

# **A12 Chelmsford to A120 widening scheme TR010060**

## **9.57 Pre-commencement Plan**

Rule 8(1)(k)

Planning Act 2008  
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## Infrastructure Planning

### Planning Act 2008

# A12 Chelmsford to A120 widening scheme Development Consent Order 2023

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## Pre-commencement Plan

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# Contents

<b>1</b>	<b>Purpose of the document</b> .....	<b>2</b>
<b>2</b>	<b>Pre-commencement Activities</b> .....	<b>4</b>
2.1	Construction compound establishment works .....	4
2.2	Site Clearance works .....	10
2.3	Temporary haul roads, hard standings access works .....	11
<b>3</b>	<b>General Mitigation Measures</b> .....	<b>17</b>
3.2	Air Quality .....	17
3.3	Noise and vibration .....	20
3.4	Waste .....	23
3.5	Biodiversity and Landscaping .....	23
3.6	Soil .....	30
3.7	Water Quality .....	31
3.8	Contaminated Land .....	40
3.9	Fuels and Oils .....	41
3.10	Energy .....	42
3.11	Traffic Management .....	43
<b>4</b>	<b>References</b> .....	<b>48</b>

# 1 Purpose of the document

- 1.1.1 This document describes the proposed pre-commencement works (as defined by the draft Development Consent Order (dDCO) revision 5 [Applicant Reference TR010060/APP/3.1 rev 5] submitted at Deadline 5) to be undertaken by the Principal Contractor (PC) and details the Mitigation Measures required to appropriately control those works.
- 1.1.2 Section 2.6 of The Environmental Statement - Chapter 2: The Proposed Scheme [APP-069], details the reasons for the pre commencement works and how these differ from the advanced works.
- 1.1.3 All pre commencement works completed would be reversible with land being returned to prior condition, should this be required.
- 1.1.4 The pre commencement works as defined in previous versions of the dDCO are:
- Archaeological investigations and mitigation works
  - Ecological surveys and mitigation works
  - Investigations for the purpose of assessing ground conditions
  - Remedial work in respect of any contamination or other adverse ground conditions
  - Erection of any temporary means of enclosure
  - Receipt and erection of construction plant and equipment
  - Treatment of any invasive species
  - Temporary display of site notices or advertisements
- 1.1.5 In addition to the above pre-commencement works already set out in the definition of commence in previous versions of the dDCO, the Applicant has amended that definition within the updated dDCO at Deadline 5 to include the following additional pre-commencement works:
- Construction compound establishment works
  - Site clearance works
  - Temporary haul roads (inc. plant crossings), hard standing and temporary access works
  - Installation of temporary drainage
  - Engineering surveys
- 1.1.6 All pre-commencement activities set out in paragraphs 1.1.2. and 1.1.3. above were considered as part of the assessment in the Environmental Statement as detailed within Table 2.8 of the

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Environmental Statement - Chapter 2: The Proposed Scheme [APP-069].

- 1.1.7 The impact of these works are assessed as part of the Environmental Statement. The Pre-Commencement Plan is a further control document that will ensure that the pre-commencement works are sufficiently controlled and mitigated .
- 1.1.8 An indicative scope and methods set out in section 2 have been provided for the additional pre commencement activities set out in paragraph 1.1.3, including specific mitigation measures that will be implemented alongside the generic mitigation measures within Section 3. All of the pre commencement works listed within 1.1.2 are controlled by the general mitigation measures within section 3.
- 1.1.9 The mitigation measures set out in this document are considered sufficiently detailed to control of the pre-commencement works and as such no further approval of this document, once consent is granted, would be needed.

### **Limitations**

- 1.1.10 As the detailed design of the Scheme has not been completed at the time of producing this document, the construction programme and methods have not yet been fully determined. Therefore, the scope and methods described in this document are provided on an indicative basis only, to give an indication of the type and magnitude of the proposed operations. The scope and methods described have therefore been determined as a best estimation using all information available at the time of preparing the pre-commencement plan. This means that that while the specific details of each method may change, the overarching tasks will not.
- 1.1.11 In any event, all pre-commencement works will be subject to the general mitigation measures set out in Section 4 of this document and, to the extent they are relevant, to the specific mitigation measures for each pre-commencement work set out in Section 2 together with the controls.
- 1.1.12 The final design of the pre-commencement works will not give rise to materially greater environmental effects than those outlined indicatively in this pre-commencement plan.
- 1.1.13 Activities that are not covered in Section 2 do not require any specific mitigation measures but will still be subject to the general mitigation measures detailed in Section 3 as required.

## 2 Pre-commencement Activities

### 2.1 Construction compound establishment works

#### Scope

2.1.1 Due to the scope of works and anticipated staff numbers across the proposed scheme, two main compound areas have been identified. These are located at the existing junction 20b and at junction 22 (see the Works Plans - Temporary Works (Sheet 6 & 10) [AS-004].

2.1.2 The main compounds are proposed at the two locations below

#### Junction 20B compound

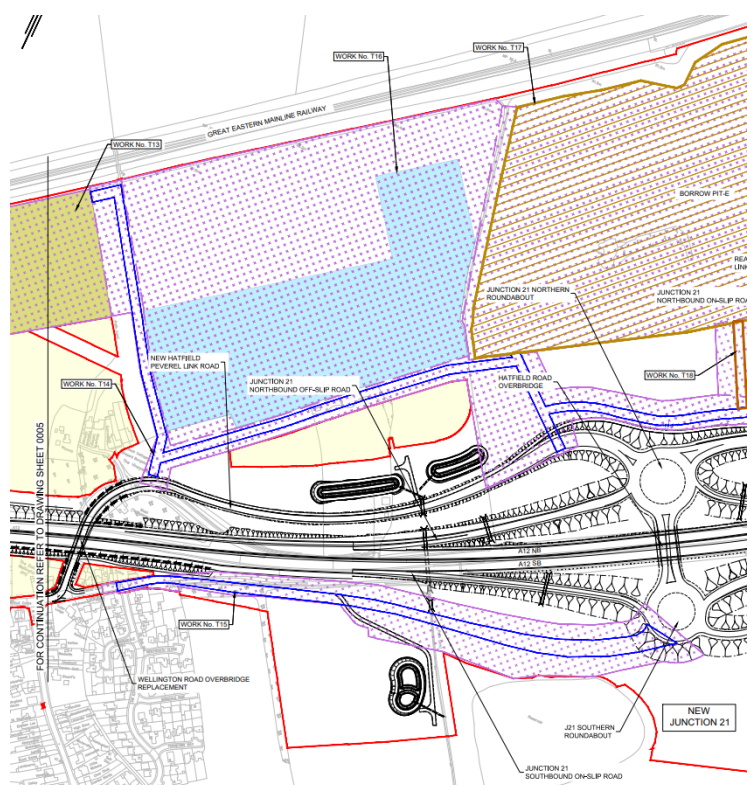


Figure 1 – Sheet 6 of the Temporary works plan highlighting the location of the proposed J20B compound (shown by blue shading).

