
The Cambourne to Cambridge Order

Transport And Works Act 1992

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

Code of Construction Practice

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1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 This draft Code of Construction Practice (CoCP) has been produced for the Cambourne to Cambridge Better Public Transport Project (the CtoC Scheme).
- 1.1.2 The draft CoCP describes control measures, practices and standards to be implemented throughout construction of the CtoC Scheme to ensure that adverse effects to people and the environment are kept as low as practicable during that period. The draft CoCP will be refined as necessary as the project design, assessment and TWA processes progresses. Engagement with stakeholders - especially through the Joint Director of Planning & Economic Development at Greater Cambridge Shared Planning (the Shared Planning Service) - has informed its development. The CoCP has been reviewed by the Shared Planning Service and amended where appropriate.
- 1.1.3 The Scheme runs between the edge of Cambridge city centre and Cambourne, 8 miles west of Cambridge. It will serve existing and growing settlements along the route, including Cambourne and Hardwick, and future developments, including Bourn Airfield and Cambourne West.
- 1.1.4 The Scheme consists of the following main elements:
- a two-way guided busway 13.6 kilometres in length commencing at Sterling Way, Cambourne and terminating at Grange Road, Cambridge segregated from local highways except for stretches along St Neots Road and Charles Babbage Road;
 - intermediate bus stops along the route and an emergency and maintenance access track to be dedicated as a bridleway running alongside the two-way guided busway for most of the length of the guided busway (the Service Track);
 - a new travel hub building and Park and Ride site east of Scotland Farm with access for the buses over the existing A 428 bridge;
 - new bridges over the M11 and at Bin Brook to provide for the two-way guided busway and adjoining emergency and maintenance track; and
 - access roads, temporary compounds, stopping up, diversion and creation of public rights of way, highway crossings, drainage works and attenuation and infiltration ponds.
- 1.1.5 Further details about the Scheme proposal are set out in Chapter 3, Scheme Description, of the ES¹.

1.2 PURPOSE OF THE CODE OF CONSTRUCTION PRACTICE

- 1.2.1 This draft CoCP sets out a series of proposed measures and standards of work, which will be applied by the Principal Contractor throughout the construction period to:
- Provide effective planning, management and control during construction to control potential adverse impacts and effects on people, businesses and natural and heritage assets;
 - Monitor and plan for the effects of adverse and extreme weather related risks to minimise the impact on the environment, construction site, materials, plant and equipment, workers and construction programme; and

¹ Environmental Statement

- Provide the mechanisms to engage with the local community and their representatives throughout the construction period.

- 1.2.2 The Principal Contractor will comply, as a minimum, with all applicable environmental legislation at the time of construction. Further guidance on specific areas, such as soil handling and dust management, will be considered from industry best practice guidance documents as set out in each discipline section of this draft CoCP. The references to guidance documents within this document are not intended to be exhaustive, but are indicative of current industry practices.
- 1.2.3 This draft CoCP has been produced in conjunction with the ES documentation with the aim of ensuring that potential significant effects resulting from construction activities will either be avoided or reduced to a level that makes them not significant.
- 1.2.4 The Principal Contractor will use this draft CoCP as the basis for one or more Local Environmental Management Plans (LEMPs) that address specific sensitivities and anticipated working practices for different works along the scheme.

1.3 ENVIRONMENTAL MANAGEMENT SYSTEM

- 1.3.1 The Principal Contractor will develop an Environmental Management System (EMS) that will dictate the processes by which effective environmental management of the CtoC scheme will be achieved. Effective environmental management is defined as complying with environmental requirements (including regulatory requirements, as well as those dictated within the consent, the planning permission and any related commitments, including mitigation contained within the ES), and managing environmental risks.
- 1.3.2 The EMS will set out:
- The procedures to be implemented to plan and monitor compliance with environmental legislation and other relevant requirements;
 - The key environmental aspects of the work and how they will be managed;
 - Staff competence and awareness requirements and how these are achieved and maintained;
 - Record-keeping arrangements;
 - The procedures to be implemented to monitor compliance; and
 - Monitoring compliance and the effectiveness of the measures included within this draft CoCP.

2 IMPLEMENTATION

2.1 ENFORCEMENT

- 2.1.1 The draft CoCP will be implemented during the planning and undertaking of construction works. The Principal Contractor will be required to comply with the terms of the draft CoCP.
- 2.1.2 The requirements of the draft CoCP will apply to the whole of the CtoC Scheme. The requirements will be supplemented by the LEMP for the local authority area (South Cambridgeshire District Council or Cambridge City Council). Further details on the LEMP are given in **Section 2.2**.
- 2.1.3 The Principal Contractor's EMS will define the arrangements and responsibilities for auditing and assuring compliance with the environmental mitigation set out in this draft CoCP.

2.2 LOCAL ENVIRONMENTAL MANAGEMENT PLANS

- 2.2.1 The LEMP will include a number of measures by topic that are specific to the local authority area (South Cambridgeshire District Council or Cambridge City Council), as set out in **Section 4** onwards of this draft CoCP. The LEMP will build on the general environmental requirements given below and will set out how the CtoC Scheme will be adapted and delivered to the required environmental and community protection measures within the relevant local authority area.
- 2.2.2 The Principal Contractor will engage with the local communities, local authorities and other stakeholders, including regulators such as the Environment Agency and Natural England as determined by the Shared Planning Service, in order to develop the LEMP. This may include discussion with other local projects to seek ways of mitigating potential cumulative impacts or, where practicable, working in a collaborative ways with other contractors.
- 2.2.3 The LEMP will address specific environmentally sensitive construction sites, focusing on mitigation, compensation and monitoring requirements, with opportunities for enhancement in relation to identified environmental topics. The LEMP(s) are likely to be developed in association with specific geographic sections of the Scheme or in association with specific structures. This will be determined by the Principal Contractor, in consultation with the local authorities, and with other as part of the detailed design stage.
- 2.2.4 LEMPs will reflect as necessary any specific measures as set in in the relevant local authority documents including the Greater Cambridge Sustainable Design and Construction SPD².

2.3 MONITORING AND REPORTING

- 2.3.1 The Principal Contractor will undertake the necessary monitoring as outlined for each environmental topic (see **Sections 4 to 13**) to comply with the requirements of this draft CoCP and the relevant LEMP, as well as any additional consent requirements. Monitoring will include:
 - Monitoring the effectiveness of mitigation measures;
 - Monitoring the impact of construction works; and
 - Taking other actions as may be necessary to enable compliance.

² [Greater Cambridge Sustainable Design and Construction SPD - Cambridge City Council](#)

- 2.3.2 The Principal Contractor will provide information on noise, dust and air quality data, to the Shared Planning Service, including a summary of the construction activities occurring, any complaints received, the data recorded over the monitoring period broken down into appropriate time periods, any periods in exceedance of the agreed trigger levels and the results of any investigations and identified source. Where the works have been found to be the source of an exceedance, the reports will set out any action taken to resolve the issue as soon as possible, and to prevent a re-occurrence.
- 2.3.3 All measures for recording the maintenance of traffic management and for monitoring construction traffic, which are routinely monitored by the Principal Contractor, will be made available to the relevant local highway authority, Cambridgeshire County Council.

2.4 CONTRACTORS METHOD STATEMENT

- 2.4.1 The Principal Contractor will set out the procedures to be followed for construction operations in method statements, which will address health, safety, site security and the environmental issues associated with construction operations. The operations requiring a method statement will be identified using a risk-based approach. As a minimum, method statements will be prepared for site preparation, construction activities and reinstatement of land and/or infrastructure following completion of the main construction works.
- 2.4.2 Method statements will define any specific environmental control measures, including environmental and cultural heritage protection works, to be implemented to meet the requirements of this draft CoCP and the LEMP, and will set out the measures required to reduce cumulative effects of concurrent construction activities.
- 2.4.3 An assurance programme will be established by the Principal Contractor to ensure compliance with these planned arrangements.

2.5 SUPERVISION

- 2.5.1 Sufficient suitably qualified and experienced personnel will be appointed by the Principal Contractor to supervise the construction works and ensure environmental standards are implemented. They will be on site during the construction works to advise the Principal Contractor and the contract management team, and will supervise and report on the implementation of appropriate environmental mitigation measures and safeguards.
- 2.5.2 At each construction site, a contact person will be identified, who will be the single point of contact for the regulatory authorities. The Principal Contractor will provide the regulatory authorities with relevant contact details prior to the commencement of construction.

3 GENERAL REQUIREMENTS

3.1 COMMUNITY RELATIONS

- 3.1.1 The Principal Contractor will establish a Project Community Liaison Plan and will provide a framework for managing communications. Appropriately experienced community relations personnel will be appointed to implement the framework, to provide information and to be the first point of contact to resolve community related issues. The Principal Contractor will take reasonable steps to engage with the community, particularly focusing on those who may be affected by construction impacts, including local residents, businesses, landowners and community resources, and the specific needs of protected groups (as defined in the Equality Act 2010³ and as recommended within the Action Plan outlined within the EqIA⁴).
- 3.1.2 Meetings will be held in relevant community locations between the Principal Contractor and representatives of the local community or other stakeholders to discuss construction issues and the forthcoming programme of works. Experienced support for local businesses, landowners and voluntary and community organisations that may be affected by the works will be provided by the Principal Contractor.
- 3.1.3 Site notice boards will be erected, maintained and clearly visible to third parties. A telephone number for environmental complaints will be published near to the construction sites. The appointed safety, health and environment (SHE) officer will be responsible for dealing with any complaints and will have the appropriate authority to resolve any issues that may occur. Should they be required, both the SHE officer and the site managers 'out of hours' telephone numbers will be available.
- 3.1.4 All environmental complaints received will be reported to the SHE officer and logged in a Complaints Register, which will be available for review by the Contract Manager. These will be investigated via contact with contractor/consultant or SHE officer for a report on the activity. In addition, a site visit will be undertaken to determine whether the source of complaint can be identified. The Complaints Register will be made available to the LPA upon reasonable request.
- 3.1.5 The Principal Contractor will consider local employment, apprenticeships and educational initiative when recruiting staff.
- 3.1.6 All lead contractors will be required to sign up to and adhere to a Contractors Site Scheme. These requirements will be reflected as necessary within the LEMPs.

3.2 TRAINING AND COMPETENCE

- 3.2.1 The Principal Contractor will employ an appropriately qualified and suitably experienced workforce; this will include holding a registration with relevant recognised competence schemes. The Principal Contractor will be responsible for identifying the training needs of their personnel to enable appropriate training to be provided and suitably qualified and experienced professionals will be engaged for this purpose. The training will include site briefings and toolbox talks to equip relevant

³ Equality Act 2010. Available online: <https://www.legislation.gov.uk/ukpga/2010/15/contents> (Accessed 20/04/2023).

⁴ Identified stakeholders of particular relevance within the EqIA include education facilities, residential care facilities and users within the disability, sex and age protected characteristic groups.

staff with the necessary level of knowledge on health, safety, community relations and environmental topics, and an ability to follow environmental control measures and to advise employees of changing circumstances as work progresses.

3.3 ADVANCE NOTICE OF WORKS

- 3.3.1 The Principal Contractor will ensure that local residents, occupiers, businesses, local authorities and parish councils affected by the proposed construction works, as outlined in the ES, will be informed in advance of works taking place by methods identified in the framework. The notifications will detail the estimated duration of the works, the working hours and the nature of the works. In the case of works required in response to an emergency, the local authority, parish council, local residents, businesses and community resources will be advised as soon as reasonably practicable. All notifications will include the contractor contact information including a helpline number and email address.

3.4 WORKING HOURS

- 3.4.1 The construction activities are likely to take place within core working hours, as set out below, with an assumed short period at each end for start-up and close down:
- 08:00 – 18:00 Monday to Friday;
 - 08:00 – 13:00 Saturday; and
 - Sundays or bank or public holidays – no working.
- 3.4.2 The construction of the M11 overbridge is the only exception to the above. Details around the construction period and timings are yet to be confirmed with National Highways, however it is anticipated that construction works will be required outside of the core working hours.
- 3.4.3 No continuous 24-hour activities are envisaged at this stage and any working on Sundays or bank or public holidays will be allowed by exception only. Guidance on the site-specific variations to core hours and/or additional hours likely to be required will be included within the LEMP following consultation with the relevant local authority or any directly impacted stakeholders.

3.5 START UP AND CLOSE DOWN PERIODS

- 3.5.1 To maximise productivity the Principal Contractor will require a period of up to one hour before and up to one hour after normal working hours for start-up and close-down of activities. This will include (but not be limited to) deliveries, movement to place of work, unloading, maintenance and general preparation works. This will not include operation of plant or machinery likely to cause a disturbance to local residents or businesses. These periods will not be considered an extension of core working hours.
- 3.5.2 Deliveries and construction related movements will be programmed to occur outside the morning evening peak periods to avoid additional delay and queuing. However, deliveries and construction related movements at the other times may need to occur during peak periods, to ensure the construction processes on site are progressed expeditiously.

3.6 ADDITIONAL WORKING HOURS

- 3.6.1 For any operations that are season and weather dependent or those associated with the M11 overbridge, the Principal Contractor will, where necessary, seek to extend the core working hours and/or days for such operations to take advantage of daylight hours and to prevent periods of inhibited use of the existing road network, with the consent of the local authority.
- 3.6.2 Certain other specific construction activities will require extended working hours for reasons of engineering practicability. These activities include, but are not limited to, major concrete pours and bridge lifts. Surveys (e.g. for wildlife or engineering purposes) may also need to be carried out outside core working hours.
- 3.6.3 Works that are required to be carried out outside of core working hours will normally be carried out on Saturday afternoons, and will be agreed with the relevant local authority.

3.7 CONSTRUCTION SITE LAYOUT AND GOOD HOUSEKEEPING

- 3.7.1 The following measures will be introduced, where relevant, to reduce the likelihood of an environmental incident or nuisance occurring:
- Site perimeters will be inspected, cleanliness on site will be maintained, provision of staff facilities and waste management strategies will be incorporated;
 - Open fires will be prohibited on the site;
 - The correct permits will be arranged for any requirements to discharge site runoff to ditches, watercourses, drains, sewers or soakaways;
 - Wheel washing facilities will be provided and maintained at construction sites;
 - Machinery, equipment and temporary buildings and storage facilities will be situated to minimise environmental effects, and where practicable, outside flood risk areas;
 - Controls on lighting to minimise visual intrusion or any adverse effect on sensitive ecology;
 - Site accommodation will be located to avoid overlooking residential property;
 - Security measures, such as closed-circuit television (CCTV) and gated access maintained by security personnel will be employed. The location and direction of view of security cameras or blocking software to prevent intrusion to residential properties will be considered;
 - Designated areas for storing pollutants will be established, designated locations will be outside of sensitive areas and buffer zones;
 - Adequate welfare facilities will be provided for staff; and
 - The implementation of construction workforce travel plans to encourage use of public transport by project staff and prohibit off-site parking.
- 3.7.2 Where reasonably practicable, public rights of way (PRoW) (including diversions) will be maintained for pedestrians, cyclists and horse riders affected by the CtoC Scheme, including reasonable adjustments to maintain or achieve inclusive access. Should there be a requirement for any temporary road closures or diversions, these will be agreed with the Green Infrastructure Team or Local Authority Rights of Way Officer as necessary.

3.8 CONSTRUCTION LIGHTING

- 3.8.1 Construction and security lighting would be managed following best practice to minimise glare and intrusion, and thereby avoid temporary effects from obtrusive light as far as possible. Lighting will

incorporate the use of low-energy fittings and the minimum luminosity necessary to ensure the safety of the site and passing public. Where applicable, lighting will comply with the Institute of Lighting Professionals Guidance notes for the reduction of obtrusive light – GN01 and the provision of BS 5489, Code of practice for the design of road lighting.

