-	East of Station	4.240		Main Lines	Install Drop Tube & Registration (A209)	1.0 hrs	Install Drop Tube & Registration (A202)	1.0 hrs	Install Drop Tube & Registration (47)	4.0 hrs	Install Drop Tube & Registration (44)	4.0 hrs				
J-04-14A	-	East of Station	4.284		Main Lines	Install Drop Tube & Registration (A209)	1.0 hrs	Install Drop Tube & Registration (A202)	1.0 hrs	Install Drop Tube & Registration (47)	4.0 hrs	Install Drop Tube & Registration (44)	4.0 hrs				
J-04-17A	-	East of Station	4.322		Main Lines	Install Drop Tube & Registration (A209)	1.0 hrs	Install Drop Tube & Registration (A202)	1.0 hrs	Install Drop Tube &Tensorex Unit (47)	4.0 hrs	Install Drop Tube &Tensorex Unit (44)	4.0 hrs				
J-04-29A	-	East of Station	4.438		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-32C	-	East of Station	4.472		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-36A	-	East of Station	4.517		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-40A	-	East of Station	4.562		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-42A	-	East of Station	4.598		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-43A	-	East of Station	4.636		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-43D	-	East of Station	4.678		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs	Install Drop Tube &Tensorex Unit (A201)	2.0 hrs	Install Drop Tube &Tensorex Unit (A210)	2.0 hrs				
J-04-44A	-	East of Station	4.711		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs	Install Drop Tube & Registration (A201)	1.0 hrs	Install Drop Tube & Registration (A210)	1.0 hrs				
J-04-44B	-	East of Station	4.755		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs	Install Drop Tube & Registration (A201)	1.0 hrs	Install Drop Tube & Registration (A210)	1.0 hrs				
J-04-46D	-	East of Station	4.800		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs	Install Drop Tube & Registration (A201)	1.0 hrs	Install Drop Tube & Registration (A210)	1.0 hrs				
J-04-49B	-	East of Station	4.848		Main Lines	Reposition Drop Tube & Registration (A209)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs	Install Drop Tube & Registration (A201)	1.0 hrs	Install Drop Tube & Registration (A210)	1.0 hrs	Reposition Drop Tube & Anchor SPS (A214)	1.0 hrs	Reposition	1.0 hrs
J-04-52D	-	East of Station	4.897		Main Lines	Reposition Drop Tube & Registration (A215)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-56B	-	East of Station	4.946		Main Lines	Reposition Drop Tube & Registration (A215)	0.5 hrs	Reposition Drop Tube & Registration (A202)	0.5 hrs								
J-04-60C	-	East of Station	4.992		Main Lines	Reposition Drop Tube & Anchor SPS (A202)	1.0 hrs										
J-04-07C	A209	East of Station	4.188	-	Down Main	Run 800m of Catenary	2.0 hrs	Install 20 Spans of Droppers	2.0 hrs	Run 800m of Contact Wire	4.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	8.0 hrs				
J-04-60B	A209	East of Station	-	4.990	Down Main												
J-04-07C	A202	East of Station	4.188	-	Up Main	Run 800m of Catenary	2.0 hrs	Install 20 Spans of Droppers	2.0 hrs	Run 800m of Contact Wire	4.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	8.0 hrs				
J-04-60C	A202	East of Station	-	4.992	Up Main												
J-04-43D	A201	East of Station	4.678	-	Down Main Loop	Run 320m of Catenary	1.0 hrs	Install 7 Spans of Droppers	1.0 hrs	Run 320m of Contact Wire	2.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	4.0 hrs				
J-04-60B	A201	East of Station	-	4.990	Down Main Loop												