2.1.3 As shown on sheet 6 of the temporary works plans [AS-004], a construction compound of approximately 80,000 square metres in area, would be constructed to the east of the A12 existing junction 20b, Hatfield Peverel.

#### Junction 22 compound

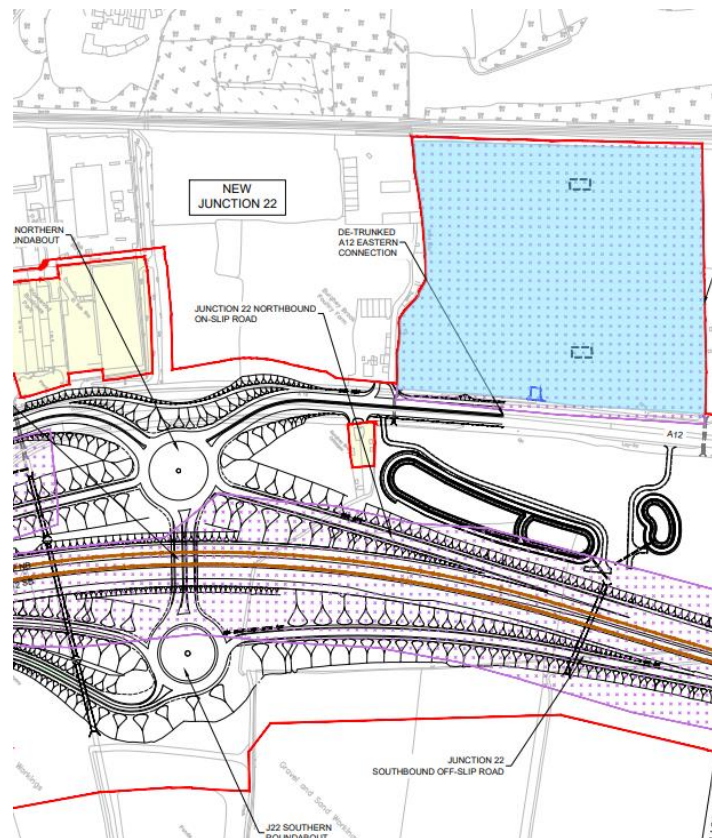


Figure 2 – Sheet 10 of the Temporary works plan highlighting the location of the proposed J22 compound (shown by blue shading).

- 2.1.4 As shown on sheet 10 of the temporary works plans [AS-004], a compound of approximately 78,500 square metres in area together with access to the existing A12 northbound carriageway and the provision of utility protection slabs each of approximately 200 square metres, west of Whitelands, Witham.
- 2.1.5 There will be pre-commencement works to establish the main construction compounds and where necessary satellite compounds within the Order Limits. Works will include the construction of hard stand areas, installation of temporary modular buildings, carparks footways, fencing, lighting, services/utilities installation, drainage and landscaping.

## Methodology

- 2.1.6 Utilities: installed using standard installation techniques, laying ducting, pipework, cables and connections.
- 2.1.7 Earthworks: all of the compound areas will first have the topsoil layer stripped and stockpiled in a designated bund. The bund will be sealed and seeded. The formation will be trimmed to the required level and the subsoil stockpiled separately from the topsoil.
- 2.1.8 Hardstanding will be installed as described in Section 3.3.

- 2.1.9 Drainage: will be installed using standard pipelaying and connection techniques.
- 2.1.10 Foundations: the footings for cabins will be installed where applicable in the form of a small concrete pad or proprietary product in accordance with a temporary works design.
- 2.1.11 Cabins: cabins will be delivered on flatbed/low loader transport and lifted into position using a mobile crane or similar. Once in their correct location they will be connected, assembled and commissioned.
- 2.1.12 Paved areas: where practicable, the carpark and footways will be paved using standard paving techniques.
- 2.1.13 Landscaping: the area immediately surrounding the modular/office units that is not paved will be prepared using an excavator and seeded where practicable.

### **Specific control measures**

- 2.1.14 This section sets out the specific mitigation measures for this pre-commencement work which would be applied in addition to the general mitigation measures found in Section 3 of this document, as necessary.
- 2.1.15 Just-in-time deliveries of materials will be implemented where practicable to reduce inefficient material handling.

### **Construction site layout and good housekeeping**

- 2.1.16 To reduce the likelihood of an environmental incident or nuisance occurring, the following measures would be used, where reasonably practicable:
- The surface for both main compounds would be a bound surface where reasonably practicable to reduce dust from moving vehicles. Where this is not practicable, unbound surfaces would be subject to dust suppression techniques (such as dampening down with water).
  - Implement a wheel washing system with rumble grids or other suitable methods to dislodge accumulated dust and mud prior to leaving the site where required and reasonably practicable.
  - Siting of materials stockpiles to minimise visual impact where practicable.
  - The location of site offices to avoid overlooking residential properties.
  - Effective preventative pest and vermin control and prompt treatment of any pest and vermin infestation, including arrangements for disposing of food waste or other attractive material. If an infestation occurs, the PC would take action to eliminate the infestation and to prevent further occurrence.



- Prohibition of open fires, and a requirement to take measures to minimise the likelihood of fires.
- No discharge of site runoff to ditches, watercourses, drains, sewers or soakaways without the agreement of the appropriate authority.
- The use of less intrusive noise alarms that meet the particular safety requirements of the site, such as broadband reversing warnings, or proximity sensors to reduce the requirement for traditional reversing alarms.
- For temporary lighting within the compounds, best practice measures would be implemented where practicable to ensure temporary lighting is avoided or directed away from heritage assets, residential and/or ecological receptors such as watercourses, woodland, badger setts, bat roosts and important commuting habitats.
- Management of staff congregating outside the site prior to commencing or leaving work.
- Security measures, including CCTV – the location and direction of view of security cameras or blocking software to prevent intrusion into residential properties would be considered.
- Avoidance of the use of loudspeaker or loudhailer devices.
- Adequate welfare facilities for staff.
- Smoking areas at site offices/compounds or worksites equipped with containers for smoking wastes – these would not be located at the boundary of working areas or adjacent to neighbouring land.
- Preparation and implementation of a Logistics Management Plan (or similar) to manage the transport to/from and onsite of employees and materials required for the construction of the proposed scheme. The Logistics Management Plan (or similar) would set out measures where practicable, to reduce distances travelled, optimise journeys and use low emission modes of transport (such as public transport) or vehicles (e.g. electric vehicles) to reduce greenhouse gas (GHG) emissions associated with transport. The Logistics Management Plan would set out measures with the aim of achieving 20% car share and 20% travel by public transport (with the use of mini-buses from local rail stations to the construction sites) for employee transport (First Iteration Environmental Management Plan - Appendix A: Register of Environmental Actions and Commitments (REAC), Ref CC1 [REP4-023]).
- Within the proposed scheme footprint, there are existing public rights of way (PRoWs) (footpaths and bridleways), footways and cycleways. The project would maintain these routes throughout the pre-commencement works.