- 3.8.2 Lighting used for construction nearby to ecologically sensitive areas and habitats (including watercourses, mature trees, hedgerows, woodlands and neighbouring buildings), will be switched-off when not in use or where appropriate will be motion sensitive, and will be positioned so as to minimise light spill. Dark corridors will be maintained within the watercourses to allow fish passage, and along habitat features that are used by sensitive nocturnal species such as bats.

3.9 CONSTRUCTION SITE AND OTHER SECURITY

- 3.9.1 Only authorised persons will be allowed on the construction sites. To prevent unauthorised access to site the following arrangement will be implemented:
- During Working Hours, access to the site will be controlled and attended;
 - CCTV and alarm systems will be used where required;
 - Appropriate site lighting will be used at the construction site and perimeters;
 - The site will be sufficiently secured through fencing or hoarding to deter and prevent entrance by unauthorised persons and to ensure public safety is maintained;
 - Consultation with neighbours on site security matters;
 - Immobilisation of plant out of hours, removing or securing hazardous materials from site, securing fuel storage containers and preventing unauthorised access to restricted area; and
 - The site compound will have a secure boundary constructed.
- 3.9.2 Where construction activities potentially compromise access to third party land, the Principal Contactor will ensure necessary measures are put in place to prevent and deter illicit access by unauthorised individuals.
- 3.9.3 Health and safety arrangements on the associated construction sites will involve barriers, platforms and fencing being erected, adapted and maintained throughout the construction phase to completely segregate the public from construction activity.
- 3.9.4 Everyone employed on the project will receive a site-specific induction to inform them of the health and safety arrangements, welfare on site and to ensure they understand the requirements of the risk assessment and method statement relevant to their work. Workers will be informed of their legal obligation to comply with health and safety.
- 3.9.5 Site entrances will be clearly signposted, and the construction site gates will be kept clear from obstacles at all times.
- 3.9.6 Construction sites will be well managed and kept looking professional at all times.
- 3.9.7 Measures to avoid illicit access by individuals onto third party land as a result of construction activity will be implemented in agreement with the relevant landowners.

3.10 HOARDINGS, FENCING AND SCREENING

- 3.10.1 The following measures will be implemented as appropriated:

- Erection of adequate fencing and hoarding which is fit for purpose and considers the character of the surrounding landscape;
- Fencing and hoarding will be adequately maintained to ensure site security, noise attenuation and screening is sustained;
- Fencing erected will be required for both site security and protection of environmentally sensitive features;
- Heras fencing will be erected to segregate public footpaths from the construction process;
- Contact details, community information and information on the works programme will be displayed on information boards surrounding the site; and
- Fencing will be appropriately located as to avoid sensitive habitats and ecological features, as far as reasonably practical.

3.11 UNEXPLODED ORDNANCE

- 3.11.1 The desk study for potential unexploded ordnance (UXO) contamination undertaken by RPS in 2017⁵ recommended that an explosives safety and awareness briefing is undertaken, and an explosives safety consultancy is on call in support of works taking place across the area. In areas of intrusive works, it was recommended that: an intrusive magnetometer survey is undertaken ahead of piling / boreholes (where practical); explosives site safety support is provided for excavations; and safety awareness briefings / site safety guidance are undertaken.
- 3.11.2 The Preliminary UXO Threat Assessment completed by Alpha 6 in 2020⁶ recorded the potential for unexploded WWII ordnance to exist at the western quarter of the site, notably around Bourn Airfield, with no further action required in the eastern area of the site.
- 3.11.3 In the western quarter a detailed UXO assessment (undertaken in accordance with UXO risk management guide for land-based project (CIRIA-C785⁷) should be completed prior to any intrusive works, to identify and mitigate any UXO risk to human health receptors. The potential for UXO clearance and related local disruption / evacuation should be minimised.
- 3.11.4 In areas where a high threat for UXO has been identified (western areas associated with and surrounding Bourn Airfield), the following UXO mitigation measures should be completed in all areas of intrusive works:
- An intrusive Magnetometer Survey ahead of piling or boreholes if and where practical;
 - Explosives site safety support for excavations; and
 - Safety and awareness briefings / site safety guidelines.

3.12 POLLUTION INCIDENT CONTROL AND EMERGENCY PREPAREDNESS

POLLUTION PREVENTION MEASURES

- 3.12.1 The Principal Contractor will develop and implement appropriate measure to control the risk of pollution due to construction works, materials and extreme weather events. This will include a pollution incident control plan, as part of the contractor's EMS, which recognises the risk of pollution

⁵ Technical Report 11 – Soil, Geology and Land Contamination, Appendix TR11.2: RPS UXO Report

⁶ Technical Report 11 – Soil, Geology and Land Contamination, Appendix TR11.1: Mott MacDonald Geotechnical and Geo-environmental Preliminary Risk Assessment

⁷ Ciria (2019). Unexploded ordnance (UXO) risk management guide for land-based projects (C785).

from construction activities and presents proactive management practices to ensure that any pollution incident that may occur, such as a diesel spillage, is minimised, controlled, reported to relevant parties and remediated. The plan will define the criteria for implementing the relevant measures.

3.12.2 The following measures will be adopted by the Principal Contractor to manage the risk of pollution incidents:

- Statement of appropriate information to be provided in the event of any incident such as a spillage or release of a potentially hazardous material;
- Notification of appropriate emergency services, authorities and personnel on the construction site;
- Notification of relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers of pollution incidents, where required;
- Provision of maps showing the locations, together with address and contact details, of local emergency services facilities (e.g. police stations, fire authorities, medical facilities and other relevant authorities);
- Ensure that site drainage plans and flood risk management plans are available on site and are kept up-to-date;
- Ensure that pollution shut-off valves are used in compounds with formal drainage;
- Ensure staff competence and awareness in implementing plans and using pollution response kit;
- Provision of contact details for the relevant authorities, such as the Environment Agency, and the persons responsible on the construction site and within the contractors' organisation for pollution incident response; and
- Provision of contacts for a competent spill response company that can be contacted at short notice for an immediate response (where appropriate).

3.12.3 In the preparation of local pollution incident response measures, the Principal Contractor will consult with relevant organisations, including statutory bodies and other relevant parties, such as the Health and Safety Executive (HSE) (Construction), the Fire Authority, the Ambulance Service, the Environment Agency, Natural England (the Government's advisory body on the natural environment), utilities companies and the respective local authorities (emergency planning and pollution control functions). Reference should also be made to the Guidance for Pollution Prevention (GPP), GPP21: Pollution Incident Response Planning, available from NetRegs.

INVESTIGATION AND REPORTING

3.12.4 The Principal Contractor will have effective arrangements in place to investigate and provide reports on any potential or actual significant pollution incidents, including, as appropriate:

- A description of the pollution incident, including its location and Ordnance Survey (OS) grid reference, the type and quantity of contaminant and the likely receptor(s);
- Contributory causes;
- Adverse effects;
- Measures implemented to mitigate adverse effects; and
- Any recommendations to reduce the risk of similar incidents occurring.

EMERGENCY PREPAREDNESS

- 3.12.5 The Principal Contractor will ensure that emergency procedures for each construction site are developed. The procedures will be standardised as far as practicable across all construction sites and will be appropriate to the anticipated hazards and the specific layout. The emergency procedures will be produced in consultation with the emergency services.
- 3.12.6 The emergency procedure will contain emergency phone numbers and the method of notifying statutory authorities. Contact numbers for the key staff of the Principal Contractor will also be included.
- 3.12.7 The Principal Contractor will periodically test their emergency preparedness to ensure adequacy and make procedural improvements where necessary.

3.13 EMERGENCY ACCESS

- 3.13.1 The Principal Contractor will ensure that access points meet the requirements of the relevant fire authority and are suitable for ambulances.
- 3.13.2 The Principal Contractor will take into account the potential for extreme weather events (resulting in flooding) which may impeded access arrangements.

3.14 FIRE PREVENTION AND CONTROL

- 3.14.1 All construction sites and associated accommodation and welfare facilities will have in place appropriate plans and management controls to prevent fires. The potential for extreme temperature events to exacerbate the risk of fire, particularly from overheating of construction plant and equipment, should be included in the prevention planning.

3.15 EXTREME WEATHER EVENTS

- 3.15.1 The Principal Contractor will pay due consideration to the impacts of extreme weather events and related conditions during construction. The Principal Contractor will use a short to medium-range weather forecasting service from the Met Office or other approved meteorological data and weather forecast provider to inform short to medium-term programme management, environmental control and impact mitigation measures. The Principal Contractor will register with the Environment Agency's Floodline Warnings Direct service in areas of flood risk.
- 3.15.2 The Principal Contractor will ensure appropriate measures within this draft CoCP are implemented and, as appropriate, additional measures to ensure the resilience of the proposed mitigation of impacts during extreme weather events. This may include, but not be limited to:
- Regular inspection and clearing of drainage;
 - Covering of stockpiled material;
 - Dewatering of excavations;
 - Dust control measures;
 - Measures to manage drying/curing times impacted by increased temperatures;
 - Provision of welfare facilities and measures to protect construction workers from hypothermia, heatstroke, dehydration, sunburn; and
 - Consideration of high winds impacting working conditions (use of cranes, scaffolding, risk of flying debris).

- 3.15.3 The Principal Contractors' EMS should consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements. As appropriate, method statements should also consider extreme weather events where risks have been identified.

3.16 CARBON MANAGEMENT PLANS

- 3.16.1 The Principal Contractor will produce a carbon management plan (based on the draft CMP prepared for the full business case). This will contain the following measures:
- Assumed carbon footprint from embedded carbon, and any updates to this based on agreed carbon reduction measures
 - Proposed measures to reduce significant sources of construction energy use and carbon emissions;
 - The approach to procuring energy from renewable and/or low-emission sources;
 - The approach to energy and carbon dioxide (CO₂) monitoring and reporting from relevant site activities; and
 - Consideration of the procurement, maintenance and use of energy and carbon efficient construction plant.

3.17 DEMOLITIONS

- 3.17.1 Any demolition⁸ that becomes necessary of the whole or part of a building⁹, the Principal Contractor will submit a Demolition Plan to the Shared Planning Service for consultation at least six weeks prior to commencing demolition.
- 3.17.2 Management measures in the Demolition Plan will include, where appropriate:
- General requirements e.g. working hours, site security and hoarding;
 - Measures to control dust and construction plant and vehicles emissions);
 - Site investigation and remediation works for contaminated land;
 - Measures to reduce potential noise and vibration impacts; and
 - Measures to reduce construction vehicle impacts in line with the Local Traffic Management Plan (LTMP).
- 3.17.3 In addition, the Demolition Plan will where reasonably necessary require Principal Contractor to:
- Shore up any building adjacent to the building to which the Demolition Plan relates;
 - Weatherproof any surfaces of an adjacent building that are exposed by the demolition;
 - Repair and make good any damage to an adjacent building caused by the demolition or by the negligent act or omission of any person engaged in it;
 - Remove material or rubbish resulting from the demolition and clearance of the site;
 - Manage any risk from asbestos in accordance with relevant regulations and best practice;
 - Disconnect and seal any sewer or drain in or under the building;
 - Remove any such sewer or drain, and seal any sewer or drain with which the sewer or drain to be removed is connected;

⁸ As defined by Section 80 subsection (1) of the Building act 1984

⁹ As defined by Section 121 of the Building Act 1984

- Make good the surface of the ground disturbed by anything done by the disconnecting, sealing or removal of any such sewer or drain (as detailed in the previous two bullet points);
- Make arrangements with the relevant statutory undertakers for the disconnection of the supply of gas, electricity and water to the building; and
- Make such arrangements with regard to the burning of structures or materials on the site as may be reasonably required by the fire and rescue authority.

3.18 CONSERVATION OF WATER

3.18.1 The Principal Contractor will ensure that appropriate water conservation measures are implemented during construction. This may include, but not be limited to:

- The use of water-efficient technologies, such as low-flow nozzles and high-pressure washers, to reduce water consumption during dust suppression, equipment/ plant cleaning and concrete mixing;
- The reuse of water on-site, through capturing and recycling runoff for non-potable applications e.g. the re-use of water in wheel washers;
- Monitoring water usage throughout the construction period; and
- Adopting best practices for leak detection and repair.

4 AGRICULTURE AND SOILS

4.1 AGRICULTURE AND SOILS MANAGEMENT – GENERAL PROVISIONS

4.1.1 Controls will be implemented to mitigate potential avoidable impacts on soils, farms, and farm-based businesses, including maintaining access, and for this purpose the Principal Contractor will make themselves aware of:

- The farms and types of farms adjacent to the construction site;
- Watercourses and, where known, field drainage layouts and outfalls into watercourses or ditches, fixed irrigation pipes and sources of irrigation water and fixed water supplies for livestock;
- Details of the owners, occupiers and agents for land adjacent to the construction site;
- Details of the husbandry associated with the areas of land adjacent to the construction site; and
- Details of the accesses associated with the areas of land adjacent to the construction site.

4.1.2 The controls will include the following, as appropriate:

- Protecting agricultural land adjacent to the construction site, including provision and maintenance of appropriate stock-proof fencing and avoidance of traffic over the land leading to soil compaction;
- Reinstating any agricultural land which is used temporarily during construction, where this is the agreed end use;
- Details of farm accesses which may be affected by construction, including the manner in which farm access will be maintained and avoidance of traffic over land which is used temporarily during construction; and
- Providing a method statement for stripping, handling, storage and replacement of agricultural soils to a suitable standard for land to be returned to agriculture following construction, including any remediation measures necessary following completion of works.

4.1.3 The Principal Contractor's appointed liaison officer will be available during construction on agricultural land to ensure liaison is maintained with affected landowners, occupiers and agents, as appropriate.

4.1.4 The Principal Contractor will:

- Advise landowners, occupiers and agents, as appropriate, regarding the intended commencement of construction works in areas of the site adjacent to agricultural and forestry holdings, and when any agricultural and forestry land used temporarily, is intended to be returned to agricultural and forestry use;
- Advise landowners, occupiers and agents, as appropriate, regarding the provision of accommodation works;
- To advise the programme of works and access routes to be used; and
- Take precautions in developing the construction programme to reduce disturbance.

4.2 MEASURES TO REDUCE POTENTIAL IMPACT ON AGRICULTURAL AND SOIL RESOURCES

- 4.2.1 Appropriate measures will be implemented, in accordance with Department for Environment, Food and Rural Affairs' (Defra) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009)¹⁰, in relation to undertaking works on or adjacent to agricultural land.
- 4.2.2 Prior to works commencing, surveys will be undertaken to record details of agricultural soils disturbed for the CtoC Scheme. These surveys will collect data that will inform agricultural restoration, landscape design and ecological mitigation measures. The soil information will be used to calculate the volumes of available soil resources and inform soil handling that may be necessary for the reinstatement of land and preparation of tree planting and habitats.
- 4.2.3 The surveys will provide the necessary information to delineate, quantify (in cubic metres) and characterise the top soils and subsoils (upper and lower, if both are present within a soil profile) available within the construction site prior to these materials being stripped. The surveys will provide sufficient detail to assess the suitability of the different soil materials for agricultural and other land uses, and to recommend appropriate methods for handling and storing soils in order to protect their natural functions during the construction period. This information will also determine the soil storage areas required.
- 4.2.4 Agricultural restoration will rely principally on identifying and recording the physical characteristics of the soil profile. Landscape planting and habitat creation will also be informed by the chemical and organic matter characteristics of the soil horizons to be recorded.
- 4.2.5 These soil surveys will include as appropriate:
- Relevant local topographic features (local relief, slope, aspect, micro-relief), land use and ground cover, flood risk and climatic information;
 - Depth of the topsoil, upper subsoil (where present) and lower subsoil horizons;
 - Soil textures;
 - Soil structures;
 - Soil colours;
 - Stone content;
 - Signs of impeded drainage and presence of slowly permeable layers;
 - Presence of calcium carbonate; and
 - Sampling for laboratory analysis of pH, major nutrients (extractable phosphorus, potassium and magnesium) and organic matter content.
- 4.2.6 Other features that will be recorded for reinstatement include:
- Drainage, irrigation and water supplies;
 - Roads, accesses and paths;
 - Hedgerows, ditches, field boundaries and irrigation ponds; and
 - Individual trees.