J-04-43D	A210	East of Station	4.678	-	Up Main Loop	Run 320m of Catenary	1.0 hrs	Install 7 Spans of Droppers	1.0 hrs	Run 320m of Contact Wire	2.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	4.0 hrs				
J-04-60B	A210	East of Station	-	4.990	Up Main Loop												
#	-	East of Station	-		Main Lines	Recover TTC Boom	2.0 hrs	~~Recover Mast & Foundation~~	~~3.0 hrs~~								
J-04-09	-	East of Station	-		Main Lines	Recover Mast & Foundation	3.0 hrs										
J-04-10	-	East of Station	-		Main Lines	Recover Mast & Foundation	3.0 hrs										
J-04-13	-	East of Station	-		Main Lines	Recover Mast & Foundation	3.0 hrs										
J-04-14	-	East of Station	-		Main Lines	Recover Mast & Foundation	3.0 hrs										
J-04-17	-	East of Station	-		Main Lines	Recover Mast & Foundation	3.0 hrs										
J-04-18	-	East of Station	-		Main Lines	Recover TTC Boom	2.0 hrs	Recover Mast & Foundation	3.0 hrs								
J-05-18B	A225 (TEMP)	West of Station	5.441	-	Temporary Up Main	Recover Wire Run	2.0 hrs	Recover Termination Assembly	1.0 hrs								
J-06-02A	A225 (TEMP)	West of Station	-	6.188	Temporary Up Main			Reposition Termination Assembly	1.0 hrs								
J-05-18B	A223 (TEMP)	West of Station	5.441	-	Temporary Down Main	Recover Wire Run	2.0 hrs	Recover Termination Assembly	1.0 hrs								
J-06-02A	A223 (TEMP)	West of Station	-	6.188	Temporary Down Main			Reposition Termination Assembly	1.0 hrs								
J-05-16A	-	West of Station	5.424		Main Lines	Install Drop Tube &Tensorex Unit (A225)	2.0 hrs										
J-05-29B	-	West of Station	5.740		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-05-31A	-	West of Station	5.783		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-05-31B	-	West of Station	5.818		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-05-32A	-	West of Station	5.853		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-05-33A	-	West of Station	5.894		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-05-34A	-	West of Station	5.982		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-05-35A (EXTG)	A225	West of Station	5.982		Up Main	Adjust Cantilever (A225)	0.5 hrs										
J-05-36A	A223	West of Station	5.970		Down Main	Adjust Cantilever (A223)	0.5 hrs										
J-05-40	-	Acton Cutting	6.028		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-06-01	-	Acton Cutting	6.069		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs								
J-06-01A	-	Acton Cutting	6.107		Main Lines	Reposition Drop Tube & Registration (A223)	0.5 hrs	Reposition Drop Tube & Registration (A225)	0.5 hrs	Reposition Drop Tube & Tensorex Unit (61)	0.5 hrs	Reposition Drop Tube & Tensorex Unit (64)	0.5 hrs				
J-06-02A	-	Acton Cutting	6.166		Main Lines	Reposition Drop Tube & Tensorex Unit (A223)	0.5 hrs	Reposition Drop Tube & Tensorex Unit (A226)	0.5 hrs	Reposition Drop Tube & Registration (61)	0.5 hrs	Reposition Drop Tube & Registration (64)	0.5 hrs				
J-06-03A	-	Acton Cutting	6.205		Main Lines	Reposition Drop Tube & Registration (61)	0.5 hrs	Reposition Drop Tube & Registration (64)	0.5 hrs								
J-06-04A	-	Acton Cutting	6.257		Main Lines	Reposition Drop Tube & Registration (61)	0.5 hrs	Reposition Drop Tube & Registration (64)	0.5 hrs								
J-06-05	-	Acton Cutting	6.309		Main Lines	Reposition Drop Tube & Registration (61)	0.5 hrs	Reposition Drop Tube & Registration (64)	0.5 hrs								
J-06-05B	-	Acton Cutting	6.343		Main Lines	Reposition Drop Tube & Registration (61)	0.5 hrs	Reposition Drop Tube & Registration (64)	0.5 hrs								
J-06-06A	-	Acton Cutting	6.377		Main Lines	Reposition Drop Tube & Registration (61)	0.5 hrs	Reposition Drop Tube & Registration (64)	0.5 hrs								