2.1.17 Where reasonably practicable, inclusive access (including for people with reduced mobility) would be maintained to services and buildings

where they have been temporarily disrupted during the works. Where a need is identified (for example through stakeholder engagement with relevant local organisations or community liaison processes), the proposed scheme would review access and routes. These reviews would indicate where additional measures or reasonable adjustments may be required for the purpose of ensuring accessibility by disabled or mobility-impaired people.

### **Site lighting**

- 2.1.18 Temporary site lighting would be provided to ensure safe working conditions and to maintain security within construction compounds and working areas.
- 2.1.19 If appropriate, lighting to site boundaries where the public would be able to pass would be provided and illumination would be sufficient to provide a safe route. In particular, precautions would be taken to avoid shadows cast by the site compound on surrounding footpaths, roads and amenity areas.
- 2.1.20 Where appropriate, lighting would be activated by motion sensors to prevent unnecessary usage.
- 2.1.21 Lighting would also be positioned and directed so as not to unnecessarily intrude on adjacent buildings, ecological receptors, structures used by protected species and other land uses to prevent unnecessary disturbance, interference with local residents, railway operations, passing motorists, or the navigation lights for air or water traffic. This provision would apply particularly to locations where night working would be required.

### **Controlling construction traffic and visual intrusion**

- 2.1.22 Construction traffic will be managed as per section 3.12.
- 2.1.23 Where appropriate, fencing around site perimeters would be provided to contain the works and reduce visual impact of the site in available views, and to provide site security against theft and vandalism.
- 2.1.24 Site parking and delivery areas would be clearly marked up within the site compounds, and traffic deliveries would be coordinated to reduce potential disruption on the road network and within local communities in proximity to the works.

### **Site security**

- 2.1.25 The PC would have a duty to prevent unauthorised access to all site compounds. The following measures will be used by the PC, where required, to prevent unauthorised access to the site compounds:
- Use of high perimeter fencing, but only where necessary for site security and public safety
  - Site lighting at site perimeters (subject to the conditions set out in Section 2.1.20 -2.1.23)
  - Adequate security guards and patrols

- CCTV and infra-red surveillance and alarm systems where required
- 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 use of scaffolding to gain access to restricted areas and neighbouring properties

### **Fencing and screening**

2.1.26 The following measures would be applied to the construction compounds, as appropriate:

- Use and maintenance of adequate fencing to an acceptable condition to prevent unwanted access to the site, screening and site security where required – this would include the need to provide viewing points at relevant locations, if appropriate.
- Where required, providing site information boards with out-of-hours contact details.
- Displaying notices on site boundaries to warn of hazards onsite, such as deep excavations and construction access.
- Displaying notices confirming that businesses whose access or view may be affected by pre-commencement works remain open, with directions for how to access them.
- Maintenance of protective fencing and/or specialist fencing (e.g. reptile fencing) to protect environmentally sensitive features during construction.
- Retaining existing walls, fences, hedges and earth banks for the purpose of screening as far as reasonably practicable.
- Where fencing is required, its height and locations would be agreed with the local authority in advance of installation.
- Temporary fences may be used in certain areas, such as for short-term occupation of sites or at more remote satellite compound locations.
- Clear sight lines would be maintained around fencing with no hidden corners in order to avoid, where reasonably practicable, opportunities for anti-social behaviour and crime and to ensure the safety of vehicles.
- Fencing would, as far as is reasonably practicable, be located such that it does not damage sensitive habitats, trees or hedgerows.

## 2.2 Site Clearance works

### Scope

- 2.2.1 To enable the main construction works, clearance of vegetation (trees, hedgerows and ground vegetation) within the existing highways corridor within the Order Limits. Within this corridor, only vegetation marked to be removed within the Retained and Removal Vegetation Plans [APP-035 & AS-017] will be removed.
- 2.2.2 Works will be undertaken to avoid sensitive periods for protected species where reasonably practicable and will be subject to the necessary ecology licenses.
- 2.2.3 'Permit to Clear' is a procedure adopted by the PC that ensures all aspects are checked pre-clearance. Vegetation clearance only commences once the vegetation has been inspected by the Ecological Clerk of Works (ECoW) (as defined in the dDCO). Once the ECoW is satisfied that there will be no detriment to ecology, they will issue a permit to the responsible person for that task, permitting the clearance works to proceed.
- 2.2.4 The permit to clear includes checks of all areas and habitats, including bare ground and areas of land left undisturbed for a period during the bird breeding season.

### Methodology

- 2.2.5 The vegetation will be completed using powered tools and equipment including for example trimmers, flails, and chainsaws. Access for site clearance works will be gained via authorised site accesses and temporary haul routes through the site.
- 2.2.6 All the required surveys, inspections and ecological mitigation will be completed by an ECoW who will issue a Permit to Clear vegetation.
- 2.2.7 All cleared vegetation will be chipped in-situ and spread on the ground or loaded onto a transport vehicle and removed from site for processing, reuse or disposal.

### Specific control measures

- 2.2.8 This section sets out the specific mitigation measures for this pre-commencement work which would be applied in addition to the general mitigation measures found in Section 3 of this document, as necessary.
- 2.2.9 Only vegetation within the highways corridor within the Order Limits that National Highways would otherwise remove as part of maintenance activities, and marked for removal as per Retained and Removal Vegetation Plans [APP-035 & AS-017] will be removed.
- 2.2.10 Site clearance will not be carried out within any area until the ECoW has confirmed that there are no biodiversity constraints to the works

in that area. Vegetation clearance will be undertaken and recorded in accordance with a Permit to Clear issued by the ECoW, which will ensure these operations only commence following inspection by the ECoW. Where required, this will be extended to incorporate and cover areas of land that will be left undisturbed during the bird breeding season. Where possible, clearance operations will be overseen by the ECoW and:

- Be minimised as far as practicable.
- Be phased to minimise the areas of exposed ground and reduce the potential for runoff.

- 2.2.11 The ECoW shall oversee site clearance operations undertaken in sensitive habitats, including those with potential to be used as shelter by protected or notable species.
- 2.2.12 Where individuals of any species protected by legislation are noted during the pre-commencement works, operations will stop in those areas and the ECoW shall be contacted for further advice on how to proceed.
- 2.2.13 Where appropriate, the EcoW will produce a Method Statement to ensure full compliance with relevant legislation.
- 2.2.14 Staff will be briefed on the importance of minimising our impacts on the surrounding environment including minimising our impacts on ecology during the site clearance works.
- 2.2.15 Tree protection measures will be implemented to protect vegetation to be retained as per sections (3.5.2. -3.5.10.).