¹⁰ Defra (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. Available online: [Construction Code of Practice for the Sustainable Use of Soils on Construction Sites \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/314442/construction-code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites.pdf) (Accessed 20/04/2023).

- 4.2.7 Where land used temporarily for construction is to be reinstated to agricultural use, reinstatement works will be implemented in accordance with the contract specification and Defra guidance where appropriate. Such reinstatement will be carried out under appropriately qualified supervision.
- 4.2.8 Reasonable precautions will be taken in relation to the handling and storage of agricultural soils, including the following, as appropriate:
- The separate handling and storage of different soils, particularly top soils and subsoils;
 - Handling soils that are in a suitably dry condition and not during wet weather to avoid long-term damage to soil structure from compaction;
 - Sealing of medium or long-term excavated material and soil stockpiles through seeding for grass cover or similarly effective techniques;
 - The prevention of soil contamination with chemicals or other materials; and
 - The control of weeds on soil stores, either through treatment or removal.
- 4.2.9 All soil materials will be handled under suitable weather and soil conditions using appropriate machinery. The stripping, storage and reinstatement of soils will be accompanied by a soil audit report produced by the Principal Contractor.
- 4.2.10 The sources, locations, contents and approximate volumes of soil stockpiles will be available from soil survey records compiled prior to the stripping and storage of soils. These records form part of the baseline information and will be made available. In defining target restored profiles, the volumes of available soils in storage will be related to the areas of each parcel of land to be restored.
- 4.2.11 Soils will be handled when least susceptible to damage and in accordance with Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites¹⁰. The MAFF Good Practice Guide for Handling Soils, April 2000 (Sheets 1 to 4) describes the typical machinery that will be used in most cases to strip and transport soil materials into and out of store, and to reinstate top soils and subsoils. For example, alternative specialised machinery will be used for landscape planting on areas with steeper slopes. Soil handling machinery will be restricted to marked haul routes and will not traverse undisturbed or replaced soils, except where such trafficking is essential for the permitted operations agreed with the Principal Contractor.
- 4.2.12 Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites¹⁰ describes methods for the construction of soil stockpiles and the Design Manual for Roads and Bridges (DMRB) provides guidance on the storage of top soils for engineering purposes. These documents set out a range of heights for topsoil and subsoil storage. For the translocation of soils from sensitive donor sites, the soils will generally be removed, transported and reinstated at the receptor site without a period of storage.
- 4.2.13 The requirements stated in **Section 4, 5 and 12** of this draft CoCP relating to the handling and storage of material, and **Section 13** of this draft CoCP in relation to control of runoff, insofar as they are applicable to protecting soils, will be met. Additionally, the requirements stated in this draft CoCP in relation to control of dust, insofar as they are applicable to the protection of agricultural crops (including grass), will also be met.
- 4.2.14 Reasonable precautions will be taken during the design and construction of the CtoC Scheme to identify, protect and maintain existing land drainage, irrigation and livestock water supply systems.

- 4.2.15 The requirements of **Section 7** of this draft CoCP in relation to measures to prevent the spread of invasive and non-native species will be met. Measures to prevent the spread of weeds generally from the construction site to adjacent land will also be implemented.
- 4.2.16 The Principal Contractor will comply with the relevant guidance issued by Defra regarding the prevention, as far as reasonably practicable, of the spread of soil-borne, plant and animal diseases. Appropriate measures, such as those described in **Section 13** of this draft CoCP, will be implemented to control runoff to reduce any risks associated with disease transmission.
- 4.2.17 Wherever reasonably practicable, the Principal Contractor will endeavour to identify recorded locations of carcass burial sites within the construction site and to mitigate risks associated with the existence of any unrecorded sites. This will include obtaining locations of recorded burial sites from the Animal and Plant Health Agency and the establishment of a protocol for procedures in the event that an unexpected/unrecorded burial site is discovered.

4.3 SECURITY

- 4.3.1 The Principal Contractor will implement site security measures outlined in **Section 3.9**, in agreement with the relevant landowners to avoid illicit access by unauthorised individuals.

4.4 MONITORING

- 4.4.1 Appropriately qualified environmental management staff, whose responsibility will include the monitoring of topsoil and subsoil stripping, handling, storage and replacement, as appropriate, will be appointed to facilitate compliance with this section of the CoCP in relation to soils. Should any issues arise then works will cease with subsequent method statements prepared to comply with this section of the CoCP and for any remedial works that may arise.

5 AIR QUALITY

5.1 MANAGEMENT AND GENERAL PROVISIONS

5.1.1 The mitigation measures are recommended in accordance with the IAQM¹¹.

CONSTRUCTION PLANT, VEHICLES AND EQUIPMENT

5.1.2 Measures will be implemented to limit emissions from construction plant and vehicles, which will include the following, as appropriate:

- Operation of construction plant in accordance with the manufacturer's written recommendations;
- Vehicles and plant will be switched off and secured when not in use;
- Construction vehicles to conform to the relevant emissions standards (EU or any replacement) and where reasonably practicable, their emissions should meet upcoming standards prior to the legal requirement date for the new standard;
- Vehicle and construction plant exhausts to be directed away from the ground and positioned at a height to facilitate appropriate dispersal of exhaust emissions;
- The enclosure, shielding or provision of filters on plant likely to generate excessive quantities of dust beyond the site boundaries;
- Where practicable, fully enclose the site or use specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Devices such as dust extractors, filters and collectors on drilling rigs and silos will be used;
- Movement of construction traffic around the site will be kept to the minimum reasonable for the effective and efficient operation of the site and construction of the project;
- Construction plant will be located away from site boundaries that are close to sensitive receptors where practicable;
- Site access points will be designed to minimise queuing traffic adjacent to access points;
- Minimise the use of diesel or petrol-powered generators by using mains electricity or battery powered equipment where reasonably practicable;
- Ensure all vehicle operators switch off engines when stationary – no idling vehicles;
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;
- Non-road mobile machinery will use ultra-low-sulphur diesel and will ensure compliance with the high level emission standards at time of use;
- Cutting and grinding operations will be conducted using equipment and techniques that reduce emissions and incorporate appropriate dust suppression measures;
- Damping down of dust-generating equipment and vehicles within the site and the provision of dust suppression in all areas of the site that are likely to generate dust;
- Water bowsers and road sweepers will be used to keep roads and accesses clean;
- Vehicle, plant and equipment maintenance records will be kept on site and reviewed regularly; and
- Avoid bonfires and burning of material waste.

¹¹ IAQM (2014). Guidance on the assessment of dust from demolition and construction Version 1.1 (as amended in 2016)

TRANSPORT, STORAGE AND HANDLING OF MATERIALS

5.1.3 Dust and air quality management measures will be implemented to limit pollution arising from the transportation and storage of materials, including the following, as appropriate:

- Covering materials, deliveries or loads entering and leaving the construction site for the purposes of preventing materials and dust spillage;
- Vehicles transporting materials within or outside the construction site will not be overloaded;
- Stockpiles and mounds will be kept away from sensitive receptors, including watercourses and surface drains, sensitive habitats and protected historic assets; and sited to take into account the predominant wind direction relative to sensitive receptors;
- Stockpiles and mounds will be maintained to avoid material slippage;
- Where practicable, erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Materials stockpiles likely to generate dust will be enclosed or securely sheeted, kept watered or stabilised as appropriate;
- Fine dry material will be stored inside buildings or enclosures with measures in place to ensure no escape of material and no overfilling during delivery;
- Mixing of large quantities of concrete or bentonite slurries will be undertaken in enclosed or shielded areas, using appropriate techniques and mitigation;
- The number of handling operations for materials will be kept to the minimum reasonably practicable;
- Materials handling areas will be maintained to constrain dust emissions through the use of measures such as watering facilities to reduce or prevent escape of dust from the site boundaries; and
- Each LEMP should include a Dust Management Plan with a site / activity specific dust risk assessment having regard to Best Practicable Means (BPM) that will be employed to reduce risk of soiling of property, effects on human health and vegetation from dust emissions.

HAUL ROUTES

5.1.4 Haul routes will be provided through the works for use by construction vehicles to access the works. The construction and maintenance of haul routes, will include the following measures, as appropriate:

- Avoid site runoff of water or mud;
- The surfacing of haul roads should be inspected regularly and maintained appropriately;
- Re-use of haul route surfacing materials where the locations of haul routes change during the course of construction;
- Provision of areas of hard-standing at site access and egress points to be used by any waiting vehicles;
- A maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas should be imposed (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate);
- A Local Traffic Management Plan or Construction Logistics Plan (see **Section 11.2**) will be produced to manage the sustainable delivery of goods and materials;
- Construction workforce travel plans (see **Section 11.3**) that support and encourage sustainable travel (public transport, cycling, walking, and car-sharing) will also be produced;

- Methods to clean and suppress dust on haul routes (including watering) and in designated vehicle waiting areas. The frequency of cleaning will be suitable for the purposes of suppressing dust emissions from the site boundaries;
- Enforcement of speed limits on haul roads for safety reasons and for the purposes of suppressing dust emissions;
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being in frequent use;
- Avoid dry sweeping of large areas;
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport;
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- Record all inspections of haul routes and any subsequent action in a site log book;
- Where practicable, hard surfaced haul routes should be regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned;
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site, where reasonably practicable);
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and
- Access gates to be located at least 10m from receptors where possible.

DEMOLITION ACTIVITIES

- 5.1.5 For the intended demolition of the whole or part of a building, the lead contractors will submit a Demolition Plan to the relevant local authority for consultation at least six weeks prior to commencing demolition.
- 5.1.6 Management measures in the Demolition Plan will include, where appropriate:
- General requirements e.g. working hours, site security and hoarding (see **Section 3.4 - 3.10**);
 - Measures to control dust and construction plant and vehicles emissions (see **Section 5**);
 - Site investigation and remediation works for contaminated land (see **Section 8**);
 - Measures to reduce potential noise and vibration impacts (see **Section 10**); and
 - Measures to reduce construction vehicle impacts in line with the LTMP (see **Section 11**).
- 5.1.7 In addition, the Demolition Plan will where reasonably necessary require the Principal Contractor to:
- Shore up any building adjacent to the building to which the Demolition Plan relates;
 - Weatherproof any surfaces of an adjacent building that are exposed by the demolition;
 - Repair and make good any damage to an adjacent building caused by the demolition or by the negligent act or omission of any person engaged in it;
 - Remove material or rubbish resulting from the demolition and clearance of the site;
 - Disconnect and seal any sewer or drain in or under the building;
 - Remove any such sewer or drain, and seal any sewer or drain with which the sewer or drain to be removed is connected;
 - Make good the surface of the ground disturbed by the disconnecting, sealing or removal of any such sewer or drain (as detailed in the previous two bullet points);

- Make arrangements with the relevant statutory undertakers for the disconnection of the supply of gas, electricity and water to the building; and
- Make such arrangements with regard to the burning of structures or materials on the site as may be reasonably required by the fire and rescue authority.

EXCAVATION AND EARTHWORKS ACTIVITIES

5.1.8 Dust pollution from excavations and earthworks activities will be limited through the use of the following measures, as appropriate:

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable;
- Where practicable, only remove the cover in small areas during work and not all at once;
- Topsoil will be stripped as close as reasonably practicable to the period of excavation or other earthworks activities to avoid risks associated with runoff or dust generation;
- Drop heights from excavators to vehicles involved in the transport of excavated material will be kept to the reasonably practicable minimum;
- Where practicable, windbreak netting/screening should be positioned around material stockpiles and vehicle loading/unloading areas, as well as exposed excavation and material handling operations, to provide a physical barrier between the site and the surroundings;
- Where practicable, stockpiles of soils and materials should be located as far as possible from sensitive properties, taking account of the prevailing wind direction;
- Materials will be compacted after deposition, with the exception of topsoil and subsoil on land to be restored for agriculture, landscaping and wildlife habitats; and
- Soil spreading, seeding, planting or sealing of completed earthworks will be undertaken as soon as reasonably practicable following completion of the earthworks.

CONVEYING, PROCESSING, CRUSHING, CUTTING AND GRINDING ACTIVITIES

5.1.9 Dust pollution associated with processing and crushing rock, for use as aggregate or other materials within the works, and for conveying material, processing, crushing, cutting and grinding and liming will be limited through the use of the following measures, as appropriate:

- The enclosure of conveyer transfer points, and damping of conveyor loads;
- Enclosed conveyers where crossing roads, other public areas and property not owned by the Principal Contractor;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate;
- Suitable temporary enclosures for cutting and grinding activities;
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods;
- If any Mobile crushing and screening 'Part B' activity / plant is proposed, where necessary, mobile plant will need to be regulated under the Environmental Permitting (England and Wales) Regulations 2016¹² via an environmental permit;

¹² The Environmental Permitting (England and Wales) Regulations 2016. Available at: <https://www.legislation.gov.uk/uksi/2016/1154/contents/made> (Accessed 25/04/2023).

- The application of water sprays to damp down in dry weather; and
- If local on-site concrete batching is employed, such operations shall be undertaken using enclosed plant and in accordance with DEFRA's Process Guidance Note 3/01(12) - Statutory guidance for blending, packing, loading, unloading and use of cement¹³ and where necessary, permitted under the Environmental Permitting (England and Wales) Regulations 2016¹². These should be placed as far from sensitive receptors as reasonably practicable.

MEASURES SPECIFIC TO CONSTRUCTION

5.1.10 Dust pollution from construction activities will be limited through the use of the following measures, as appropriate:

- Avoid scabbling (roughening of concrete surfaces) if possible;
- Ensure sand and other aggregates are stored in bunded areas and are not allow to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For small supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

5.2 MONITORING OF AIR QUALITY

5.2.1 The Principal Contractor will implement inspection and monitoring procedures to assess the effectiveness of measures to prevent dust and air pollutant emissions. The Shared Planning Service will be consulted on the monitoring procedures to be implemented, which will include the following measures, as appropriate:

- Site inspections covering the establishment of operation of the construction site;
- Inspection procedures for areas and highways adjacent to the construction site to visually assess any dust and air pollution which may be generated;
- Plans for undertaking continuous automatic monitoring of airborne dust and particulate matter and setting a relevant site action level (defined as a measurement threshold above which investigation will be required);
- Monitoring reports will be provided to the local authorities. These will include, where appropriate, the interpretation of any continuous automatic monitoring data, any site action level alarms, investigations and remedial actions;
- If site action levels are detected during the monitoring regime, work should stop until approval by the site manager. Reference to the site diary to find a possible cause for exceeded dust levels. Notification to the two local authorities if required. A review of the suppression techniques and construction methods will be carried out to establish modifications that would reduce dust

¹³ Defra (2012). Process Guidance Note 3/01(12) – Statutory guidance for blending, packing, loading, unloading and use of cement. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/573004/blending-packing-loading-unloading-and-use-of-cement-process-guidance-note-3-01_12_.pdf (Accessed 25/04/2023).

emissions to acceptable levels. The action protocol will be confirmed with the two local authorities;

- The frequency of site inspections should be increased when activities with a medium or high potential to produce dust are being carried out and during prolonged dry or windy conditions;
- Reference to inspection and maintenance schedules for construction vehicles, plant and machinery;
- Inspection procedures relating to the level of traffic movements, use and condition of haul routes; and
- The requirement for dust deposition, dust flux, and/or real-time PM¹⁰ continuous monitoring (including the type and number of monitoring locations) will be confirmed with the two local authorities. If required, baseline monitoring should start at least three months before work commences on site or, if it a large site, before work on a phase commences. Monitoring of dust and particulate matter during construction of the project will be undertaken in according to the current best practice guidance¹⁴.