J-05-16A	A223	West of Station	5.424	-	Down Main	Run 750m of Catenary	2.0 hrs	Install 18 Spans of Droppers	2.0 hrs	Run 750m of Contact Wire	4.0 hrs	Install 1 No. Anchor Span Insulation Final Registration	6.0 hrs				
J-06-02A	A223	Acton Cutting	-	6.188	Down Main												
J-05-16A	A225	West of Station	5.424	-	Up Main	Run 750m of Catenary	2.0 hrs	Install 18 Spans of Droppers	2.0 hrs	Run 750m of Contact Wire	4.0 hrs	Install 1 No. Anchor Span Insulation Final Registration	6.0 hrs				
J-06-02A	A225	Acton Cutting	-	6.188	Up Main												
J-05-25A	-	West of Station	5.618		Proposed Mains X-overs	Install Drop Tube & Anchor SPS (A232)	1.0 hrs										
J-05-25C	-	West of Station	5.663		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-27B	-	West of Station	5.695		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-29B	-	West of Station	5.740		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-31A	-	West of Station	5.783		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-31B	-	West of Station	5.818		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-32A	-	West of Station	5.853		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-33A	-	West of Station	5.894		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-34A	-	West of Station	5.928		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-05-35A (EXTG)	-	West of Station	5.982		Proposed Mains X-overs	Install Mast Bracket & Registration (A232)	1.0 hrs										
J-05-40	-	Acton Cutting	6.028		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-06-01	-	Acton Cutting	6.069		Proposed Mains X-overs	Install Drop Tube & Registration (A232)	1.0 hrs										
J-06-01A	-	Acton Cutting	6.107		Proposed Mains X-overs	Install Drop Tube &Tensorex Unit (A232)	2.0 hrs										
J-05-25A	A232	West of Station	5.618	-	Proposed Mains X-overs	Run 480m of Catenary	2.0 hrs	Install 12 Spans of Droppers	2.0 hrs	Run 480m of Contact Wire	4.0 hrs	Install 2 No. Section Insulators Install 1 No. Anchor Span Insulation Final Registration & Pen	4.0 hrs				
J-06-01A	A232	Acton Cutting	-	6.107													

January - March 2031			Chainage			Description of Work									
Structure Number	Location	Track/Area	Start	End		Task A	Duration	Task B	Duration	Task C	Duration	Task D	Duration	Task E	Duration
J-05-12E	West of Station	Proposed Up Main		5.371		Adjust Cantilever (A215)	0.5 hrs								
J-05-16A	West of Station	Proposed Up Main		5.424		Reposition Drop Tube & Registration (A215)	0.5 hrs								
J-05-19C	West of Station	Proposed Up Main		5.463		Install Drop Tube & Registration (A215)	1.0 hrs	Transfer from Temporary Support (A215)	1.0 hrs						
J-05-21B	West of Station	Proposed Up Main		5.450		Install Drop Tube & Registration (A215)	1.0 hrs	Transfer from Temporary Support (A215)	1.0 hrs						
J-05-22A	West of Station	Proposed Up Main		5.588		Install Drop Tube &Tensorex Unit (A215)	2.0 hrs	Transfer from Temporary Anchor (A215)	2.0 hrs						

Easter 2031			Chainage														
Structure Number	Wire Run	Location	Start	End	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration	Task D	Duration	Task E	Duration	Task F	Duration
J-04-07C	-	East of Station	4.188		Relief Lines	Install Drop Tube &Tensorex Unit (A203)	2.0 hrs	Install Drop Tube &Tensorex Unit (UR03)	2.0 hrs	Install Drop Tube & Registration (46)	4.0 hrs	Install Drop Tube & Registration (42)	4.0 hrs				
J-04-10B	-	East of Station	4.240		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs	Install Drop Tube & Registration (UR03)	1.0 hrs	Install Drop Tube & Registration (46)	4.0 hrs	Install Drop Tube & Registration (42)	4.0 hrs				