## 2.3 Temporary haul roads, hard standings and access works

### Scope

- 2.3.1 Pre-commencement Works to construct temporary haul roads, plant crossings, hardstandings and site accesses within the Order Limits to enable other pre-commencement works ahead of the main construction phase.
- 2.3.2 Temporary haul roads and hard standings will be required to enable access to work areas, for storage of materials, working platforms (e.g. crane to operate safely) and for locating temporary welfare and compound areas.
- 2.3.3 All temporary areas will be constructed of granular stone/aggregates or track mat's.
- 2.3.4 Where appropriate, temporary drainage will be installed adjacent to the haul road/hard standing areas to manage any surface water runoff (e.g. a drainage ditch)

- 2.3.5 Haul roads are identified on the Temporary Works Plans [AS-004].
- 2.3.6 Where haul routes interface with existing roads, footpaths and access/egress routes, plant crossings would be installed where adequate and appropriate. Plant crossings would be required to control the safe crossing of existing routes. Typically they would consist of run-on and run-off concrete slabs to protect and maintain the integrity of the existing infrastructure. If crossing an existing highway, traffic lights or manned stop/go boards would be installed, along with associated infrastructure including cable ducting to power/control panel. Security measures at the access/egress points would include gates or fencing, to control unauthorised access.
- 2.3.7 Where haul roads interface with utilities that are being uninterrupted by the proposed scheme, they will be protected. The protection measures will be agreed with the respective statutory undertakers. For buried services, this is usually in the form of a reinforced concrete protection slab, a temporary bridge or ground protection mats to spread the load applied by construction traffic passing over it. The precise dimensions of slabs will be subject to design. For overhead services, protection will be in the form of a demarcated exclusion zone to segregate the construction works from hazards. The Energy Networks Association (ENA) and Health and Safety Executive (HSE) GS6 guidance will be followed in the establishment of the exclusion zones. The precise type of fencing will be determined on a case-by-case basis dependent on the potential risk to the service or the workforce and the duration of construction works programmed for that area. Longer term protection will likely be in the form of timber post and rail fencing, whereas shorter term protection will likely be formed by temporary anti-climb mesh fencing e.g. Heras fencing.

## Methodology

- 2.3.8 The main plant and materials to include: tracked excavators, tracked dozers, compaction rollers, stone delivery vehicles (HGVs), granular stone/aggregate materials, geotextiles (for material separation).
- 2.3.9 Typical pre-commencement works sequence:
- Access will be gained via designated site access points, direct from public highways.
  - The required construction plant will be delivered on flatbed vehicles/low loaders and offloaded within the works area.
  - Alternatively, if a site haul route previously established is available, access will be prioritised within and through the site and away from the public highway.
  - Stone delivery vehicles will arrive via road through the site access point, travel to the work area and tip the imported stone/aggregate.

- The stone will be placed and spread using a combination of excavators and dozers. Generally, the dozers will spread the bulk of the material and the excavators will complete the trimming of the surface and edges.
- The surface, once filled to the designed level, will be compacted using a compaction roller.
- Haul routes will progress in a linear fashion heading away from the designated access point enabling the construction plant to be positioned on the newly laid platform, placing new material ahead of itself.

**Protection Slabs:**

- 2.3.10 The design and construction methodology of the slab will be agreed and approved by the asset owner in advance of the works.
- 2.3.11 Small plant and hand tools are favoured when working around buried assets.
- 2.3.12 The ground will be prepared using mechanical plant (e.g. a small excavator) where permitted.
- 2.3.13 Reinforcing steel will be placed as per the design and timber shutters will be erected to create the form of the slab.
- 2.3.14 The form will be filled with concrete, delivered using a concrete wagon, directly placed within the slab.
- 2.3.15 The surface will be finished in accordance with the design and left to cure.
- 2.3.16 The timber shutters will be removed and the ground around the slab will be prepared to match the top level of the slab.
- 2.3.17 Following a temporary works inspection/asset owner's inspection, the slab will be approved for use and subject to an ongoing inspection routine in line with the temporary works design.

**Temporary fencing:**

- 2.3.18 The type of fencing will be determined by the Applicant in liaison with all relevant stakeholders.
- 2.3.19 Light duty fencing i.e. Heras fencing, crowd barriers and cone/chain, will be set out by an engineer and placed manually by a small gang of operatives using standard assembly procedures.
- 2.3.20 Heavier duty fencing i.e. post and rail, wire mesh, site hoarding etc. will be set out by engineer and installed using post drivers or concreted in.
- 2.3.21 The infill panels i.e. timber rails, wire mesh, wire strands will be attached using simple hand tools by a small gang of operatives.

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## Specific control measures

- 2.3.22 This section sets out the specific mitigation measures for this pre-commencement work which would be applied in addition to the general mitigation measures found in Section 3 of this document, as necessary.
- 2.3.23 Implement a wheel washing system with rumble grids or other suitable methods to dislodge accumulated dust and mud prior to leaving the site where required and reasonably practicable
- 2.3.24 All required consents and permits for works near or within watercourses, or within flood risk zones will be gained prior to works commencing.
- 2.3.25 An ECoW will carry out pre-commencement work checks prior to works commencing as required.
- 2.3.26 Silt Mitigation Measures will be installed.
- 2.3.27 Staff will be briefed on the importance of minimising our impacts on the surrounding environment including minimising the impacts associated with noise, dust, soil and water during the Haul road and temporary access works.
- 2.3.28 Concrete that will be used in the construction of protection slabs is controlled under The Control of Substances Hazardous to Health Regulations 2002 [Ref 1-1] (COSHH) and will be managed accordingly.
- 2.3.29 Concrete will be ordered in precise quantities to reduce waste as much as possible. Any waste concrete will be stored on an impermeable surface and allowed to harden. This can then be broken up for use as a recycled aggregate for use in temporary works applications during the construction phase.
- 2.3.30 Concrete 'washout' produced during the cleaning of delivery wagons will be in a designated area into an impermeable container. This will be removed from site as a waste as described in paragraphs 3.4.1 and 3.4.2
- 2.3.31 While no contaminated land is anticipated in this activity, in the unlikely event that contamination is encountered during excavation works, in accordance with Requirement 6 of the dDCO;
- In the event that contaminated land, including groundwater, is found at any time when carrying out the authorised development, which was not previously identified in the environmental statement, it must be reported as soon as reasonably practicable to the Secretary of State, the Environment Agency and relevant planning authority, and the undertaker must complete a risk assessment of the contamination in consultation with the Environment Agency and the relevant planning authority.
  - Where the undertaker determines that remediation of the contaminated land is necessary, a written scheme and



programme for the remedial measures to be taken to render the land fit for its intended purpose must be submitted to and approved in writing by the Secretary of State following consultation with the Environment Agency and the relevant planning authority.

- Remediation must be carried out in accordance with the approved scheme.

2.3.32 Dust will be controlled on site using water suppression systems.

## 2.4 Ecological surveys and mitigation works

### Scope

2.4.1 Ecological pre-construction surveys and, where applicable, preliminary ecological works (ecology mitigation) within the Order Limits. Works would include the following:

- Environmental fencing - Temporary fencing will be erected, prior to construction, to protect ecological species and habitats from construction working areas where there is considered to be a risk from the construction activities.
- Vegetation clearance – see site clearance (Section 2.2.)
- Environmental seeding and planting. This includes stockpiled materials, landscaped areas and ecology areas.
- Silt mitigation may be installed along watercourses where any pre-commencement works are taking place.
- Bat boxes of various designs will be installed in retained woodlands within the Order Limits together with any other appropriate bat mitigation measures.
- Bird nest boxes will be installed on selected retained trees designed to be suitable for a range of species

### Methodology

2.4.2 Small plant, equipment and hand tools will be used to carry out the ecological pre-commencement works scope.

2.4.3 Access will be created by carrying out site clearance in accordance with section 2.3.

### Specific control measures

2.4.4 This section sets out the specific mitigation measures for this pre-commencement work which would be applied in addition to the general mitigation measures found in Section 3 of this document, as necessary.