¹⁴ IAQM (2018). Guidance on Monitoring in the Vicinity of Demolition and Construction Site (version 1.1). Available at: https://iaqm.co.uk/text/guidance/guidance_monitoring_dust_2018.pdf (Accessed 25/04/2023).

6 CULTURAL HERITAGE

6.1 MANAGEMENT AND GENERAL PROVISIONS

- 6.1.1 The Principal Contractor will manage the impact of construction works on cultural heritage/historic environment assets, including:
- Designated assets: listed buildings, registered parks and gardens; and conservation areas where identified; and
 - Non-designated assets: archaeological and palaeo-environmental remains including geological deposits that may contain evidence of the human past, historic landscapes (including hedgerows deemed as important under the Hedgerows Regulations Act¹⁵) and historic buildings and the built environment and locally designated assets.
- 6.1.2 All works will be in accordance with the planning consent requirements relating to archaeology and built heritage, taking account of the relevant sections of the National Planning Policy Framework (NPPF)¹⁶.
- 6.1.3 Procedures apply to all heritage assets as detailed in the Environmental Statement, Historic Environment Desk-Based Assessment (HEDBA) and Heritage Statement, whether or not subject to statutory or other designation.
- 6.1.4 If significant heritage assets are to be preserved, they will be suitably protected from the contractor's plant and operations during construction.
- 6.1.5 All archaeological work will be conducted in accordance with the relevant Chartered Institute for Archaeologists (CIfA) and Historic England standards and guidance.

HERITAGE MEASURES

- 6.1.6 The measures will apply to all heritage assets whether or not subject to statutory or other designation.
- 6.1.7 General cultural heritage procedures will include:
- Provision of locations and descriptions of all known heritage assets within and adjacent to construction works, including restrictions to construction methods to protect heritage assets, where these have been identified for preservation in the ES, undertakings and assurances, subsequent consultation and through the development of the detailed design;
 - Where archaeological mitigation (as set out in the ES) is required to meet the conditions of planning consent it shall be conducted in accordance with Written Scheme of Investigation(s) (WSIs) following approval by Cambridgeshire Historic Environment Team (CHET);
 - The archaeological mitigation, which may be programmed either at pre-construction and/or construction stage, as agreed in consultation with CHET will be fully incorporated into the

¹⁵ The Hedgerows Regulation 2017. Available at: <https://www.legislation.gov.uk/ukxi/1997/1160/contents/made> (Accessed 26/04/2023).

¹⁶ Ministry of Housing, Communities & Local Government. (2021). National Planning Policy Framework. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf. Accessed 02/09/2022.

construction programme with sufficient time given for the completion of all the archaeological fieldwork stages;

- Monitoring compliance against the programme of archaeological mitigation/investigation using appropriately qualified environmental management staff;
- During all stages, the Principal Contractor will facilitate archaeological and built heritage specialists undertaking the works as specified as an appropriate mitigation measure (including purposive investigation);
- All archaeological mitigation will be undertaken by a suitably qualified and demonstrably experienced organisation; and
- Historic England, CHET and the Shared Authority will be consulted as appropriate through all stages of the implementation of the programme of archaeological mitigation works.

6.1.8 The LEMP will specify the following:

- The Principal Contractor will carry out works in such a way as to ensure that disturbance to all heritage assets is managed in accordance with accepted historic environment practice and, where disturbance cannot reasonably be avoided, is controlled and limited as far as reasonably practicable;
- Implementation of controls to avoid damage by settlement where reasonably practicable (and to record effects should these occur) to heritage assets;
- Implementation of controls on the movement of construction vehicles and machinery in areas of heritage interest (e.g. archaeological remains and historic buildings);
- The development and implementation of a procedure for soil stripping and excavation before commencement of such works. This procedure will identify the interface of those works with areas of identified archaeological investigations;
- Procedures adopted to preserve archaeological remains in situ beneath earthworks; and
- Management of protective measures that will be implemented for heritage assets that are to be retained within the land likely to be acquired or used for construction.

HUMAN REMAINS

6.1.9 The discovery of human remains is not anticipated. Should human remains be discovered during construction, either during archaeological works or as part of construction activity, the Principal Contractor will comply with all relevant legislative and project-specific requirements.

6.2 UNEXPECTED DISCOVERIES OF HERITAGE ASSETS

6.2.1 Should, during the course of construction works, artefacts and/or remains of archaeological interest or expected interest be located unexpectedly, these will immediately be reported to the Principal Contractor. The Principal Contractor will obtain specialist archaeological advice to undertake and prepare an appropriate response.

6.2.2 If advice indicates that there is potential for the finds to be of national importance, then the procedure for the unexpected discovery of archaeological remains of national importance will be as follows:

- Investigation and assessment of discoveries to determine their significance if this cannot be determined from the asset as found;
- Assessment of potential project impacts to inform the design of appropriate mitigation or investigation and recording measures;

- Preparation of a written scheme of investigation for any stage of archaeological work required;
- Excavation, recording and reporting on any discoveries; and
- Recording and implementing measures to preserve any discoveries in situ, if required or if appropriate.

6.3 MONITORING

- 6.3.1 Risk assessments identifying appropriate surveys, for example, structural or condition surveys, and vibration monitoring will be undertaken at locations of archaeological or built heritage interest adjacent to the construction site prior to, during and following construction works. The risk assessments will include, but not be limited to, specific buildings identified in the ES¹.
- 6.3.2 The Principal Contractor will undertake monitoring in compliance with all commitments and requirements of this draft CoCP, which align with BPM (see **Section 10**).

7 ECOLOGY

7.1 MANAGEMENT AND GENERAL PROVISIONS

- 7.1.1 Appropriate measures will be adopted to protect the ecology of the area through which the CtoC Scheme will be constructed and operate, with special attention to specified areas of ecological value, as identified within the ES¹.
- 7.1.2 The Principal Contractor will manage impacts from construction on ecological resources, including the following:
- Designated sites including Sites of Special Scientific Interest (SSSI), nature reserves and local wildlife sites (i.e. non-statutory sites designated for nature conservation);
 - Protected and notable species; and
 - Other habitats and features of ecological importance (including linear/ecological corridors and surface and groundwater bodies).
- 7.1.3 Where reasonably practicable, environmental mitigation will be provided via the design and implemented by the contractor within the works (as set out in the ES¹ and the mitigation register¹⁷). This may require preparatory work to be undertaken ahead of the start of construction to permit timely progress of the programme.
- 7.1.4 Ecological management measures will include the following, as appropriate:
- Summary of features of interest for all known areas of nature conservation interest (as identified within the ES) that may be affected due to construction;
 - Plans (e.g. within the relevant LEMP) showing the locations of all known areas of nature conservation interest that may be affected due to construction, including access routes;
 - Provision of guidance on ecological best practice methods to be followed in order to mitigate potential ecological effects during construction;
 - Plans (e.g. within the relevant LEMP) showing the location for all fences/barriers to be erected for the purpose of controlling animal movements during and after construction (e.g. deer, badger and amphibian fencing);
 - Plans showing the location of any ecological features that are to be created or installed prior to construction (e.g. bat roosting features/boxes, otter holts);
 - Procedures to be adopted in the event of unanticipated discovery or disturbance of protected species or important habitats;
 - Reference to the relevant procedures, including any special measures, to be implemented in the event of a pollution incident, where this occurs on or adjacent to a designated nature conservation site or where protected or notable species are known to be present, or other habitats and features of ecological importance; and
 - Preparation of ecology site management plans and protected species licences to include the information above (where appropriate) for:
 - Terrestrial habitats;
 - Wetland habitats;
 - European protected species (e.g. great crested newt and bats); and

¹⁷ Appendix ES1 – Mitigation Register

- Other protected and/or notable species as appropriate (e.g. badgers, birds, freshwater fish - including migratory species and their migration patterns, water vole, white-clawed crayfish, common reptiles, invertebrates, and Schedule 9 (Wildlife and Countryside Act 1981¹⁸, as amended) invasive species, such as Japanese knotweed).

- 7.1.5 Ecology site management plans for protected species and the requirement for Natural England licences will be determined at detailed design and included within the LEMP. This will also be informed by preconstruction surveys where required, as detailed within the ES¹.
- 7.1.6 The Principal Contractor will, where it is reasonably practicable reduce any habitat loss within the land required for the CtoC Scheme by keeping the working area to the minimum required for construction of the CtoC Scheme.

7.2 GENERAL MEASURES TO REDUCE POTENTIAL IMPACTS ON ECOLOGICAL RESOURCES

- 7.2.1 Management measures for potential ecological impacts are addressed in other sections of this document and are not repeated here. These include measures relating to:
- Pollution prevention and control measures (see **Section 3.12**);
 - Lighting (see **Section 3.8**);
 - Control of dust (see **Section 5**);
 - Protection of retained habitat, including trees (see **Section 9.2**);
 - Control of noise and vibration (see **Section 10**); and
 - Control of water quality and flow (see **Section 13**).
- 7.2.2 The programming of construction works will take account of the requirements set out in the ES¹, other relevant project documents, and ecological best practice guidance. In particular, the timing of construction works will be undertaken with due regard to the following:
- Site clearance works – to avoid potential impacts on protected or notable species; and
 - Works within watercourses – to mitigate potential impacts on plants, migratory fish, mammals, birds, amphibians and invertebrates.
- 7.2.3 In addition to the measures described in other sections, management of construction activities to minimise ecological effects will include, where relevant:
- Clearance of vegetation suitable for nesting birds outside of the nesting bird period (generally between March to August);
 - Protection of retained habitats to avoid habitat loss including trees, woodland and hedgerows (including those that are important under the Hedgerow Regulations¹⁵) that are retained within the development proposals and landscape plans;
 - Minimising habitat removal to that which is necessary for the construction and operation of the CtoC Scheme;
 - Provision of appropriate watching briefs and ecological clerk of works where necessary to be implemented during construction works;

¹⁸Wildlife and Countryside Act 1981. Available online: <https://www.legislation.gov.uk/ukpga/1981/69> (Accessed 26/04/2023).

- Sensitive habitat removal, relocation or translocation of species, soils and plant material (to be detailed within the ES where required and subsequent mitigation strategies);
- Reinstatement of any areas of temporary habitat loss and any arrangements necessary for displaced species to maintain long-term conservation status of those species concerned;
- Surveys will be undertaken prior to works commencing to determine any specific mitigation measures that may be required;
- Restoration and replacement planting (e.g. trees, hedgerows, scrub and grassland) to reinstate any retained habitats adversely affected during construction; and
- Use of by-products of construction to enhance mitigation provision (e.g. use of felled timber to provide dead wood habitat).

7.2.4 Prior to and during construction, there will be consultation with Natural England, the Environment Agency, local wildlife trusts, and the Shared Planning Service as appropriate.

STATUTORY DESIGNATED SITES, NON-STATUTORY SITES, PROTECTED HABITATS AND SPECIES

- 7.2.5 The Principal Contractor will manage impacts on all statutory designated sites of ecological interest, non-statutory sites of ecological interest, and other areas of notable habitat.
- 7.2.6 The Principal Contractor will obtain and comply with the requirements of any wildlife licences, including all protected species licences necessary for construction of the CtoC Scheme.

CONTROL OF INVASIVE AND NON-NATIVE SPECIES

- 7.2.7 Appropriate measures for the treatment and control of invasive, non-native species (both plants and animals) and injurious weeds will be implemented.
- 7.2.8 Appropriate construction, handling, treatment and disposal procedures will be implemented in relation to these and any other species listed in Schedule 9, Part I or Part II of Section 62 the Wildlife and Countryside Act 1981¹⁹, as amended, or the Weeds Act 1959¹⁹ to prevent the spread of such species. Advice in the Environment Agency's publication: Managing invasive non- native plants, April 2010, will also be referenced in determining the strategy.
- 7.2.9 Route-wide measures will be implemented to promote bio-security and minimise the risk that invasive non-native species and diseases are spread as a consequence of the project.
- 7.2.10 Removal of invasive species will take account of ecological best practice guidance and appropriate measures will be taken to identify and protect other features of environmental importance (e.g. heritage assets).

¹⁹ Weeds Act 1959. Available online: <https://www.legislation.gov.uk/ukpga/Eliz2/7-8/54/contents> (Accessed 27/04/2023).

7.3 SPECIFIC MEASURES TO REDUCE POTENTIAL IMPACTS ON ECOLOGICAL RESOURCES

CONSTRUCTION LIGHTING MANAGEMENT PLAN

- 7.3.1 Night works should be avoided where practicable to reduce the lighting of sensitive habitats and potential disturbance to important and protected species. Lighting levels will be kept to the minimum necessary for security and safety.
- 7.3.2 Where this cannot be avoided, any temporary lighting during construction will adhere to measures addressing lighting impacts in the LEMP, which will detail the mitigation measures that are to be implemented to reduce adverse effects from on-site lighting.
- 7.3.3 This strategy will be produced for bats and will follow guidance produced by the Institution of Lighting Professionals (ILP) in conjunction with the Bat Conservation Trust (BCT). The lighting strategy will also include measures for other nocturnal species such as Badger and Otter. The lighting strategy may include the following recommended measures:
- Temporary lighting used for construction will be switched-off when not in use;
 - Avoid, light spill onto known roosts, trees, woodland edge and hedgerows; minimised through good design, with physical shields installed where necessary, and maintain dark corridors along retained areas of retained woodland and hedgerows, to ensure continued connectivity;
 - Creation of a 'buffer zone' of very low illuminance (if any) adjacent to established or proposed key habitats, such as adjacent to treelines;
 - Use the minimum light levels necessary for the relevant task / function, this may equate to reducing light intensity, and/or using the minimum number or light sources or minimum column height;
 - Use hoods, louvres or other luminaire design features to avoid light spill onto retained and newly created areas of vegetation; and
 - Use narrow spectrum light sources where possible to lower the range of species affected by lighting, specifically avoiding shorter wavelength blue light, using instead warm/neutral colour temperature lighting.

AQUATIC ECOLOGY

- 7.3.4 All operatives should be made aware of the need to protect watercourses from contamination, reflecting Environment Agency and CIRIA guidance and legal obligations.
- 7.3.5 Appropriate measures to protect the water environment should be implemented during the construction phase of the CtoC Scheme in order to eliminate or minimise risk to aquatic flora and fauna.
- 7.3.6 The following measures should be implemented during construction:
- Sediment management plans and water quality monitoring should be implemented during any construction works with the potential to affect any watercourse, and a plan for appropriate remediation measures to ameliorate any adverse effects should they occur should be prepared;
 - When construction activities, including stock piling and plant and vehicle washing, occur near a watercourse they should be separated from the watercourse with barriers (e.g. sediment fences) to prevent surface runoff from these sites entering the watercourse. Construction activities should be as far from the bank top of a watercourse and/or connected hydrological pathways

where practicable. Works within 8m require an environmental permit from the Environment Agency (or relevant authority), which will be obtained prior to commencement of works;

- The extent of vegetation clearance should be limited as far as practicable near to watercourses. Where possible, any vegetation removed should be managed carefully to limit the extent of bare soil on site at any given time, to limit the potential for sediment run-off during wet weather;
- Works should avoid being carried out on soft stream banks where feasible to avoid compaction, erosion, and sediment release. Where temporary crossings or permanent structures are being constructed on watercourses, these works should remain localised within close proximity to the structure; and
- Lighting used for construction must be switched-off when not in use and, where possible, positioned so as not to spill on to watercourses.

HABITATS

- 7.3.7 See 'General Measures' above and 'Aquatic Ecology' and 'Invasive non-native species' below.
- 7.3.8 Retained trees and hedgerows must be protected in accordance with British Standard BS5837:2012 Trees in Relation to Construction, including the erection of protective fencing (or similar) encompassing or demarcating root protection areas.