J-04-14A	-	East of Station	4.284		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs	Install Drop Tube & Registration (UR03)	1.0 hrs	Install Drop Tube & Registration (46)	4.0 hrs	Install Drop Tube & Registration (42)	4.0 hrs				
J-04-17A	-	East of Station	4.322		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs	Install Drop Tube & Registration (UR03)	1.0 hrs	Install Drop Tube &Tensorex Unit (46)	4.0 hrs	Install Drop Tube &Tensorex Unit (42)	4.0 hrs				
J-04-10B	UR03/46	East of Station	4.240		Relief Lines	Install Switch Assembly and associated SPS	4.0 hrs	Connect Switch Feeds	1.0 hrs								
J-04-14A	A203/42	East of Station	4.284		Relief Lines	Install Switch Assembly and associated SPS	4.0 hrs	Connect Switch Feeds	1.0 hrs								
J-04-29A	-	East of Station	4.438		Relief Lines	Reposition Drop Tube & Registration (A203)	0.5 hrs										
J-04-32C	-	East of Station	4.472		Relief Lines	Reposition Drop Tube & Registration (A203)	0.5 hrs										
J-04-36A	-	East of Station	4.517		Relief Lines	Reposition Drop Tube & Registration (A203)	0.5 hrs	Install Drop Tube &Tensorex Unit (A207)	2.0 hrs								
J-04-40A	-	East of Station	4.562		Relief Lines	Reposition Drop Tube & Registration (A207)	0.5 hrs	Install Drop Tube & Registration (A203)	1.0 hrs								
J-04-42A	-	East of Station	4.598		Relief Lines	Reposition Drop Tube & Registration (A207)	0.5 hrs	Install Drop Tube & Registration (A203)	1.0 hrs								
J-04-43A	-	East of Station	4.636		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs										
J-04-43D	-	East of Station	4.678		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs										
J-04-44A	-	East of Station	4.711		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs										
J-04-44B	-	East of Station	4.755		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs										
J-04-46D	-	East of Station	4.800		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs										
J-04-49B	-	East of Station	4.848		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs										
J-04-52D	-	East of Station	4.897		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs	Reposition Drop Tube & Registration (A216)	0.5 hrs								
J-04-56B	-	East of Station	4.946		Relief Lines	Install Drop Tube & Registration (A203)	1.0 hrs	Reposition Drop Tube & Registration (A216)	0.5 hrs								
J-04-60C	-	East of Station	4.992		Relief Lines	Install Drop Tube & Anchor SPS (A203)	1.0 hrs										
J-04-07C	A203	East of Station	4.188	-	Down Relief	Run 800m of Catenary	2.0 hrs	Install 20 Spans of Droppers	2.0 hrs	Run 800m of Contact Wire	4.0 hrs	Install 2 No. Anchor Span Insulation Final Registration	8.0 hrs				
J-04-60B	A203	East of Station	-	4.990	Down Relief												
J-04-02	A207	East of Station	4.081	-	Down Relief Loop	Cut temporary A207 and create new anchor at J-04-36A for final A207 position	2.0 hrs	Recover Remaining Temporary Wire Run & Termination Assembly	4.0 hrs								
J-04-36A	A207	East of Station	-	4.517	Down Relief Loop												
J-04-07	-	East of Station	-		Main Lines	Recover Headspan & Registration	1.0hrs	Recover Mast & Foundation (2 No.)	6.0 hrs								
J-04-11	-	East of Station	-		Main Lines	Recover Headspan & Registration	1.0hrs	Recover Mast & Foundation (2 No.)	6.0 hrs								
J-04-15	-	East of Station	-		Main Lines	Recover Headspan & Registration	1.0hrs	Recover Mast & Foundation (2 No.)	6.0 hrs								
J-04-18	-	East of Station	-		Main Lines	Recover Mast & Foundation	3.0 hrs										
J-05-18B	A226 (TEMP)	West of Station	5.441	-	Temporary Down Relief	Recover Wire Run	2.0 hrs	Recover Termination Assembly	1.0 hrs								