2.4.5 All works will be carried out in accordance with relevant Natural England ecology licences.

- 2.4.6 An ECoW will carry out checks of the working area prior to commencement where required and ensure that the required mitigation is in place.

## 2.5 Other temporary works

### Scope

- 2.5.1 Temporary activities that would not significantly affect the environment, including the following:
- Erection of fencing. This would include the erection of boundary fencing to segregate members of the public and adjacent land activities from the pre-commencement works or ahead of the main works commencing.
  - Installation of temporary drainage. This will include drainage ditches, sediment traps and surface water drainage to prevent surface water run-off.
  - Engineering surveys

### Methodology

- 2.5.2 Fencing and hoarding will, as far as is reasonably practicable, be located such that it does not damage sensitive habitats, trees or hedgerows.
- 2.5.3 In locations where pre-commencement works are in proximity to Public Rights of Way (PRoW) the PC will fence off works areas using temporary fencing panels to segregate the site work areas from the public. Clear sight lines will be maintained around fencing with no hidden corners in order to avoid, where reasonably practicable, opportunities for antisocial behaviour and crime and to ensure the safety of vehicles.
- 2.5.4 Adequate fencing will be erected and maintained to prevent unwanted access to the site, to provide noise attenuation, screening and site security where required.

### Specific control measures

- 2.5.5 This section sets out the specific mitigation measures for this pre-commencement work which would be applied in addition to the general mitigation measures found in Section 3 of this document, as necessary.
- 2.5.6 Wheel washing facilities will be available at the exit of the site to prevent mud from entering the road.

## 3 General Mitigation Measures

- 3.1.1 This section details the general mitigation measures that will be implemented to control the pre-commencement works. It covers all relevant sections of the First Iteration Environment Management Plan (FIEMP) [REP4-022] and associated appendices.
- 3.1.2 For each pre-commencement activity, the proposed construction methods will be reviewed in-line with this document and all applicable general mitigation measures will be implemented. For example, any operations involving construction plant will be controlled by the Fuels and Oils section (paragraphs 3.9.1 – 3.9.3). If that operation also involved an interaction with a watercourse, it would additionally be controlled by the section on water quality (paragraphs 3.7.1 – 3.7.2).
- 3.1.3 Mitigation measures can be considered as:
- Source control (i.e. to prevent fine sediment-laden runoff forming and to treat contaminated runoff close to where it forms).
  - Barriers and conveyance measures (i.e. to prevent site runoff draining uncontrolled into water bodies and to direct and treat it en-route to storage areas).
  - Storage and final treatment areas (i.e. where water is stored on site and treated to the required quality prior to it being discharged from the site).
- 3.1.4 The mitigation measures set out in this document are considered sufficiently detailed to control the pre-commencement works and as such no further approval of this document, once consent is granted, will be needed.
- 3.1.5 All pre-commencement works will be restricted to the following working hours: 0800 – 1800hrs weekdays and 0800 – 1300hrs on Saturdays. . Any additional working hours will be agreed with the local authority.
- 3.1.6 All required consents, permits and licences will be gained in advance of works, where required.
- 3.1.7 The environmental team would monitor compliance with the controls through an internal assurance process, including regular inspections and audits. This will include a monthly planning meeting where high risk aspects of the works are identified and targeted inspections are carried out on these.
- 3.1.8 A Risk Assessment and Method Statement will be written and approved for each phase of works to ensure specific risks and their associated control measures are identified prior to works.

## 3.2 Air Quality

- 3.2.1 In order to minimise potential emissions of fugitive dust during construction, best practice measures would be employed to control

fugitive dust in compliance with Design Manual for Roads and Bridges (DMRB) LA 105 Air Quality (Highways England, 2019).

- 3.2.2 The following control measures will be implemented across all pre commencement works where practicable. These measures are based on those outlined by the Institute for Air Quality Management Publication Guidance on the assessment of dust from demolition and construction (Version 1.1) (2014).

#### **Monitoring**

- 3.2.3 The PC would undertake regular onsite and offsite visual inspections, where receptors (including roads) are nearby, to monitor dust control measures, record inspection results and make the log available to the local authority upon request.
- 3.2.4 The frequency of inspections would be increased by the person accountable for fugitive dust issues when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- 3.2.5 The construction team shall assess the weather forecast ahead of works which have potential for dust generation and would, where reasonably practical, reprogramme works to minimise any effects caused by the weather.

#### **Preparing and maintaining the site**

- 3.2.6 In preparing and maintaining the site, consideration shall be given to:
- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is reasonably practicable.
  - Where deemed appropriate, set up of static dust suppression equipment or erect solid screen or barrier/bund around particularly dusty activities
  - Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period.
  - Avoid site runoff of water or mud.
  - Keep site fencing, barriers, traffic management and scaffolding clean using wet methods where there is the risk of dust accumulation.
  - Where reasonably practical cover, seed or fence stockpiles to prevent wind whipping.
  - Remove materials that have the potential to produce dust from site as soon as reasonably practical, unless being reused onsite. If they are being reused onsite, cover as appropriate.
  - Site access points would be designed to minimise queuing traffic adjacent to access points.
  - Access gates to be located at least 10m from receptors where practicable.

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### Construction activities

3.2.7 Construction activities would include the following measures to limit dust emissions, as appropriate:

- Ensure an adequate water supply on the site for effective dust/particulate matter suppression should it be required. Use non-potable water where practicable and appropriate for dust suppression where available.
- Minimise drop heights from loading shovels, and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Where required and appropriate use enclosed chutes and covered skips.
- Avoid dry sweeping of areas if causing visible dust emissions and the area is within 350m of human receptors.

### Haul roads and trackout

3.2.8 Trackout is the movement of dust and dirt from a construction site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. Haul roads would be provided onsite for use by construction vehicles to access works areas. The construction and maintenance of haul roads would include the following measures to limit dust emissions from trackout, as appropriate:

- 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 continuously in use.
- Avoid dry sweeping of large areas.
- Ensure construction vehicles with an open back entering and leaving sites are covered to prevent escape of materials during transport.
- Implement a wheel washing system with rumble grids or other suitable methods to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable.
- Inspect haul roads, including crossing points on the existing highway, for integrity and instigate any necessary repairs to the surface as soon as reasonably practicable.
- Where appropriate and reasonably practicable, install hard surfaced haul roads, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, as appropriate wherever site size and layout permits.
- Access gates to be located at least 10m from receptors where practicable.