BATS

- 7.3.9 The following measures have been identified to mitigate any potential impacts on bat populations located within and adjacent to the Site, which will be impacted by the CtoC Scheme.
- 7.3.10 Measures to mitigate potential killing or injury and disturbance of bats during the construction phase of the CtoC Scheme will also be included within the LEMP. This will include the following mitigation measures:
- All trees with suitability for roosting bats (low, moderate and high suitability) will be subject to the necessary pre-construction surveys prior to felling. Survey methods would be detailed within the LEMP, including a tree felling protocol following surveys;
 - The LEMP will also include appropriate timings for which survey methods and felling works can occur on different trees, to avoid sensitive periods for roosts (i.e. hibernation); and
 - All temporary lighting during construction will be in accordance with relevant measures in the LEMP.

BADGER

- 7.3.11 A development licence from Natural England will likely be required for any setts requiring temporary or permanent closure to facilitate construction. The licence method statement and mitigation licence will advise on and permit exclusion and closure of badger setts (see Technical Report 5 – Ecology, Appendix TR5.2 – Badger Survey Report Confidential).
- 7.3.12 A Natural England badger mitigation licence would permit the closure of active badger setts between July and November only. As such, sufficient time will be required for surveys to be completed and for setts to be closed under licence and vacated by badgers.
- 7.3.13 The following measures have been identified to mitigate any potential impacts on badger populations located within and adjacent to the Site which will be impacted by the CtoC Scheme:

- A pre-construction badger survey will be carried out at least three months in advance of site clearance in areas of potential badger habitat commencing to ensure any new information is obtained;
- A further survey would be completed within one week prior to site clearance commencing. These surveys would reconfirm levels of badger activity in advance of site clearance commencing. This would allow identification of any additional mitigation required, in the unlikely event levels of activity had increased or locations had changed in the three months prior to site work commencing;
- Where badger setts are to be retained and construction works are required nearby, a buffer zone will be established around setts where no construction works are to take place. Requirements for buffer zones will be identified and enforced on Site by the ecologist named on the development licence;
- Badgers use the wider area for foraging and commuting purposes and therefore measures need to be put in place during the construction phase to minimise effects upon badger movement and foraging activity. These measures include the following:
 - Fencing off or covering dangerous areas of the construction site (e.g., deep excavations) with badger proof fencing; or providing a means of egress from shallow excavations, such as animal ladders;
 - Avoidance of storage of plant and materials on areas of potential foraging habitat (e.g., retained grassland);
 - Enforcements of speed limits of 5mph for on Site traffic to minimise the risk of collisions with badgers;
 - Noise and vibration must be controlled and kept to the minimum necessary, especially with regard to working in close proximity to known active badger setts;
 - Avoidance of night works where practicable, unless specifically required, to avoid disturbance by artificial lighting; and
 - Where required use of lighting hoods, cowls or shields to avoid light spill onto setts or badger paths.

7.3.14 If any potential badger setts are identified these should be checked by an ecologist prior to any clearance works to confirm their status.

OTTER

7.3.15 In addition to the 'General Construction Measures' above the following measures should be completed specifically in relation to otter:

- Avoidance of any obstructions to established otter paths and access to open water; and
- Lighting mitigation to avoid lighting potential habitat such as the Bin Brook.

WATER VOLE

7.3.16 A preconstruction water vole survey will be required to determine the requirement for a Natural England Water Vole mitigation licence. These surveys will likely be confined to Bin Brook and Callow Brook, where water voles have been previously recorded and where impacts may occur due to culverting works and works within 5m of the water courses. Until surveys have been undertaken and mitigation and licence (if required) are completed, no works should be permitted within 5m of either water course.

- 7.3.17 A Natural England mitigation licence will likely be required to conserve individuals for the duration of construction, the methods for this will need to be determined following preconstruction surveys. This may require translocation of individuals or displacement from smaller works areas. Surveys will therefore need to be undertaken in sufficient time to apply for a licence and implement the mitigation within the seasonal constraints of water vole mitigation. These seasonal constraints will also need to be incorporated into the construction works programme.

BREEDING BIRDS

- 7.3.18 If carried out during the breeding season, vegetation and site clearance could cause the destruction or damage of active nests and any eggs or live young present. The following measures would therefore be implemented to ensure compliance with the Wildlife and Countryside Act 1981¹⁸.
- 7.3.19 Vegetation and site clearance will take place between September and February inclusive, i.e., outside the main bird breeding season, wherever practicable. Should it be deemed necessary to remove habitats suitable for breeding birds during the breeding season, these would be subject to a pre-clearance watching brief by a Suitably Qualified Ecologist (SQE) who is an appropriately experienced ornithologist. The watching brief will be undertaken a maximum of 48 hours prior to the vegetation removal taking place (unless otherwise stated by the suitably experienced ornithologist).
- 7.3.20 In the event any active nests are found or suspected, clearance works would be halted within a minimum distance of 5m from the nest. This buffer distance would be varied on the advice of the ornithologist SQE, dependent on the nature of affected habitats and the species of bird involved. Clearance works would not recommence until any young had fledged and left the nest, with a re-inspection by the ornithologist required to confirm the absence of active nests.

REPTILES

- 7.3.21 In all areas of suitable habitat where reptiles may be present due to the proximity to locations where the species have been recorded (as detailed within the ES¹), the timing of the clearance of vegetation will be during the period March – September, which is outside of the sensitive hibernation season (indicatively November-February inclusive, but weather dependent).
- 7.3.22 Where vegetation is cleared during the active season, reptiles will be persuaded to migrate into retained habitat under a precautionary method of working (PMoW) comprising a two-stage vegetation clearance, and works will be supervised by an SQE.
- 7.3.23 The clearance of vegetation in suitable reptile habitat during the active season will be undertaken in two stages over at least two consecutive days. Vegetation will be cut outwards from any suitable habitat to the extent of the retained habitat, down 150mm on one day followed by down to ground level on the following day. Any potential existing refugia on Site (e.g., log piles and tree/hedgerow roots) will be dismantled by hand or by mechanical means under the supervision of a SQE and relocated to the retained area. Works will be temporarily halted if individual animals are encountered to allow the animal to disperse from the work site.
- 7.3.24 This activity will be supervised by a SQE to minimise the risk of killing or injury to reptiles, and who will hand search vegetation for reptiles prior to clearance each day. The use of reptile refugia may also aid this search.

INVASIVE NON-NATIVE SPECIES

- 7.3.25 Construction activities within the CtoC Scheme could potentially result in the spread of invasive non-native species into areas they do not currently occupy. Particular attention should be paid to the invasive species Himalayan balsam (*Impatiens glandulifera*), which was recorded within Bin Brook.
- 7.3.26 The Principal Contractor will be required to undertake a pre-commencement Invasive Non-Native Species (INNS) survey to map the extent of any INNS. Following completion of the INNS survey, to address the risk of spreading invasive non-native plant species, an invasive species strategy, which includes the aquatic environment, would be produced by the Principal Contractor. This strategy should include the following measures:
- Measures to prevent the spread of any invasive species across and beyond the Site. Exclusions zones around identified areas of invasive species where no works are to take place will be implemented to ensure these species are not disturbed by works. The invasive species removal will be carried out by a specialist contractor;
 - Briefing and training of workers on good biosecurity practices appropriate to their role;
 - Equipping workers with the necessary equipment, Personal Protective Equipment (PPE) and substances to implement biosecurity control measures, including effective hygiene and sanitation practices. This will most frequently comprise disinfectant tablets, sprayers and brushes to clean and disinfect equipment and PPE prior to leaving site; and
 - Ensure that Defra's "Check, Clean, Dry" principles are followed and ensure that all PPE, machinery and survey equipment is clean and dry (and if necessary, disinfected) prior to going to and from site.
- 7.3.27 In addition to the above, specific strategies associated with the aquatic environment will be implemented when working in or within close proximity to a watercourse or other aquatic habitat:
- Exclusion zones around aquatic habitats will be implemented where feasible to limit construction footprint and spread of invasive species via the aquatic environment;
 - Cleaning stations and boot dip matts will be stationed at watercourse work area entry and exit points; and
 - Prior to equipment entering the water, "Check, Clean, Dry" protocols will be adhered to, alongside thorough cleaning with a disinfectant appropriate for the aquatic environment.

7.4 MONITORING

- 7.4.1 The Principal Contractor will require its contractors to undertake appropriate monitoring of the consequences of construction works on ecological resources and of the effectiveness of the management measures designed to control ecological effects, associated with works that may affect protected or notable species, statutory designated or non-statutory sites of ecological interest. The details of this monitoring should be included in the LEMP once detailed design and construction programmes have been developed.
- 7.4.2 Monitoring of habitats created as compensation should also be undertaken annually during the growing season for the first five years following creation. This includes tree planting that is used to screen lighting impacts and used as landscape mitigation features to encourage higher flight paths over the CtoC Scheme. The purpose of this monitoring is to determine the need for replacement



planting or additional planting should trees die off or if tree planting is not considered sufficient for its intended mitigation purpose. Additional measures such as fencing installation/repairs may also be incorporated at bat crossings where monitoring determines a requirement for this.

8 LAND QUALITY

8.1 MANAGEMENT AND GENERAL PROVISIONS

- 8.1.1 Land quality encompasses the issues of land contamination, designated geological resources and designated mineral and mining resources. The Principal Contractor will adopt appropriate measures to protect geological resources, to mitigate the sterilisation or severance of mineral areas, and to assess potentially contaminated land and, where necessary, undertake remediation.
- 8.1.2 Any site assessment and remediation works required will be based on the Land Contamination Risk Management guidance, Environment Agency²⁰.
- 8.1.3 Existing land contamination and construction activities that alter or create new pathways could affect the quality of aquifers in the vicinity of the CtoC Scheme and impact the wider environment, including end-users of the scheme. Provisions to mitigate this risk are contained in this section. Wider issues of groundwater quality are dealt with in **Section 13**.

8.2 MEASURES TO REDUCE POTENTIAL IMPACTS ON GEOLOGY AND SOILS

DETAILED GROUND INVESTIGATION TO ASSESS LAND CONTAMINATION

- 8.2.1 The Principal Contractor will undertake detailed ground investigation work, where necessary and where a high risk of contamination has been identified in the ES¹.
- 8.2.2 Where necessary, ground investigations and risk assessments will be undertaken in accordance with the following, as appropriate:
- The requirements of the NPPF;
 - BS 10175:2011+A2:2017 Investigation of potentially contaminated sites. Code of practice;
 - BS 5930: 2015+A1:2020 Code of practice for ground investigations;
 - The Site Investigation Steering Group publication, Guidelines for the safe investigation by drilling of landfills and contaminated land (1993);
 - Relevant Environment Agency and Defra guidance (including the Construction Industry: Research and Information Association's (CIRIA) C665: Assessing risks posed by hazardous ground gases to buildings for ground gases);
 - Relevant new/replacement guidance or legislation published prior to construction; and
 - Relevant national and local guidance (including the Greater Cambridge Sustainable Design and Construction Supplementary Planning Document, (Adopted January 2020): section '3.6 - Pollution' (pages 76-144) and associated appendices.
- 8.2.3 Where significant contamination is encountered, a remedial options appraisal will be undertaken to define the most appropriate remediation techniques. Additional intrusive investigations may be required to further delineate contamination and also to provide additional risk assessment as part of the remediation strategy. This appraisal will be undertaken based on multi-criteria attribute analysis

²⁰ Environment Agency (2020). Land Contamination Risk Management (LCRM). Available online: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> (Accessed 20/04/2023).

that considers environmental, resource, social and economic factors in line with the Sustainable Remediation Forum UK²¹. The preferred option will then be developed into a remediation strategy, which will be consulted on with regulatory authorities prior to implementation.

- 8.2.4 Where appropriate, the risk to ground and surface water resources, processes and abstractions will be assessed. In addition to the excavation and treatment of contaminated soils, it may also be necessary to install gas and leachate control systems within affected sites, on a temporary or permanent basis, in order to ensure that gas and leachate migration pathways are controlled and do not adversely affect the CtoC Scheme or the wider environment as a consequence of the CtoC Scheme.
- 8.2.5 Sites where remediation is minimal or not required may include sites that are not found to contain significant contamination, sites that are both contiguous with and beyond the CtoC Scheme or temporary sites where no significant earthworks are proposed.

8.3 CONSTRUCTION ON OR ADJACENT TO LAND AFFECTED BY CONTAMINATION

- 8.3.1 Where land affected by contamination has been identified, the Principal Contractor will comply with relevant legislation. This may include considering the relative benefits of removal of contamination to enable re-use of the land for agriculture, ecological or amenity enhancements. Alternatively, material could be treated and retained for safe re-use where needed, for example, within environmental mitigation earthworks.
- 8.3.2 Management measures for potential land contamination impacts are addressed in other sections of this document. These include measures relating to:
 - Construction site layout (see **Section 3.7**);
 - Pollution incident control (see **Section 3.12**);
 - Control of dust (see **Section 5**); and
 - Control of water quality (see **Section 13**).
- 8.3.3 Other control measures will also be implemented, which will include the following, as appropriate:
 - Consultation with the Shared Planning Service and the Environment Agency regarding control or protection measures to be implemented to deal with identified risks, including appropriate techniques for excavating and handling contaminated material and the control of contaminants and discharges in their in situ or mobilised form, for solids, liquids, gas and leachate;
 - The on-site remediation of soils or groundwater, in accordance with the determined strategy;
 - Procedures including watching briefs to identify all areas within the CtoC Scheme where land contamination is unexpectedly encountered;
 - Sealing of existing pathways through services/service trenches (e.g. land drains) affected during construction;
 - Lining of drainage trenches and buried services with bedding media to inhibit the mobilisation of contaminated groundwater or lateral migration through granular backfill;
 - Monitoring of groundwater/ground gases prior to, during and after construction;

²¹ CL:AIRE (Contaminated Land: Applications in Real Environments) (2010). A Framework for Assessing the Sustainability of Soil and Groundwater Remediation. Available online: file:///C:/Users/UKWXE003/Downloads/surf_uk_framework_final_march_2010.pdf (Accessed 09/08/2023).

- Validation testing of remediated ground or groundwater and preparation of validation reports;
- Post-remediation permit to work system to protect remediated areas;
- Provision of designated storage facilities with appropriate signage;
- Separate inert, non-hazardous and hazardous waste to include the completion of a waste classification;
- Skips and storage receptacles will be sheeted/lidded and remain closed when waste will not be deposited into them;
- Comply with air quality management measures;
- Provision of spill kits, bunding/drip trays and securing and restricting access to fuel storage containers;
- Correct storage of oil-based materials will comply with the Control of Pollution (Oil Storage) (England) Regulations 2001²², as amended, and GPP2: Above ground oil storage tanks. Should below ground storage tanks be required during the works GPP27: Installation, decommissioning and removal of underground storage tanks, and relevant government guidance must be complied with;
- Comply with the GPP26: safe storage – drums and intermediate bulk containers in relation to commercial storage handling and use;
- Comply with CIRIA C741. Environmental Good Practice on Site (4th Edition)²³; and
- Comply with CIRIA C532. Control of Water Pollution from Construction Sites²⁴.

- 8.3.4 Any specific remedial treatment process undertaken in relation to land affected by contamination will be carried out under the appropriate remediation permitting system where these apply.
- 8.3.5 An assessment of soils to be re-used will be undertaken in order to identify potential risks posed to the water environment, human health and the wider environment (including crops/livestock) at the location of re-use in accordance with the CL:AIRE: Development Industry Code of Practice or similar.
- 8.3.6 Where piling or similar penetrative works are undertaken in areas of land affected by contamination, appropriate guidance will be adhered to, including the National Groundwater and Contaminated Land Centre's report Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination²⁵.
- 8.3.7 The measures will apply equally to land used for construction and land used temporarily and intrusively, for example, for site offices and works compounds. However, for temporary works land, normally risk assessment and remediation will only be designed for the temporary use, rather than any long-term post-construction use.