J-06-02A	A226 (TEMP)	West of Station	-	6.188	Temporary Down Relief			Reposition Termination Assembly	1.0 hrs								
J-05-15B	-	West of Station	5.408		Down Relief	Reposition Drop Tube & Registration (A216)	0.5 hrs										
J-05-18B	-	West of Station	5.441		Down Relief	Install Drop Tube &Tensorex Unit (A226)	2.0 hrs	Reposition Drop Tube & Registration (A216)	0.5 hrs								
J-05-19D	-	West of Station	5.491		Down Relief	Install Drop Tube & Registration (A226)	1.0 hrs	Reposition Drop Tube & Registration (A216)	0.5 hrs								
J-05-21C	-	West of Station	5.541		Down Relief	Install Drop Tube & Registration (A226)	1.0 hrs	Reposition Drop Tube & Registration (A216)	0.5 hrs								
J-05-21E	-	West of Station	5.582		Down Relief	Install Tensorex Unit & SPS (A216)	1.5 hrs	Cut temporary A216 and create new anchor at J-05-21E for final A216 position	2.0 hrs	Recover Remaining Temporary Wire Run & Termination Assembly	1.0 hrs						
J-05-22B	-	West of Station	5.590		Down Relief	Install Mast Bracket & Registration (A226)	1.0 hrs										
J-05-25A	-	West of Station	5.618		Down Relief	Install Mast Bracket & Registration (A226)	1.0 hrs										
J-05-25C	-	West of Station	5.663		Down Relief	Install Mast Bracket & Registration (A226)	1.0 hrs										
J-05-27A	-	West of Station	5.678		Up Relief	Adjust Cantilever (A229)	0.5 hrs										
J-05-27B	-	West of Station	5.695		Down Relief	Install Mast Bracket & Registration (A226)	1.0 hrs										
J-05-29A	-	West of Station	5.709		Up Relief	Adjust Cantilever (A229)	0.5 hrs										
J-05-29B	-	West of Station	5.740		Down Relief	Install Mast Bracket & Registration (A226)	1.0 hrs										
J-05-29C	-	West of Station	5.751		Up Relief	Reposition Drop Tube & Registration (A229)	0.5 hrs										
J-05-31A	-	West of Station	5.783		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs								
J-05-31B	-	West of Station	5.818		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs								
J-05-32A	-	West of Station	5.853		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs								
J-05-33A	-	West of Station	5.894		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs								
J-05-34A	-	West of Station	5.928		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs								
J-05-36A	-	West of Station	5.964		Relief Lines	Adjust Cantilever (A226)	0.5 hrs	Adjust Cantilever (A229)	0.5 hrs								
J-05-40	-	Acton Cutting	6.028		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs								
J-06-01	-	Acton Cutting	6.069		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs								
J-06-01A	-	Acton Cutting	6.107		Relief Lines	Reposition Drop Tube & Registration (A226)	0.5 hrs	Reposition Drop Tube & Registration (A229)	0.5 hrs	Reposition Drop Tube & Tensorex Unit (62)	0.5 hrs	Reposition Drop Tube & Tensorex Unit (65)	0.5 hrs				
J-06-02A	-	Acton Cutting	6.166		Relief Lines	Reposition Drop Tube & Tensorex Unit (A226)	0.5 hrs	Reposition Drop Tube & Tensorex Unit (A229)	0.5 hrs	Reposition Drop Tube & Registration (62)	0.5 hrs	Reposition Drop Tube & Registration (65)	0.5 hrs				
J-05-18B	A226	West of Station	5.441	-	Down Relief	Run 730m of Catenary	2.0 hrs	Install 18 Spans of Droppers	2.0 hrs	Run 730m of Contact Wire	4.0 hrs	Install 1 No. Anchor Span Insulation Final Registration	6.0 hrs				
J-06-02A	A226	Acton Cutting	-	6.188	Down Relief												

April - December 2031			Chainage			Description of Work											
Structure Number	Wire Run	Location	Start	End	Track/Area	Task A	Duration	Task B	Duration	Task C	Duration	Task D	Duration	Task E	Duration	Task F	Duration