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### Plant and vehicles

- 3.2.9 All non-road mobile machinery (NRMM) emissions (i.e. mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads) comply with NRMM regulations.
- 3.2.10 Measures would be implemented to limit emissions from construction plant and vehicles, including the following, as appropriate:
- Construction plant, vehicles and equipment would be operated in accordance with manufacturer's guidance and would be regularly maintained and checked.
  - Engines would be switched off when not in use.
  - Vehicle and construction plant exhausts should be directed away from the ground and be positioned at a height to facilitate appropriate dispersal of exhaust emissions.
  - The movement of construction traffic around the site would be kept to the minimum reasonable for the effective and efficient operation of the site and construction of the proposed scheme.
  - Where stationary generators are required, ensure these are sited as far from sensitive receptors as practicable.

## 3.3 Noise and vibration

- 3.3.1 Working hours will be 08.00 – 18.00 on weekdays with occasional working between 08.00 – 13.00 on Saturdays. Any additional working hours will be agreed with the local authority.
- 3.3.2 Appropriate controls would be applied to control or reduce impacts as far as reasonably practicable, based on the measures set out within this plan.
- 3.3.3 Noise and vibration from pre-commencement works would be controlled by employing Best Practicable Means (BPM), as defined under section 72 of the Control of Pollution Act 1974 and section 79 of the Environmental Protection Act 1990.
- 3.3.4 BPM would consider the recommendations of BS 5228: Code of practice for noise and vibration control on construction and open sites (Parts 1 and 2) (BSI, 2014a and 2014b).
- 3.3.5 BPM would include the control of noise and vibration at source, where reasonably practicable, such as the provision of acoustic screens and the use of less intrusive alarms. Should the application of BPM at source not prove effective and noise exposure exceed the relevant trigger level (as defined in BS 5228-1), the PC may offer noise insulation and temporary rehousing as described above.

- 3.3.6 Local residents would continue to be informed of the pre-commencement works programmes and emergency or unscheduled works which may affect them.

### **Control of noise**

- 3.3.7 The following noise control measures would be implemented across the pre-commencement works where practicable:
- Site management teams would employ best practice and consider the timing, duration and phasing of pre-commencement works to cause minimum nuisance to sensitive receptors where practicable and reasonable
  - Seeded bunds would be used to provide noise and visual screening around the perimeter of the temporary works and construction areas, for example at junction 20b and junction 22 main compounds.
  - All ancillary plant such as generators, compressors and pumps would be positioned so as to cause minimum noise disturbance. If necessary, acoustic barriers or enclosures would be provided, where appropriate
  - Where practicable, mains electricity, hybrid generators, hydrogen generators or battery powered equipment to facilitate run-on battery overnight would be investigated
  - The use of diesel- or petrol-powered generators would be reduced where reasonably practicable. Where this is not possible consideration would be given to the site establishment to ensure that low noise generators are used where reasonably practical
  - Working methods would be developed specific to the area and would consider use of equipment and methods of operations to minimise noise
  - Where reasonably practical, fabrication of materials would be undertaken offsite
  - All plant and machinery in intermittent use would be shut down in intervening periods between work or throttled down to a minimum
  - Proper use of plant with respect to minimising noise emissions with regular maintenance would be undertaken
  - Minimising the drop height of materials into hoppers, lorries or other plant

### **Control of vibration**

- 3.3.8 Where potential exists for vibration to arise as a consequence of construction activities, the PC would make efforts to minimise vibration effects during construction by implementing the following measures, where practicable:

- The appropriate selection of plant and method of works to minimise vibration as far as practicable, for example piling plant and rollers
- Consideration of low vibration working methods, including non-vibratory compaction plant where practicable
- To limit potential building damage or disturbance to residents, no vibratory works will be completed within 10m of buildings
- Stakeholder liaison is an activity that has been ongoing and would continue leading up to and during construction

## Control of subcontractors

3.3.9 Subcontractors whose works are likely to give rise to noise, vibration or other nuisance issues must develop and incorporate appropriate control measures within Risk Assessment and Method Statements for the works. These control measures would be communicated to the subcontractors' staff through the use of site inductions and toolbox talks.

## Monitoring

### Construction monitoring

- 3.3.10 Noise and/or vibration monitoring during construction would be carried out by the PC to ensure ongoing compliance with all controls and, where relevant, consent for the works.
- 3.3.11 Monitoring would include physical measurements and observational checks, such as:
- Review of BPM and implementation of noise and/or vibration control measures; for example, location and condition of local noise screening
  - Verification that the identified noise and vibration mitigation measures are in place for activities where there is potential for likely significant effects to occur
  - Compliance with agreed hours of working
  - Measurement of noise and/or vibration levels; for example, attended noise and/or vibration measurements at the start of the high-risk activities to check levels against agreed thresholds
  - Monitoring noise and vibration procedures and practices to check adverse effects are no worse than those predicted
  - Where applicable, review of compliance with specific consent conditions and noise assessment
- 3.3.12 In instances where a member of the public has made a noise and/or vibration complaint, the complaint would be registered in accordance with the site complaints procedure. An investigation would be undertaken by the PC to review the noise and/or vibration control measures and noise and/or vibration levels.



- 3.3.13 Given the scope of the pre-commencement works and the number of potentially affected receptors it is not proposed to permanently measure noise and/or vibration levels at any single location throughout the duration of the works.
- 3.3.14 Suitably trained staff would be tasked with undertaking the noise and/or vibration measurements onsite where required.
- 3.3.15 If noise and/or vibration levels exceed agreed thresholds the PC would:
- Determine as far as is reasonably practicable the activities/plant responsible for the exceedances and if this is due to the construction of the proposed scheme
  - Review BPM and implementation of noise and/or vibration control measures
  - Ascertain if there are any reasonably practicable means of reducing the measured construction noise and/or vibration levels

## 3.4 Waste

- 3.4.1 Any waste generated during the pre-commencement works will be managed to ensure that all duty of care requirements are complied with.
- 3.4.2 All reasonable steps will be taken to:
- Prevent unauthorised or harmful deposit, treatment or disposal of waste.
  - Prevent a breach (failure) by any other person to meet the requirement to have an environmental permit, or a breach of a permit condition.
  - Prevent the escape of waste.
  - Ensure that waste is transferred by and to an authorised person.
  - Provide an accurate description of the waste when it is transferred to another person, by using a compulsory system of Waste Transfer Notes (WTN) that control the transfer of waste between parties.

## 3.5 Biodiversity and Landscaping

### Biodiversity Net Gain

- 3.5.1 Surveys of habitat condition will be undertaken by the ECoW or other appropriate specialist in advance of site clearance operations. These will inform an updated biodiversity net gain calculation of the Scheme. The ECoW will be responsible for recording the losses, retention and gains of habitat areas and their condition.