²² Control of Pollution (Oil Storage) (England) Regulations 2001. Available online: <https://www.legislation.gov.uk/ukxi/2001/2954/contents/made> (Accessed 27/04/2023).

²³ CIRIA, 2015. Environmental Good Practice on Site (4th Edition).

²⁴ CIRIA, 2011. Control of Water Pollution from Construction Sites.

²⁵ Environment Agency (2001). REP NC/99/74 Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention. Available online: <https://www.thenbs.com/PublicationIndex/documents/details?Pub=EA&DocID=274529> (Accessed 20/04/2023).

8.4 MONITORING

- 8.4.1 Appropriately qualified environmental management staff will be appointed to facilitate compliance with this section of the CoCP in relation to soils, whose responsibility will include the monitoring of:
- Additional site investigations;
 - Verification of Remediation Works;
 - Watching brief for unexpected contamination;
 - Reuse of soils in line with any Materials Management Plan; and
 - Activities as outlined in **paragraph 8.3.3**.
- 8.4.2 Should any issues arise than works will cease with subsequent method statements authored so that works will comply with this section of the CoCP and for any further remedial works that may arise.

9 LANDSCAPE AND VISUAL

9.1 MANAGEMENT AND GENERAL PROVISIONS

9.1.1 Appropriate controls will be put in place to limit potentially significant landscape and visual effects in rural and urban areas from construction activities, including heritage assets, open spaces and smaller green spaces in urban areas. Controls will include, as appropriate:

- Protection of existing areas of planting;
- Inspection, maintenance and management of existing planting;
- Prevention of damage to the landscape and landscape features adjacent to the construction site by movement of construction vehicles and machinery;
- Adoption of other procedures set out in this draft CoCP so far as they are relevant for the protection of the landscape;
- Use of appropriate lighting design to avoid excessive lighting levels and to reduce negative impact on the surrounding environment. Lighting design therefore to include eliminating light output above 90 degrees; installing lighting columns to the minimum height required; luminaires installed parallel to the ground; fitting shields or baffles to further curtail light spill; and utilising warmer colour temperature light sources to minimise impact on sensitive flora and fauna; and
- Use of appropriate, well-maintained hoardings or fencing, as described in **Section 3.10**.

9.2 PROTECTION OF RETAINED TREES AND HABITATS

9.2.1 The Principal Contractor will employ an arboricultural consultant to oversee works relating to the protection of at-risk trees, as noted within the ES¹, with the requirement for their preparation of an Arboricultural Method Statement (AMS) setting out the measures necessary to assure this protection, to be approved by the local authority tree officer.

9.2.2 Retained trees will be protected in line with the recommendations in BS 5837: Trees in relation to design, demolition and construction²⁶.

9.2.3 The following measures will be implemented, as appropriate:

- Provision of appropriate protective fencing to reduce the risks associated with vehicles passing over root systems or beneath canopies;
- Measures to prevent compaction of soils, including undisturbed woodland soils;
- Maintenance of vegetation buffer strips;
- Selective removal of lower branches to reduce the risk of damage by construction plant and vehicles;
- Standard guidance for working within root protection zones, including procedures to follow in the event that significant roots are uncovered during work;
- Provision of contractor guidance for working close to retained aged and veteran trees and areas of retained ancient woodland, and watching briefs as appropriate;

²⁶ British Standard Institute (2012). BS 5837: Trees in relation to design, demolition and construction. Available online: <https://www.bsigroup.com/> (Accessed 20/04/2023).

- Maintenance of trees on any highways that are temporarily stopped as a result of the CtoC Scheme works prior to re-opening (e.g. selective branch removal) following consultation and agreement with Shared Planning Service; and
- Monitoring of the effectiveness of the tree protection measures throughout the construction period by an appropriately qualified arboricultural consultant.

9.3 TREE PLANTING AND REPLACEMENT

- 9.3.1 Despite the measures proposed above, trees intended to be retained which may die as a consequence of construction works, will be replaced. Where reasonably practicable, the size and species of replacement trees will be selected to achieve a close resemblance to the original trees and taking cognisance of any management plans for immediately adjacent areas of woodland.
- 9.3.2 The supply, storage, handling, planting and maintenance of new planting will be undertaken in accordance with appropriate British Standards, including BS 8545; 2014 - Trees: from nursery to independence in the landscape – Recommendations; BS 5837 Trees in relation to design, demolition and construction – Recommendations, BS 3998 Tree Work - Recommendations; and BS 4428 Code of practice for general landscape operations (excluding hard surfaces) and other appropriate guidance including the UK Forestry Standard and the UK Woodland Assurance Standard.

9.4 MEASURES TO REDUCE POTENTIAL IMPACTS ON LANDSCAPE AND VISUAL ASSETS

- 9.4.1 Planting and other landscape measures will be implemented as early as is reasonably practicable where there is no conflict with construction activities or other requirements of the CtoC Scheme. The Principal Contractor will consider where measures can be implemented early and programme the landscape works accordingly. Locations for landscape measures will relate to the findings of the ES¹, and will be aimed at the protection and mitigation of adverse effects on sensitive and valued landscape features and characteristics.
- 9.4.2 A record of how the implementation of the works meets control measures, relevant to the protection of the landscape and key landscape features, will be maintained and regularly reviewed.
- 9.4.3 The Shared Planning Service, Natural England, the National Trust, and other bodies (where they have an interest) and adjacent landowners will be consulted, as appropriate, regarding the landscape and planting proposals.
- 9.4.4 Access to construction sites will be devised and managed in accordance with the requirements of **Section 8** of this draft CoCP. Potential impacts on trees or other mature vegetation will be considered, seeking to avoid unnecessary impact, when positioning site access and egress points (see above).
- 9.4.5 Reusable excavated material will be handled in an appropriate manner to ensure it is of sufficient quality to be used for either structural embankments, environmental mitigation earthworks or agreed third-party use (see **Section 8**). Appropriate construction good practice in handling all material re-use will be followed, and controls set out in **Sections 3** and **5** of this draft CoCP will apply.
- 9.4.6 The procedures set out in **Section 4** of this draft CoCP relating to the handling of agricultural soils will be applied equally in relation to soils used in areas to be seeded or planted. The sourcing,

testing, stripping, handling, storage and spreading of site-won and imported topsoil will comply with BS 6031: Code of practice for earthworks. Imported topsoil will comply with the BS 3882: Specification for topsoil and requirements for use.

9.4.7 The following measures will be implemented:

- Compliance with the requirements of **Section 7** of this draft CoCP in relation to preventing the spread of invasive and non-native species;
- Avoidance of unnecessary tree and vegetation removal and protection of existing trees in accordance with BS 5837: Trees in relation to design, demolition and construction - Recommendations;
- Protection of habitat areas and ecological features;
- Procurement, movement, handling, storage, planting and maintenance of plant material in accordance with BS 3936-1: Nursery stock specification for trees and shrubs; and
- Maximising the use and recycling of plant material salvaged during enabling works (see also **Section 7.2**), and of plant material propagated from flora on the site prior to commencement of the works.

9.4.8 Planting, seeding, wildflower seeding and other landscape works will consider the recommendations of the latest version of the following standards:

- BS 3936-1, Nursery stock. Specification for trees and shrubs;
- BS 3936-4, Nursery stock. Specification for forest trees, poplars and willows;
- BS 3882, Specification for topsoil and requirements for use;
- BS 3998, Tree Work. Recommendations;
- BS 5837, Trees in relation to design, demolition and construction;
- BS 6031, Code of practice for earthworks; and
- CAP772, Wildlife Hazard Management at Aerodromes, Civil Aviation Authority.

9.4.9 Alternatively, where a British Standard does not exist, works will follow industry best practice and agreement will be sought from the local authority.

9.4.10 The protection of habitats and ecological features will be integrated with the landscape works and will follow appropriate British Standards. Agreement will be sought from the local authority. Reference should be made to **Section 7** of this draft CoCP.

9.5 MEASURES TO REDUCE VISUAL AND SPATIAL IMPACTS ON THE DESIGNATED GREEN BELT

9.5.1 At construction compound locations, where appropriate and reasonably practicable, the following will be considered when planning layout and set up, to mitigate as far as reasonably possible temporary spatial and visual impacts on the designated Green Belt:

- The construction compound areas will be minimised through the detailed design and construction process;
- Where a construction compound area is sub-divided and/or bounded by existing hedgerows, planting or trees, the compound layout will be set up so as to reduce the number of access points requiring hedgerow/planting/tree removal;

- Where compounds are located within the designated Green Belt, site offices, waste management areas, staff accommodation/parking and plant storage areas will be, where possible, screened by existing or proposed planting or other features; and
- The height and massing of any temporary structures or storage areas associated with the construction compounds will be minimised as far as reasonably possible and will be located away from residential and other sensitive visual receptors.

9.6 MONITORING

- 9.6.1 The primary contractor will implement appropriate inspection, monitoring and maintenance of landscaping and planting and seeding works throughout the construction period.
- 9.6.2 The Principal Contractor will verify the landscape planting and seeding design and arboricultural requirements as set out in the ES¹, on drawings and in the specification prior to construction.
- 9.6.3 The Principal Contractor will undertake appropriate maintenance of planting and seeding works and implementation of management measures, throughout the construction period as landscape works are completed. The Principal Contractor will monitor the progress of new landscape works throughout the construction period. Any failures of landscape planting and seeding will be managed via the specification and works requirements. This will ensure annual replanting and reseedling works are undertaken (as required) to achieve successful establishment of the landscape mitigation proposals at completion of the construction works.

10 NOISE AND VIBRATION

10.1 MEASURES TO REDUCE POTENTIAL NOISE AND VIBRATION IMPACTS BEST PRACTICABLE MEANS

- 10.1.1 BPM will be applied during construction works to minimise noise (including vibration) at neighbouring residential properties and other sensitive receptors (including local businesses and quiet areas²⁷ designated by the Shared Planning Service) arising from construction activities. However, it is likely that the criteria for residential receptors will be more stringent than for quiet areas, and mitigation adopted to protect neighbouring residential areas will automatically address the requirements for quiet areas.
- 10.1.2 BPM is defined in Section 72 of the Control of Pollution Act 1974²⁸ and Section 79 of the Environmental Protection Act 1990²⁹ as those measures which are ‘reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to financial implications’.
- 10.1.3 The Principal Contractor will consider mitigation measures to minimise any adverse noise and vibration impacts at nearby receptors, including:
- Noise and vibration control at source - for example, the selection of quiet and low vibration equipment, review of construction programme and methodology to consider quieter methods, location of equipment on site, control of working hours (see **Section 3.4**), the provision of acoustic enclosures and the use of less intrusive alarms, such as broadband vehicle reversing warnings;
 - Acoustic screening - for example, local screening of equipment, perimeter hoarding or the use of temporary stockpiles;
 - Public communications – for example, letter drops to nearby residents to inform them of the construction programme and any periods of significant work, as well as a phone number to contact for any complaints; and
 - Avoidance of potentially sensitive periods or events, as identified as part of community liaison.
- 10.1.4 The recommendations of BS 5228: 2009+A1:2014, Code of practice for noise and vibration control on construction and open sites parts 1 and 2³⁰, will be implemented, together with the specific requirements of this draft CoCP.
- 10.1.5 In any event, the Shared Planning Service have powers for controlling noise arising from construction and demolition works, regardless of whether a statutory nuisance has been caused or is likely to be caused, through Section 60 of the Control of Pollution Act²⁸. Section 60 enables a local

²⁷ As formally identified under the terms of the Environmental Noise (England) Regulations 2006, as amended, following the criteria set out in the “Noise Action Plan: Agglomerations” published by Defra in January 2014. If no such formally identified Quiet Areas exist, any Local Green Space formally designated in the Local Authority’s Local Plan and for which tranquillity was a factor in its designation will be considered as if they were formally identified Quiet Areas.

²⁸ Control of Pollution Act 1974. Available online: <https://www.legislation.gov.uk/ukpga/1974/40> (Accessed 28/04/2023).

²⁹ Environmental Protection Act 1990. Available online: <https://www.legislation.gov.uk/ukpga/1990/43/contents> (Accessed 28/04/2023).

³⁰ British Standards Institute (2009). Code of practice for noise and vibration control on construction and open sites. Available online: <https://www.bsigroup.com/> (Accessed 20/04/2023).

authority in whose area work is going to be carried out, or is being carried out, to serve a notice of its requirements for the control of site noise and vibration on the person who appears to the local authority to be carrying out the works. Such a notice may also be served on others appearing to the local authority to be responsible for, or to have control over, the carrying out of the works.

NOISE AND VIBRATION MANAGEMENT

- 10.1.6 The effects of noise and vibration from construction sites will be controlled by introducing management and monitoring processes to ensure that BPM are planned and implemented to minimise noise and vibration during construction. As part of the Principal Contractors' EMS, a noise and vibration management plan will be prepared and will set out these processes.
- 10.1.7 The noise and vibration management plan will be prepared prior to construction and give due regard to relevant local authority requirements (see **Section 2**). A site-specific risk noise and vibration impact assessment will be carried out for activities likely to result in exceedances of identified and defined noise and/or vibration levels for Significant Observed Adverse Effect Levels (SOAELs) as per national planning practice guidance, and any mitigation / controls identified as part of this assessment will need to be included in the noise and vibration management plan. The plan will include management and monitoring processes to ensure as a minimum:
- Integration of noise control into the preparation of method statements;
 - Proactive links between noise management activities and community relations activities (see **Section 3**);
 - Consideration of the impacts on relevant ecological areas and habitats, as described in **Section 7.1**;
 - Preparation of details of site hoardings, screens or bunds that will be put in place to provide acoustic screening during construction, together with an inspection and maintenance schedule for such features;
 - Where appropriate and in agreement with the Shared Planning Service, development of a noise and vibration monitoring protocol, including a schedule of noise and vibration monitoring locations and stages during construction of the CtoC Scheme when monitoring will be undertaken;
 - Continuous flight auger (CFA) or press-in piling will be used wherever practicable and necessary to minimise noise and vibration impacts during the piling works associated with the construction of the M11 bridge;
 - The undertaking and publication of all monitoring required to ensure compliance with all acoustic commitments and consents;
 - Measures are in place to avoid any impact on, or disturbance to, any vibration sensitive equipment within the University buildings nearby. This will require close liaison with the University to understand the location of any vibration sensitive equipment and its sensitivity, to ensure appropriate mitigation measures are in place; and
 - Implementation of management processes to ensure ongoing compliance, improvement and rapid corrective actions to avoid any potential non-compliance.

10.2 MONITORING

- 10.2.1 The Principal Contractor will undertake and report such monitoring as is necessary to ensure and demonstrate compliance with all noise and vibration commitments and the requirements of this draft CoCP.

- 10.2.2 The monitoring and compliance assurance process will be set out in the Principal Contractor's noise and vibration management plans.
- 10.2.3 Proposals for monitoring locations will be set out in the LEMP, if and as required by the Shared Planning Service.
- 10.2.4 Monitoring data, if required, will be provided regularly to the Shared Planning Service, as set out in **Section 2.3** of this draft CoCP.

11 TRAFFIC AND TRANSPORT

11.1 MANAGEMENT AND GENERAL PROVISIONS

- 11.1.1 During construction works, the Principal Contractor will require that the impacts from construction traffic on the local community (including all local residents and businesses and their customers, visitors to the area, and users of the surrounding transport network) be minimised.
- 11.1.2 The Principal Contractor will require that public access is maintained, where reasonably practicable, and appropriate measures will be implemented to ensure the local community, economy and transport networks can continue to operate effectively. Where this is not reasonably practicable, alternative measures will be identified to maintain continual public access, especially for pedestrians and cyclists, to routes in the vicinity of the construction sites and discussed at the relevant traffic liaison meetings where appropriate. The impact of road-based construction traffic will be reduced by implementing and monitoring clear controls on vehicle types, hours of site operation, parking and routes for large goods vehicles.