J-04-42C	-	East of Station	4.620		Up Relief Loop	Install Tensorex Unit (A208)	2.0 hrs										
J-04-43C	-	East of Station	4.669		Up Relief Loop	Install Mast Bracket & Registration (A208)	1.0 hrs										
J-04-43D	-	East of Station	4.678		Proposed Reliefs X-overs	Install Drop Tube &Tensorex Unit (X08)	2.0 hrs										
J-04-44A	-	East of Station	4.711		Relief Lines	Install Drop Tube & Registration (A208)	1.0 hrs	Install Drop Tube & Registration (X08)	1.0 hrs								
J-04-44B	-	East of Station	[illegible]		Relief Lines	Install Drop Tube & Registration (A208)	1.0 hrs	Install Drop Tube & Registration (X08)	1.0 hrs								
J-04-46C	-	East of Station	[illegible]		Relief Lines	Install Drop Tube & Registration (A208)	1.0 hrs	Install Drop Tube & Registration (X08)	1.0 hrs								
J-04-48A	-	East of Station	4.841		Relief Lines	Install Drop Tube & Registration (A208)	1.0 hrs	Install Drop Tube & Registration (X08)	1.0 hrs								
J-04-52B	-	East of Station	4.883		Relief Lines	Install Drop Tube & Registration (A208)	1.0 hrs	Install Drop Tube & Registration (X08)	1.0 hrs								

J-01-020	-	End of Works		4.000		Hard Core	Install Ring Trench Angle(4m)	1.00m											
J-01-030	-	End of Works		4.000		Hard Core	Disconnect SPS (2m)	00.00m											
J-01-040	-	End of Works		4.000		Hard Core	Install Ring Trench Angle(4m)	1.21m											
J-01-050	-	End of Works	4.000	-		Hard Core	Connecting Trench Anchor SPS (2.00m)	1.00m											
J-01-060	J007	End of Works	-	4.000		Hard Core	Disconnection Point	1.21m	Install 3 Spans of Weapons	1.21m	Run 300m of Contact Wire	20.0m	Install 11kv Anchor Span Insulation Post Preparation	4.0 hrs					
J-01-070	J020	End of Works	-	5.000		Hard Core	Disconnection Point												
J-01-080	J02	End of Works	4.000	-		Poured Rebb Zone	Run 300m of Catenary	1.21m	Install 3 Spans of Weapons	1.21m	Run 300m of Contact Wire	20.0m	Install 11kv Anchor Span Insulation Post Preparation	4.0 hrs					
J-01-090	J02	End of Works	-	4.000		Poured Rebb Zone													
J-01-100	-	Gate		0.007		Main Work Knowledge	Install Ring Trench Anchor SPS (1.00)	1.21m											
J-01-107	-	Gate		0.000		Main Work Knowledge	Install Anchor SPS (1.00)	00.00m											
J-01-108	-	Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m											
J-01-109	-	Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m											
J-01-110	-	Gate		0.001		Main Work Knowledge	Angle Registration(4m)	00.00m											
J-01-115	-	Wood Gate		0.001		Main Work Knowledge	Angle Registration(4m)	00.00m	Install Steel Section & Registration (1.00)	1.00m									
J-01-116	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m											
J-01-117	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m											
J-01-120	-	Wood Gate		0.001		Main Work Knowledge	Install Steel Section & Registration (2.00)	1.21m											
J-01-125	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs							
J-01-130	-	Wood Gate		0.002		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs							
J-01-135	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs	Install Riser Tube & Anchor SPS (2.00)	1.0 hrs	Install Riser Tube & Preparation (1.00)	1.0 hrs			
J-01-140	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs	Install Riser Tube & Preparation (1.00)	1.0 hrs	Install Riser Tube & Registration (1.00)	1.0 hrs			
J-01-145	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m											
J-01-150	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m											
J-01-155	-	Wood Gate		0.001		Main Work Knowledge	Install Steel Section & Registration (2.00)	1.21m											