### Tree protection

- 3.5.2 Areas of vegetation clearance and top-soil strip should be limited as much as practicable. Where possible, vegetation clearance across the Scheme will be phased to minimise the areas of exposed ground and reduce the potential risk for runoff.
- 3.5.3 Any vegetation removed will be assessed and recorded using a Permit to Clear form.
- 3.5.4 Where possible, vegetation will be removed outside of bird nesting season (March-August inclusive), under the supervision of the ECoW. If vegetation removal is not possible outside of bird nesting season the project will comply with the process detailed in paragraph 3.5.24.
- 3.5.5 Trees will be protected from the pre-commencement works in accordance with the best practice measures contained in the following British Standards:
- BS 5837:2012 – Trees in relation to design, demolition and construction [Ref1-2].
  - BS 3998:2010 – Tree Work: Recommendations [Ref 1-3]. Further advice will be sought, and considered, from the Local Authority regarding the protection of trees.
- 3.5.6 A Root Protection Area (RPA) will be set up around trees to be retained onsite prior to commencement of construction.
- 3.5.7 The RPA will be demarcated by a suitable physical barrier. The protective fencing will be maintained for the duration of the pre-commencement works and checked on a regular basis.
- 3.5.8 In the event that an RPA cannot be maintained mitigation such as bog matting, flotation tyres and hand digging will be utilised.
- 3.5.9 Any installed protective barriers or fencing shall be maintained for the duration of the pre-commencement works and inspected on a regular basis by the PC.
- 3.5.10 Where required, the PC shall seek the views and advice of the relevant local Authority regarding the protection of trees.

### **Site communications and inspections**

- 3.5.11 Prior to starting any work with potential to affect protected species, site operatives will be informed by toolbox talks given by the PC and/or the ECoW on any requirements, constraints, what to look out for and what to do in the event that a protected species is found.
- 3.5.12 The ECoW will be responsible for ensuring necessary environmental mitigation measures are correctly implemented, monitored and maintained during the works.

### **Protected species**

- 3.5.13 Protected species licences from Natural England will be required for the following species:

- Badger.
- Bat
- Great Crested Newt.

- 3.5.14 A Letter of No Impediment for the Scheme, based on a draft Badger licence application, has been issued by Natural England. This confirms that Natural England sees no barrier to granting a licence in the future. A Letter of No Impediment is being sought based on the draft bat licence. An Impact Assessment and Conservation Payment Certificate (IACPC) has been obtained from Natural England to agree the Great Crested Newt (GCN) District Level Licence (DLL) for the main construction phase post DCO consent.
- 3.5.15 The PC will not commence any pre-commencement works that require a licence until the required licences for Badger, Bat and Great Crested Newt have been obtained from Natural England.
- 3.5.16 All operations and activities associated with the pre-commencement works will be carried out under the requirements and conditions of the granted licences, where relevant.
- 3.5.17 Ecology constraints plans and an ecology method statement will be developed prior to works that will detail where ecology constraints are across the proposed scheme and, the specific pre works checks and mitigation required to be implemented prior to works.
- 3.5.18 In the event that any protected species which were not previously identified in the environmental statement or nesting birds are found at any time when carrying out the authorised development the undertaker must:
- Cease the relevant parts of the relevant works and report it immediately to the Ecological Clerk of Works; and
  - Prepare a written scheme for the protection and mitigation measures of such protected species or nesting birds when carrying out the authorised development.
  - The undertaker must implement the written scheme prepared immediately and construction in the area specified in the written scheme must not recommence until any necessary licences are obtained to enable mitigation measures to be implemented.

#### Bats

- 3.5.19 A Method Statement will be prepared setting out measures to ensure the protection of bats during site clearance activities. This will include information on:
- Pre-works checks required.
  - The timing for vegetation removal.
  - The role of the ECoW during demolition and tree felling activities.

#### Badger

- 3.5.20 During site clearance, tree and shrub felling will be carried out avoiding damage to badger setts and blocking of any badger pathways. Fencing will be used to mark minimum stand-offs around active setts, or to exclude badgers from construction working areas where there is considered to be a risk of accidental collision with construction traffic.
- 3.5.21 Measures for Badger will be included in a Method Statement to inform the preliminary works.

#### Otter and Water Vole

- 3.5.22 Measures to be implemented by the PC to minimise potential disturbance to this species as applicable are:
- Undertaking ECoW supervision of any works in, or adjacent to, watercourses identified as having potential presence.
  - Implementation of a 10m stand-off distance from watercourses during the works (except where works need to be carried out in the channel).
  - Demarcation of any restricted areas required to prevent unnecessary entry to sensitive habitats along the watercourses.
  - Maintenance of free access for otter along watercourses and/or banks during works.
  - Erection of temporary fencing to exclude Otter from working areas (where there is considered to be a risk of accidental collision with construction traffic).

#### Breeding birds

- 3.5.23 To avoid disturbance to nesting birds, site clearance works including the removal of any woody vegetation and ground flora will be conducted, where possible, outside the bird nesting season (i.e. clearance undertaken between September and February).
- 3.5.24 Where this is not achievable, any clearance works will be preceded by a pre-works survey for nesting birds conducted by a suitably qualified ecologist, acting as the ECoW, in advance of the clearance works. Pre-works breeding bird surveys will be undertaken a maximum of 48 hours prior to vegetation clearance during the bird breeding season, including grassland, crops and fallow, as these have the potential to be used by ground-nesting birds.
- 3.5.25 If an active nest site is present within or adjacent to a work area a suitable exclusion zone will be designated by the ECoW appropriate to species, nest location and works activities. This exclusion zone will be protected from works and monitored until the ECoW (or other appropriate specialist) has confirmed that the nest site is no longer in use.
- 3.5.26 Any use of legal measures to deter birds from nesting in areas identified for clearance shall be implemented under the advice and supervision of the ECoW. Such measures will not be used where

there is considered to be a risk of disturbance to any active nests of bird species listed under Schedule 1 of the Wildlife and Countryside Act 1981 [REF 1-4].

- 3.5.27 Any exclusion zones set up for the protection of breeding birds will be monitored for bird activity during the works.
- 3.5.28 As per requirement BI38 of the First Iteration Environment Management Plan, Appendix A Register of Environmental Actions and Commitments [REP4-024] bird nesting boxes would be installed in retained vegetation within the Order Limits during the pre-construction phase, on new or existing structures, or on free standing posts as appropriate. Boxes would be provided for a variety of species, including cavity-nesting species with entrance holes of different sizes, open-fronted boxes, and larger boxes to accommodate birds of prey. The boxes would be constructed of hardwearing materials such as exterior grade plywood, recycled plastic or woodcrete.
- 3.5.29 Measures relating to breeding birds will be included in a Method Statement to inform the pre-commencement works, the content of which shall be approved by the ECoW.

#### Barn Owl

- 3.5.30 An ECoW or other appropriate specialist will conduct a survey for nesting Barn Owl in known nesting and foraging locations, to inform the location of construction fencing.
- 3.5.31 If any Barn Owl nest is found within or adjacent to areas of pre-commencement works, the ECoW will determine the extent and duration of the protective exclusion zone required. This will be dependent on factors such as the stage of breeding. Indicative guidance distances for an exclusion zone during the following stages of breeding are as follows:
- Nest building: 50-100m.
  - Eggs: 50-100m.
  - Chicks: 50-100m.
- 3.5.32 As per BI39 of the First Iteration Environment Management Plan, Appendix A Register of Environmental Actions and Commitments [REP4-024]. Pre-construction surveys would be conducted to identify any new potential barn owl nest sites within the Order Limits (BI11). Should any new barn owl roosting or nest sites be identified and determined to be lost as part of the proposed scheme, barn owl boxes at a ratio of 2:1 for each nest site lost would be installed at least 1.5km from the Order Limits to increase nesting opportunities and avoid increased barn owl road casualties. Barn owl boxes would be made from hard wearing materials such as exterior grade plywood or recycled plastic and locations of boxes would be identified through consultation with Essex Wildlife Trust.