11.2 MEASURES TO REDUCE POTENTIAL TRANSPORT IMPACTS DURING CONSTRUCTION

- 11.2.1 Route-wide, local area and site-specific traffic management measures will be implemented during the construction of the project on or adjacent to public roads, bridleways, footpaths and Other Public Rights of Way (PRoW) affected by the CtoC Scheme as necessary.

TRAFFIC AND TRANSPORT MANAGEMENT – ROUTE-WIDE MEASURES

- 11.2.2 Generic measures, which will apply route-wide, will be discussed in advance with the local highway authorities and any other appropriate authorities. Prior to the commencement of the works, the Principal Contractor will ensure that a Construction Traffic Management Plan (CTMP) will be produced in consultation with the highway and traffic authorities, the emergency services and other relevant key stakeholders. The CTMP will include, as appropriate:
 - Specification of measures to ensure the timely maintenance, so that the condition of public roads, cycleways and PRoW does not deteriorate due to use by the construction traffic, including monitoring arrangements with local highway authorities;
 - Measures which may include engagement with vulnerable road users (pedestrians, motorcyclists, cyclists, horse riders), to provide for road safety for all modes for the public and construction staff during traffic management works and temporary traffic control measures;
 - Contractor quality plans for management of construction vehicles through the supply chain;
 - Contractor implementation of driver training programmes relevant to their specific environment (e.g. to protect pedestrians and non-motorised traffic);
 - Vehicle safety measures including signage, mirrors, prevention of under-running and use of technology to remove blind spots according to vehicle size;
 - Process of submission and, as necessary, approval of site-specific traffic management measures;
 - Procedures to be followed for the temporary or permanent closure or diversion of roads, PRoW or accesses;
 - Procedures to be followed to obtain consent to work on or over highways;

- Measures for highway reinstatement;
- Arrangements for liaison with the relevant highway authorities and emergency services (including air ambulances) and protecting corridors for emergency vehicles;
- Procedures to address any highway incidents or vehicle breakdowns relating to construction traffic, especially at peak times;
- Emergency access protocols;
- Monitoring requirements;
- Lorry route-signing strategy;
- Means of monitoring lorry use and any routes prohibited from use;
- Dealing with large goods vehicles and abnormal loads;
- Clear identification for construction heavy goods vehicles under the lead contractors' control;
- Monitoring for deviation from authorised routes; and
- Controls on reversing alarms.

TRANSPORT AND TRAFFIC MANAGEMENT MEASURES

- 11.2.3 Prior to the commencement of the works, the Principal Contractor will produce a LTMP in consultation with the highway and traffic authorities, the emergency services and other relevant key stakeholders. The LTMP will include, as appropriate:
- Permitted access routes and accesses for construction traffic;
 - Site boundaries and the main access/egress points for construction sites and compounds;
 - Temporary and permanent closures and diversions of highways and other PRow;
 - A list of roads which may be used by construction traffic in the vicinity of the site, including any restrictions to construction traffic on these routes, such as the avoidance of large goods vehicles operating adjacent to schools during drop-off and pick-up periods;
 - Phasing of works;
 - The proposed traffic management strategy;
 - Other measures which will affect the highway, such as lorry holding areas;
 - Regular operation of traffic liaison groups with key stakeholders to ensure that programmes of works are shared which will assist the highway authorities to carry out their network management duties;
 - Traffic liaison groups will consider appropriate engagement with local communities directly affected by site specific traffic management plans on a case-by-case basis; and
 - A register of applications for consents associated with temporary traffic management measures.
- 11.2.4 In relation to lorry management, LTMP will include details of the following, where appropriate:
- Timing of site operations and timing of traffic movements;
 - Local routes to be used by lorries generated by construction activity;
 - Lorry holding areas;
 - Lorry holding areas on- or off-highway, how they will be laid out and operated; and
 - Weighbridge(s) at a suitable location(s) on site to monitor compliance with vehicle weight restrictions.
- 11.2.5 Lorry routes will be set out in the LTMP and as set out in the Planning Memorandum, the Principal Contractor will have forward discussions, where reasonably practicable, on lorry route applications prior to submission. The Principal Contractor will use all reasonable endeavours to incorporate reasonable views of the local highway authority.

TRAFFIC AND TRANSPORT MANAGEMENT - SITE-SPECIFIC MEASURES

- 11.2.6 Site-specific traffic management measures may include temporary interference to carriageways, footway, cycleways, verges, public paths and other PRow, such as bridleways and their respective users. Site-specific traffic management measures will include the following, as appropriate:
- Details about specific traffic management, within site-specific plans;
 - Road traffic management layouts and signage including for works necessary for site access for construction traffic, which will be subject to consultation with the relevant highway authority;
 - The design of site access from the highway to ensure that vehicles enter and exit sites in forward gear as far as reasonably practicable, alternative arrangements will be outlined in the RTMP;
 - Installation of appropriate signage indicating all temporary and permanent diversions of PRow;
 - Measures to minimise impact on highway users;
 - Measures to be implemented to reduce construction traffic impacts, or impacts associated with parking on residential streets;
 - Retaining access for cyclists and pedestrians, where safe and appropriate;
 - Retaining direct access to residential and commercial properties, where safe and appropriate. Alternative provision will be provided where necessary;
 - Requirements relating to the movement of farm animals where farm accesses are affected;
 - Timing of traffic management operations, if their scope can be undertaken during off peak, night or weekend working;
 - Parking controls;
 - Use of internal haul routes for construction vehicles to minimise the need to use public roads;
 - Measures to ensure that construction vehicles do not cause damage to highways, and measures to ensure that any damage to grass verges is repaired and reinstated;
 - Requirements relating to the movement of traffic from business and commercial operators of road vehicles, including goods vehicles;
 - On-site speed limits and controls to reduce environmental impacts to nearby receptors and consideration of temporary reduced speed limits around construction sites;
 - Co-ordination with utility companies and service diversions; and
 - Winter maintenance plans (e.g. salt or gritting), which will complement those of the relevant highway authority.
- 11.2.7 Where reasonably practicable and necessary, site-specific measures will be discussed with highway authorities and the emergency services and via local meetings, prior to any formal submissions required by the Bill or non-disapplied highways legislation.

ROAD CLEANLINESS

- 11.2.8 All reasonably practicable measures will be put in place to avoid or limit and mitigate the deposition of mud and other debris on the highway. These measures will have regard to the nature and use of the site(s) in question, and will include:
- Hardstanding at the access and egress points will be cleaned at appropriate intervals;
 - Vehicle wash-down points to clean vehicle wheels at each exit point on to the highway;
 - The correct loading of vehicles and sheeting of loads where necessary to avoid spillage during their journeys;
 - Appropriate wheel-cleaning measures will be employed to prevent the transfer and accumulation of mud and other granular deposits on the public highway;

- The use of mechanical road sweepers combined with water sprays for the suppression of dust to clean hardstanding's, roads and footpaths in the vicinity of the site;
- Measures to avoid water run-off on to the adjacent highway (footways or carriageways), including avoiding ponding adjacent to hoardings on the carriageway;
- Ensure that no material is deposited on to the public highway which will affect drainage interceptors, etc.; and
- The flushing of gullies in the vicinity of the site.

11.2.9 For works which are being undertaken on the highway and which are not protected by secure temporary-type fencing or hoarding, the site is to be left in a tidy condition at the completion of each day's work. All surplus materials arising from the works will be cleared from the highway, leaving it in a clean and tidy condition in accordance with the reasonable requirements of the highway authority.

11.3 WORKFORCE TRAVEL PLANS

11.3.1 Construction workforce travel plans will be prepared by the lead contractors, through engagement with the relevant highway authority, with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses.

11.3.2 Objectives to support these aims will include:

- Effective management of construction worker traffic to minimise damage to the environment, impact on the surrounding road network, danger to road users and disturbance to neighbouring properties; and
- The introduction of measures to reduce single-occupancy car journeys by staff working on construction sites through the encouragement of car sharing, use of available public transport, cycling and walking to work where reasonably practicable.

11.3.3 Construction workforce travel plans will be required to set out proposals for site access for all workers and site staff, taking into account the availability of public transport routes and facilities for cycling and walking according to anticipated demands. Where appropriate, plans will include secure sheltered cycle parking and safe access to welfare facilities for workforce and visitors, including layouts for visitor and any worker parking. These plans will include:

- Identification of a travel plan co-ordinator and a description of their responsibilities;
- Key issues to consider for each compound/construction site or group of sites;
- Site activities and surrounding transport network, including relevant context plans;
- Anticipated workforce trip generation and how it may change during the construction process;
- Travel mitigation measures that will be introduced to reduce the impact of the construction workforce on the transport network and services;
- Targets to reduce individual car journeys by the construction workforce, including promoting travel by public transport;
- Prohibition of off-site parking and measures to control on-site parking;
- Methods for surveying workforce travel patterns;
- The process for monitoring and reviewing the construction workforce travel plans; and
- Proposals for transport of construction workforce and measures to ensure safe access to and from site.

11.3.4 Regular workforce travel surveys will be undertaken and the results shared with the relevant stakeholders.

11.4 MONITORING

- 11.4.1 The Principal Contractor will undertake such monitoring as is necessary to ensure compliance with the requirements of this draft CoCP, and this will include the maintenance of records of traffic management measures. The monitoring programme, the approach to regular consultation with highway authorities and emergency services and the control processes will be set out in Principal Contractors EMS.
- 11.4.2 If through monitoring the Principal Contractor identifies non-compliance with this draft CoCP then they will introduce such measures that are required to rectify matters.

12 WASTE AND MATERIALS

12.1 MANAGEMENT AND GENERAL PROVISIONS

- 12.1.1 The principal objectives of sustainable resource and waste management are to use material resources more efficiently, reduce waste at source and reduce the quantity of waste that requires final disposal to landfill in accordance with the waste hierarchy. These are translated to the CtoC Scheme as:
- The application of designing-out waste principles to minimise construction waste;
 - Working towards a cut and fill balance in relation to excavation; and
 - The segregation of construction and demolition materials on site, or through the use of a suitable waste contractor, to maximise diversion from landfill through re-use, recycling and recovery.
- 12.1.2 The Principal Contractor will take steps to ensure that aggregate used for the CtoC Scheme will incorporate recycled content that is (as a minimum) in line with the regional percentage target of 31%.

12.2 MINIMISATION OF WASTE GENERATION

- 12.2.1 The Principal Contractor will take steps to limit the waste generated from construction activities. This will include measures such as 'just in time' deliveries, careful storage of materials on site, minimisation of packaging and the use of re-usable packaging. Further details are set out in the ES¹.

12.3 MANAGEMENT OF EXCAVATED MATERIALS AND WASTE

- 12.3.1 All waste will be managed in accordance with the waste hierarchy (i.e. prevention, preparing for re-use, recycling, other recovery and disposal as set out in the Waste (England and Wales) Regulations 2011³¹) and in such a way as to prevent harm to human health, amenity and the environment. Waste management measures will be prepared that facilitate the re-use and recovery of excavated material and diversion of waste from landfill in line with the waste hierarchy.
- 12.3.2 The Principal Contractor will maintain responsibility for the management of waste generated during the construction. The contractors' staff will be suitably trained to undertake these duties, which will include waste management handling, inspection and reporting.
- 12.3.3 Excavated material that is uncontaminated (or can be remediated to a suitable standard and can be used for site engineering and restoration purposes) will be managed in accordance with the controls specified by the CL:AIRE Definition of Waste: Development Industry Code of Practice³² or in accordance with an appropriate environmental permit or exemption from permitting. A materials management plan (MMP) will be developed describing the methods for re-using soils. The movement and placement of materials will be as described in the MMP tracking system and recorded in a verification report for each site or cluster of sites. This will help to maximise

³¹ The Waste (England and Wales) Regulations 2011. Available online: <https://www.legislation.gov.uk/uksi/2011/988/contents/made> (Accessed 29/09/2023).

³² Contaminated Land: Applications in Real Environments (2011), Definition of Waste: Development Industry Code of Practice. Available online at: <http://www.claire.co.uk/projects-and-initiatives/dow-cop/28-framework-and-guidance/111-dow-cop-main-document>.

opportunities for re-use of excavated material and comply with the measures set out under the CL:AIRE Code of Practice.

- 12.3.4 Suitable third-party projects or other opportunities for re-use of excavated material may be identified as the detailed construction planning of the CtoC Scheme progresses.
- 12.3.5 In addition to excavated materials, construction, demolition and excavation waste will be generated by the construction works. This will include:
- Site preparation and demolition works;
 - Excavation and earthworks (where the material is classified as waste and subject to waste management regulatory controls); and
 - Construction and fit-out of above-ground structures, such as new and redeveloped bus stops, and maintenance facilities.
- 12.3.6 The management of foul water and surface water, and minimising their impacts, are specified in **Section 13**.

IDENTIFICATION AND CLASSIFICATION OF WASTE

- 12.3.7 In line with good practice, a site waste management plan will be prepared and maintained by the Principal Contractor. This will be used to identify the specific types and quantities of waste likely to arise during the construction process. Where generated, waste will be classified in accordance with the statutory controls governing the management of inert, non-hazardous and hazardous wastes.

SEGREGATION AND STORAGE OF WASTE

- 12.3.8 Skips and other storage receptacles used for the containment of construction, demolition and excavation waste will be colour-coded in line with the generic scheme developed by the Institution of Civil Engineers. They will also have appropriate signage to facilitate separation of waste for re-use, recycling or disposal and the separation of inert, hazardous and non-hazardous wastes. Plastic sheeting will be used to prevent leaching from waste soils and aggregates where these are not contained within skips or other storage receptacles.
- 12.3.9 Skips and storage receptacles will be sheeted, or otherwise remain lidded or closed, when waste is not being deposited into them. They will also be covered to prevent the escape of waste whilst in transit and loaded for maximum payload efficiency.
- 12.3.10 Skips and storage receptacles will be inspected on arrival to ensure they are fit for purpose. Skips and storage receptacles that are not fit for purpose will be taken out of use immediately with appropriate signage to signify that they should not be used.
- 12.3.11 Mixing inert, hazardous and non-hazardous wastes, either whilst stored on-site or on collection, will not be permitted.
- 12.3.12 Liquid wastes will be stored on hard-surfaced areas with secondary containment systems to prevent spillages.
- 12.3.13 Waste will not be stored within 10m of any controlled watercourse, borehole, well, spring, surface water drainage system or foul water drainage system.
- 12.3.14 The storage and segregation of waste will comply with any air quality management measures outlined in **Section 5** of this draft CoCP that are necessary to prevent harm to human health, amenity and the environment through nuisances such as dust, odour or pests.

- 12.3.15 Storage receptacles will be used for the collection and storage of waste within site operation facilities to facilitate the segregation of waste for re-use, recycling and recovering.

DUTY OF CARE REQUIREMENTS AND AUTHORISATIONS

- 12.3.16 The Principal Contractor will maintain a duty of care at all times to ensure that waste generated during the construction period is handled in accordance with the relevant legislation governing its storage, transfer, treatment and disposal.
- 12.3.17 The Principal Contractor will put in place all relevant authorisations prior to the removal of any waste from the site and maintain a register of this information. This will be in relation to the transfer of waste (waste carriers), any off-site waste management facilities (permitted or exempt sites) to which waste is taken, and any requirements for hazardous waste premises notification. The Principal Contractor will also ensure that an environmental permit or registered exemption is in place prior to any on-site transfer, treatment or disposal of waste being undertaken.
- 12.3.18 Any waste leaving the site will be accompanied by appropriate duty of care documentation in line with the relevant statutory requirements for waste transfer and hazardous wastes (as appropriate). Duty of care documentation will be retained by the contractors in line with statutory requirements.
- 12.3.19 The Principal Contractor will maintain a register of all waste loads leaving the site and/or a tracking system (defined in the MMP) for excavated material destined for re-use to provide a suitable audit trail and to facilitate monitoring and reporting of waste and material types, quantities and management methods.