J-01-160	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs							
J-01-165	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs	Install Riser Tube & Preparation (1.00)	1.0 hrs	Install Riser Tube & Registration (1.00)	1.0 hrs			
J-01-170	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m											
J-01-175	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m											
J-01-180	-	Wood Gate		0.001		Main Work Knowledge	Install Steel Section & Registration (2.00)	1.21m											
J-01-185	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs							
J-01-190	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs	Install Riser Tube & Preparation (1.00)	1.0 hrs	Install Riser Tube & Registration (1.00)	1.0 hrs			
J-01-195	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m											
J-01-200	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m											
J-01-205	-	Wood Gate		0.001		Main Work Knowledge	Install Steel Section & Registration (2.00)	1.21m											
J-01-210	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs							
J-01-215	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Reposition Ring Trench Angle(4m)	0.01 hrs	Install Riser Tube & Preparation (1.00)	1.0 hrs	Install Riser Tube & Registration (1.00)	1.0 hrs			
J-01-220	-	Wood Gate		0.002		Main Work Knowledge	Install Anchor SPS (2.00)	1.21m											
J-01-225	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	0.01 hrs							
J-01-230	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	0.01 hrs							
J-01-235	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	0.01 hrs							
J-01-240	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	0.01 hrs							
J-01-245	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	0.01 hrs							
J-01-250	-	Wood Gate		0.001		Main Work Knowledge	Connecting Trench Registration (2m)	1.21m	Install Ring Trench Angle(4m)	1.21m	Install Ring Trench Angle(4m)	0.01 hrs							
J-01-255	-	Wood Gate		0.001		Main Work Knowledge	Install Ring Trench Reference Grid (2.00)	00.00m											
J-01-260	J020	Wood Gate	0.007	-		Main Work Knowledge	Run 300m of Catenary	1.21m	Install 11 Spans of Weapons	1.21m	Run 300m of Contact Wire	20.0m	Install 11kv Anchor Span Insulation Post Preparation & Pen	4.0 hrs					
J-01-270	J020	Wood Gate	-	0.000		Main Work Knowledge													
J-01-280	J020	Wood Gate	0.001	-		Main Work Knowledge	Run 300m of Catenary	1.21m	Install 11 Spans of Weapons	1.21m	Run 300m of Contact Wire	20.0m	Install 11kv Anchor Span Insulation Post Preparation & Pen	4.0 hrs					
J-01-290	J020	Wood Gate	-	0.000		Main Work Knowledge													
J-01-300	J020	Wood Gate	0.001	-		Main Work Knowledge	Run 300m of Catenary	00.0m	Install 10 Spans of Weapons	0.0m	Run 300m of Contact Wire	40.0 hrs	Install 11kv Anchor Span Insulation Post Preparation & Pen	8.0 hrs					
J-01-310	J021	Wood Gate	-	0.000		Main Work Knowledge													
J-01-320	J021	Wood Gate	0.001	-		Main Work Knowledge	Run 300m of Catenary	1.21m	Install 10 Spans of Weapons	1.21m	Run 300m of Contact Wire	20.0m	Install 11kv Anchor Span Insulation Post Preparation & Pen	4.0 hrs					
J-01-330	J021	Wood Gate	-	0.000		Main Work Knowledge													
J-01-340	J021	Wood Gate	0.001	-		Main Work Knowledge	Run 300m of Catenary	1.21m	Install 7 Spans of Weapons	1.21m	Run 300m of Contact Wire	20.0m	Install 11kv Anchor Span Insulation Post Preparation & Pen	4.0 hrs					
J-01-350	J021	Wood Gate	0.001	-		Main Work Knowledge	Run 300m of Catenary	1.21m	Install 6 Spans of Weapons	1.21m	Run 300m of Contact Wire	20.0m	Install 11kv, 33kV and 132kV Insulator Post Preparation & Pen	4.0 hrs					
J-01-360	J021	Wood Gate	-	0.000		Main Work Knowledge													
J-01-370	-	End of Works		4.000		Hard Core	Install PVC Assembly and associated SPS	1.21m											
J-01-380	-	End of Works		4.007		Hard Core	Install Anchor Assembly and associated SPS	00.00m											
J-01-390	-	End of Works		4.000		Hard Core	Install Bullet Assembly and associated SPS	0.01m											
J-01-400	-	End of Works		4.000		Hard Core	Install Bullet Assembly and associated SPS	0.01m											
J-01-410	-	End of Works		4.000		Hard Core	Install Bullet Assembly and associated SPS	0.01m											
J-01-420	-	End of Works		4.001		Hard Core	Install Bullet Assembly and associated SPS	0.01m											
J-01-430	-	End of Works		4.000		Hard Core	Install Bullet Assembly and associated SPS	0.01m											
J-01-440	-	End of Works		4.000		Hard Core	Install Anchor Assembly and associated SPS	0.01m											
J-01-450	J020	Wood Gate		0.000		Main Work Knowledge	Install Bullet Assembly and associated SPS	0.01m	Connect Bullet Pods	1.00m									
J-01-460	-	Wood Gate		0.000		Hard Core	Install Bullet Assembly and associated SPS	0.01m	Install 275 10.00m Poly and associated SPS	0.00m									
J-01-470	-	Wood Gate		0.000		Main Work	Install Bullet Assembly and associated SPS	0.01m											
J-01-480	-	Wood Gate		0.000		Main Work	Install Bullet Assembly and associated SPS	0.01m											
J-01-490	-	Wood Gate		0.000		Hard Core	Install Bullet Assembly and associated SPS	0.01m											
J-01-500	J021	Wood Gate		0.000		Main Work Knowledge	Install Bullet Assembly and associated SPS	0.01m	Remove Bullet Pods	1.21m									
J-01-505	J020/J021	Wood Gate		0.000		Main Work Knowledge	Install Bullet Assembly and associated SPS	0.01m	Remove Bullet Pods	1.21m									
J-01-510	-	Wood Gate		0.001		Main Work	Install APS Switch Assembly and associated SPS	4.01m											
J-01-520	-	Wood Gate		0.001		Hard Core	Install APS Switch Assembly and associated SPS	0.01m											

Christmas 2021																			
			Weekdays				Weekend Work												
			Start	End															
J-01-530	-	End of Works	4.000		Hard Core		Disconnection Point	1.21m											
J-01-540	-	End of Works	4.007		Main Work		Install Anchor Assembly and associated SPS	00.00m	Remove Bullet Pods	1.00m									
J-01-550	-	End of Works	4.000		Hard Core		Install Bullet Assembly and associated SPS	0.01m	Remove Bullet Pods	1.00m									
J-01-560	-	End of Works	4.000		Main Work		Disconnection Point	1.21m											
J-01-570	-	End of Works	4.000		Hard Core		Disconnection Point	1.21m											
J-01-580	-	End of Works	4.001		Main Work		Install Bullet Assembly and associated SPS	0.01m	Remove Bullet Pods	1.00m									
J-01-590	-	End of Works	4.002		Hard Core		Install Anchor Assembly and associated SPS	0.01m	Remove Bullet Pods	1.00m									
J-01-600	-	Wood Gate	0.001		Main Work		Install APS Switch	1.00m	Remove Bullet Pods	1.00m									
J-01-610	-	Wood Gate	0.000		Hard Core		Install Bullet Assembly and associated SPS	0.01m	Remove Bullet Pods	1.00m									
J-01-620	-	Wood Gate	0.000		Main Work		Install Anchor Assembly and associated SPS	0.01m	Remove Bullet Pods	1.00m									
J-01-630	-	Wood Gate	0.000		Main Work		Install Bullet Assembly and associated SPS	0.01m	Remove Bullet Pods	1.00m									
J-01-640	-	Wood Gate	0.001		Main Work		Install APS Switch Assembly and associated SPS	4.01m											
J-01-650	-	Wood Gate	0.001		Hard Core		Install APS Switch Assembly and associated SPS	0.01m											

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