12.4 MONITORING

- 12.4.1 The Principal Contractor will undertake regular audit and inspection of waste management activities to ensure compliance with the requirements of this draft CoCP, statutory controls and other Principal Contractor policies and procedures relevant to the management of surplus excavated material and waste. In the event of an audit or inspection identifying any breaches of the CoCP, statutory controls or other policies and procedures, the Principal Contractor will investigate and implement corrective actions to rectify those issues.
- 12.4.2 The types, quantities and fate of waste generated during the construction process will be identified, measured and recorded by way of a Site Waste Management Plan (SWMP). This information will be reported on a periodic basis to facilitate monitoring of any key performance indicators and to measure progress against any waste management performance targets that may apply.
- 12.4.3 A register of all waste loads leaving each construction site will be maintained to provide a suitable audit trail for compliance purposes and to facilitate monitoring and reporting of waste types, quantities and management methods.

13 SURFACE WATER, GROUNDWATER AND FLOOD RISK

13.1 MANAGEMENT AND GENERAL PROVISIONS

- 13.1.1 The Principal Contractor will manage site activities and working methods to protect the quality of surface water and groundwater resources from potentially adverse effects, including significant changes to the hydrological regime through controls to manage the rate and volume of surface water runoff. Monitoring systems will be used during the construction works, and there will be emergency procedures in place in the event of any pollution incidents. BPM will be used (e.g. through the use of silt traps and the re-use of water in wheel washers). Where required, the Principal Contractor will include arrangements to obtain appropriate approval for works from the relevant regulatory body or statutory undertaker that could affect any surface water or groundwater resource.
- 13.1.2 Surface water and groundwater control measures will include the following, as appropriate:
- Confirmation of resources from the ES¹:
 - A description of watercourses, surface water bodies, groundwater bodies including groundwater-dependent ecosystems, and ground and surface water that could be affected during construction (including maps and schedules);
 - Plans showing all watercourses, surface water bodies, groundwater bodies (including source protection zones), licensed abstractions and unlicensed abstractions within 1km of the CtoC Scheme and at a greater distance if necessary, where the route intersects source protection zones or principal aquifers and identifying areas at risk of flooding;
 - Plans identifying sources of potential pollution; and
 - Plans showing drainage within the site.
 - Description of the measures to be used to protect surface water and groundwater from pollution, including site good practice and the Environment Agency's Groundwater protection guidance³³ and precautions to be taken to prevent damage to services and to avoid pollution during service diversions.

13.2 MEASURES TO REDUCE POTENTIAL IMPACTS TO WATER ENVIRONMENT

- 13.2.1 The Principal Contractor will set out in their LEMP the measures to be implemented to contain and manage surface water runoff from the construction site (including ground investigation), in order to prevent deterioration of the water environment and other adverse impacts, including changes to flow volume, water levels and water quality anywhere in the river catchment or groundwater body. Protection measures for works in or adjacent to surface water bodies will be provided in accordance with requirements set out by the relevant regulatory body. Watercourses and associated land drainage within or adjacent to construction sites will be protected to ensure appropriate working conditions at all times. Appropriate precautions will be taken when working in the channels of or

³³ Environment Agency and Department for Environment, Food and Rural Affairs (2017), Groundwater protection guidance. Available online at: <https://www.gov.uk/government/collections/groundwaterprotection> (Accessed 28/04/2023).

adjacent to watercourses, realigning watercourses, providing new culverts and or extending culverts, if required, to appropriately manage flood risk and the potential for deposition of silt or release of other forms of suspended material or pollution within the water column. All measures will be in line with the requirements set out within the GPPs (GPP1³⁴ and GPP5³⁵) and in CIRIA's C532²⁴).

13.2.2 Where significant contamination is encountered, a remedial options appraisal will be undertaken to define the most appropriate remediation techniques. Additional intrusive investigations may be required to further delineate contamination and also to provide additional risk assessment as part of the remediation strategy. This appraisal will be undertaken based on multi-criteria attribute analysis that considers environmental, resource, social and economic factors in line with the Sustainable Remediation Forum UK, *A Framework for Assessing the Sustainability of Soil and Groundwater Remediation*²¹. The preferred option will then be developed into a remediation strategy, which will be consulted on with regulatory authorities prior to implementation.

13.2.3 Measures to be implemented will include the following, as appropriate:

- A description of the response procedures to be implemented in the event of works affecting surface water quality;
- Methods of dealing with works in areas of potentially contaminated land;
- A method for dealing with intercepted groundwater containing elevated concentrations of contaminants;
- Provision of a suitable construction site drainage system including cut-off valves, ditches or drains and sustainable drainage systems, or equivalent, with suitably sized treatment facilities, such as settlement or detention basins. This will be agreed with the LLFA prior to construction;
- Drainage should be specified that is sufficient for potential extreme precipitation events;
- Use of oil interceptors, if required by the relevant regulatory body or where relevant the statutory undertaker, at site offices and works compounds;
- The use of drip trays when refuelling plant;
- A water treating system will be used to remove silt from water extracted during excavations prior to discharge;
- If water is to be discharge to local watercourses, all relevant consents are to be sought from the EA prior to construction;
- Water removed from any excavations will be disposed of or discharged in accordance with EA requirements;
- Implementation of a temporary drainage network to prevent surface runoff (silts, muds) from leaving the Site or entering surface water drains;
- Use of pollution shut-off valves in compounds with formal drainage;
- Obtaining the necessary approval to enable discharge of dewatering, surface water runoff and waste water from the construction site to soakaway or filtration systems, watercourses, foul sewers or disposal off-site;

³⁴ GPP (2021): Guidance for Pollution Prevention 1 - Understanding your environmental responsibilities – good environmental practices. Available online: <https://www.netregs.org.uk/media/1898/guidance-for-pollution-prevention-1-2022-update.pdf> (Accessed 20/04/2023).

³⁵ GPP (2018): Guidance for Pollution Prevention 5 – Works and maintenance in or near water. Available online: <https://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf> (Accessed 20/04/2023).

- Appropriate measures, such as use of bunds of non-erodible material or silt or sediment fences adjacent to watercourses;
- As far as is reasonably practicable, the good working practices detailed in the pollution prevention guidelines (PPGs) and the replacement series guidance for pollution prevention (GPPs) will be adopted, as well as relevant government guidance³⁶; use of temporary construction methods from the following CIRIA publications (including C532²⁴, C648³⁷ and C649³⁸;
- Where required, approval from the relevant regulatory body will be sought for plans of work likely to affect any surface or groundwater resource, including Flood Risk Activity Permits and Ordinary Watercourse Consents; and
- Any observation during construction of multiple fish mortality will be reported immediately to the Environment Agency.

13.2.4 Measures will also be implemented in relation to construction associated with outfalls, including the following, as appropriate:

- undertake construction of outfalls during periods of low flow to reduce the risk of scour and erosion;
- measures to be provided to prevent runoff and other pollutants being washed into watercourses; and
- restrictions or controls with regard to excavation within watercourses to limit effects on water flow, water quality, sedimentation, fisheries or river ecology.

13.2.5 The measures set out in **Section 5** to limit adverse dust and air pollution effects associated with construction works will apply equally in relation to limiting the likelihood of polluted surface water runoff being generated.

13.2.6 The Principal Contractor will comply with BS 6031 *Code of practice for earthworks* regarding the general control of site drainage including, for example, all washings, dewatering, abstractions and surface water runoff. Any monitoring stations or boreholes should be protected from physical damage. If boreholes are decommissioned the contractors will follow the Environment Agency's Good practice for decommissioning redundant boreholes and wells (January 2012 or subsequent guidance).

CONTROL OF POLLUTION, INCLUDING STORAGE AND CONTROL OF OILS AND CHEMICALS

13.2.7 In relation to storage of any oil-based materials including petrol, diesel, waste and vegetable and plant oil, and above ground fuel and oil storage tanks, the Principal Contractor will comply with the Control of Pollution (Oil Storage) (England) Regulations 2001²², as amended, and GPP2: *Above ground oil storage tanks*. GPP2 sets out requirements including those relating to positioning, specification, capacity, secondary containment and ancillary equipment for storage tanks. Where below ground oil storage is proposed, this must comply with GPP27: Installation, decommissioning

³⁶ Netregs; Pollution Prevention Guidelines (PPG) and replacement series (GPPs); <http://www.netregs.org.uk>. GPPs provide environmental good practice guidance for the whole UK, and environmental regulatory guidance directly to Northern Ireland, Scotland and Wales only. Regulatory guidance for England is available online at: <https://www.gov.uk/guidance/pollution-prevention-for-businesses>.

³⁷ Ciria (2006). Control of water pollution from linear construction projects: technical guidance.

³⁸ Ciria (2006). Control of water pollution from linear construction projects: site guide).

and removal of underground storage tanks. Reference should also be made to relevant government guidance³⁹.

- 13.2.8 Stationary plant will be used with secondary containment measures such as plant nappies to retain any leakage of oil or fuel, which will be emptied at regular intervals to prevent overflow.
- 13.2.9 Spillage kits will be stored at key locations on site as set out in the pollution incident control plan (see **Section 3.12**) and in particular at refuelling areas. Spillage kits will also be kept with mobile bowzers. Staff will be trained in their use.
- 13.2.10 The Principal Contractor will comply with GPP26: *Safe storage - drums and intermediate bulk containers* in relation to chemical storage, handling and use.
- 13.2.11 The Principal Contractor will consult with the relevant regulatory bodies regarding specific requirements in relation to establishing and operating concrete batching plants on site. Wash water from any batching plants will not be discharged to the water environment without the approval of the relevant authority.
- 13.2.12 The Principal Contractor will keep a record of all spillage incidents which cause land contamination or pollution off-site.

CONTROL AND MANAGEMENT OF FOUL DRAINAGE

- 13.2.13 The Principal Contractor will manage and dispose of foul water and sewage effluents from site facilities, complying with Environment Agency's Groundwater protection guidance, GPP4: *Treatment and disposal of wastewater* where there is no connection to the public foul sewer, other relevant guidance and the following measures will be followed, as appropriate:
 - Containment by temporary foul drainage facilities and disposal off-site by a licensed contractor;
 - By preference, connection to the local foul sewer system as agreed with the relevant authorities; or
 - Where a foul sewer is not present, appropriate treatment and discharge to a watercourse or soakaway with approval from the Environment Agency, where required.
- 13.2.14 Any foul drainage discharge to the public sewer will require approval from the statutory water undertaker. If not permitted, provisions need to be adopted to remove the liquid from site for disposal, such as via tanker.

EXCAVATIONS

- 13.2.15 The Principal Contractor will undertake risk assessments as appropriate for excavation work and dewatering impacts on surface water, groundwater and abstractions.
- 13.2.16 No dewatering will be required under the current proposals. Should dewatering of a surface water containing fish become necessary, consent from the Environment Agency will be acquired and fish translocation carried out by suitably trained ecologists.

³⁹ HM Government, Storing oil at your home or business. Available online at: www.gov.uk/oil-storageregulations-and-safety. and Environment Agency (2016), Prevent groundwater pollution from underground fuel storage tanks. Available online at: www.gov.uk/guidance/prevent-groundwater-pollution-fromunderground-fuel-storage-tanks.

PRIVATE WATER SUPPLIES

- 13.2.17 A risk assessment will be undertaken for excavation (including ground investigation) work associated with impacts on private water supplies. If this risk assessment confirms the potential for significant effects to occur, mitigation proposals will be developed and discussed with the owner, with a view to an alternative supply being provided.
- 13.2.18 Any water supply pipes damaged during construction will be repaired or replaced as quickly as reasonably practicable and normally within 24 hours. However, the repair of any such damage caused by utility companies working on behalf of the Principal Contractor will be the responsibility of that utility company. Until water supplies are reinstated and tested, drinking water will be provided by bottle and/or tanker as a temporary measure as appropriate to affected parties. Provision of an interim water supply will also apply where supplies to livestock are temporarily interrupted.

13.3 MEASURES TO REDUCE POTENTIAL FLOOD RISK IMPACTS

- 13.3.1 Construction activities will be undertaken having regard to the requirements to avoid any significant increase of flood risk. Appropriate measures, such as keeping watercourses clear of obstructions and debris to reduce blockage risk, will be implemented by the Principal Contractor to prevent, so far as is reasonably practicable, damage to equipment or the works during potential flooding events. Suitable access and safe refuges are to be identified for use in the event of a flood. Appropriate maintenance access will be made available to watercourses and associated flood risk structures, if required.
- 13.3.2 The Principal Contractor will utilise the Flood Risk Assessment (FRA)⁴⁰ undertaken for the CtoC Scheme, and consult with the relevant regulatory bodies and other relevant risk management authorities on areas at risk of flooding and make appropriate use of the Environment Agency's Floodline Warning Direct service for works within areas at risk of flooding.
- 13.3.3 The Principal Contractor will utilise the FRA undertaken for the CtoC Scheme, and prepare site specific flood risk management plans for those areas of the site at risk of flooding. These site-specific flood risk management plans need to be compliant and produced in accordance with the appropriate flood risk assessments. These plans would include all areas within Flood Zone 3, areas considered at more risk of flooding on the Environment Agency's surface water flood map and areas susceptible to groundwater flooding. Other flood risk sources, such as sewer flooding and areas at risk of reservoir flooding, will also be considered to ensure all sources of flooding are addressed appropriately.
- 13.3.4 The Principal Contractor will, as far as reasonably practicable, ensure that flood risk is managed safely throughout the construction and implementation period and consider flooding when planning sites and storing materials. A risk based precautionary approach using the source – pathway – receptor' concept will be applied to temporary and permanent works. Designers and contractors will be required to prepare construction and permanent works proposals that are safe and ensure that flood risk (including that to third parties and the proposed works) is managed appropriately. Where necessary this will include the provision of evidence that appropriate flood warning and emergency management measures are established and that detailed designs are supported by provision for long term management and maintenance. Where practicable, contractors should avoid locating

⁴⁰ Technical Report 13 – Water Environment, Appendix TR13.1 – Flood Risk Assessment Advisory Note

temporary structures, such as accommodation and stockpiles, and placing construction equipment within Flood Zone 3 areas or areas at significant risk of flooding from other sources.

13.4 MONITORING

- 13.4.1 The Principal Contractor will require surface water monitoring plans to be implemented as part of the lead contractors' EMS.
- 13.4.2 The Principal Contractor will consult the Environment Agency regarding water quality, flow and level monitoring to be undertaken for watercourses and groundwater that will be affected by construction works or discharge of surface water runoff, which will include the following, as appropriate:
- Pre-construction monitoring to establish baseline water quality conditions for watercourses and groundwater;
 - Monitoring during construction works to enable the effectiveness of mitigation measures to limit pollution risk to be monitored and any pollution incidents to be identified; and
 - Monitoring of watercourses or groundwater receiving surface water runoff during construction to enable the effectiveness of treatment and other sustainable drainage systems measures to be determined and to ensure that an unacceptable rise in groundwater levels does not occur.
- 13.4.3 The Principal Contractor will carry out appropriate monitoring to identify:
- Pollution risks that are unacceptably high;
 - Spillages and leakages;
 - Actual or potential non-compliance with the CoCP; and
 - Suspected pollution incidences.
- 13.4.4 Appropriate actions will be taken where pollution risks are unacceptably high, where there is non-compliance with the CoCP, where spillages and leakages are unacceptable or where there are any suspected pollution incidents.
- 13.4.5 Groundwater monitoring will be undertaken at any groundwater sensitive areas, as required, to inform the design of the CtoC Scheme and the development of construction methods to mitigate potential impacts.
- 13.4.6 The Principal Contractor will implement appropriate inspection and monitoring procedures as part of their EMS. The Principal Contractor will also consult with the relevant regulatory body regarding the pollution incident control plan which will set out the measures to be implemented to address any adverse findings from the monitoring procedures during and following completion of construction works.



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