- 3.5.33 The appropriate measures will be included in a Method Statement to inform the pre-commencement work.

#### Great Crested Newt

- 3.5.34 An ECoW will conduct a survey of the construction sites prior to the start of pre-commencement works where required.
- 3.5.35 Environmental Statement - Figure 2.1: Environmental Masterplan [APP-086, APP-087 & REP4-015] illustrates the form and location of mitigation measures to be implemented by the PC that will function as receptor sites.
- 3.5.36 These receptor sites comprise the creation of rough grassland with refugia and new ponds with refugia and hibernacula. These receptor sites will be established by the PC as part of the advanced works in advance of site clearance of terrestrial habitat potentially used by Great Crested Newts.

#### **Invasive Non-Native Species (INNS)**

- 3.5.37 A Invasive Species Method statement will be produced by the PC, specifying in detail the biosecurity measures which will be taken to ensure that none of the Schedule 9 species are spread off, or within, the Order Limits and that measures are specified to ensure that no such scheduled species are inadvertently brought into the Order Limits.
- 3.5.38 All works affecting invasive non-native plant species will be completed in accordance with the following:
- Treatment and disposal of invasive non-native plants: RPS 178 [REF 1-6].
  - The Waste (England and Wales) Regulations 2011 [REF 1-7].
  - Department for Environment, Food & Rural Affairs (Defra). Guidance on stopping invasive non-native plants from spreading (2019) [REF 1-8].
- 3.5.39 The following general biosecurity measures would be adopted:
- Areas highlighted during the preconstruction survey as supporting INNS would be clearly marked and signed to raise awareness to the construction team of the presences of INNS.
  - All staff members would be made aware of the locations of invasive species relevant to their work and would be informed of the necessary precautions required to prevent spread.
  - A toolbox talk would be provided by a suitably qualified ECoW at the onset of works, providing details on identification and the required biosecurity precautions.

- When working within an identified area, personnel would be reminded of biosecurity requirements at the start of each work shift and would be updated on any changes to management plans, for example information on the locations of any newly identified stands.
- No plant, equipment or personnel would leave an area with INNS without ensuring that as far as reasonably practicable all mud and/or plant material has been removed from vehicles, equipment, and clothing.
- Washdown areas would be set up at designated entry/exit points to invasive species demarcated areas and all plant and equipment or personnel shall be cleaned prior to leaving this area. For example, a jet wash would be available for vehicles and brushes and buckets of water would be available for clothing and equipment.
- When travelling or working between two different watercourses, measures would be employed to reduce the risk of transferring problem species or diseases between watercourses. Such measures would include, but not be limited to, the checking for and cleaning of mud and vegetation from boots, construction equipment and machinery, and allowing such items to dry in sunlight. Where works are carried out within watercourses with invasive species measures would be taken to avoid or minimise the risk of dispersal of fragments of invasive plants downstream.
- The storage and use of topsoil and other excavated materials for landscaping would be carefully managed to ensure that there is no risk of contamination of such materials.
- If soils potentially containing Japanese knotweed rhizome or Himalayan balsam seeds are taken offsite, such soils are classified as controlled waste and there is a duty of care for their proper disposal. The soil must be transported by an appropriately licensed carrier and disposed of at an appropriately licensed waste disposal facility.
- If INNS are located in areas where no works are planned or are within a short distance of or are on haul roads, a containment approach may be more effective than attempts to control. The use of fencing suitable for the adjacent works to exclude personnel and machinery (which could increase risk of spread) from areas of INNS in retained areas can be effective in the short-term.
- The INNS identified to date and their location in the works areas indicate that a programme of control is most appropriate. Based on the extent of INNS requiring treatment/removal and the timescale required in order to meet the construction programme, the following methods would be applied:
  - Chemical/spraying and/or
  - Excavation and onsite burial or offsite disposal

- It is possible to bury INNS onsite, with approval from landowners, if the conditions of the RPS 178 can be met (Environment Agency 2019). For Japanese knotweed specifically the Environment Agency must be notified at least one week in advance if material is to be buried.
- Prior to undertaking any herbicide spraying within 8m of a watercourse, consent would be obtained from the Environment Agency.

## 3.6 Soil

- 3.6.1 Soil stripping would be undertaken only after the soil resource plan has been completed.
- 3.6.2 Biosecurity risks would be identified in advance of soil stripping via consultation, and good practice measures put in place as applicable, to reduce the potential for soil-borne disease (crop and animal disease) and pathogen transfer between different areas of agricultural land. This may include segregation of soils and cleaning/disinfection of machinery where appropriate.
- 3.6.3 Intrusive archaeological investigations must be undertaken ahead of construction works to avoid soil stripping resulting in damage to buried archaeology, in accordance with the approach and techniques presented within the Archaeology Mitigation Strategy (Appendix 7.10 of the Environmental Statement [APP-118]).
- 3.6.4 The full depth of topsoil would be stripped from areas to be disturbed by construction, such as where haul roads, compounds and subsoil stockpiles are to be located, and from areas where topsoil would otherwise be sealed by permanent development (hardstanding and materials placement). This soil would be sustainably reused within the proposed scheme or elsewhere wherever practicable.
- 3.6.5 Stripping of soil would be restricted to those areas that are to be disturbed by construction activities. Areas to be used for storing subsoils or other materials would first be stripped of topsoil.
- 3.6.6 Stripping operations would be appropriately supervised and follow a detailed plan showing soil units to be stripped, haul routes and vehicle movements throughout the works. Information relating to the range of thickness, types and layers of soils across the route would be available from the soil resource plan so as to allow for soil units to be defined onsite.
- 3.6.7 Topsoil and subsoil handling would be avoided during November to March as far as practicable, but it is likely some soil handling would necessarily be undertaken during these months. Topsoil and subsoil would only be handled or trafficked when the surface is free of standing water and not frozen. Soils would only be handled when they are in a reasonably dry and friable state, below the plastic limit.



- 3.6.8 The field suitable method for assessing whether soils are in a reasonably dry and friable condition based on plastic limits contained in Part One (Supplementary Note 4, Table 4.2: Field Tests for Suitably Dry Soils) of the Institute of Quarrying's Good Practice Guide for Handling Soils in Mineral Working, together with the associated rainfall protocols, will be adopted for soil handling.
- 3.6.9 It would be ensured that adequate stockpile storage designation areas are prepared prior to soil stripping. Where practical, stockpiles would be located in excess of 10m from any existing watercourse or drains, preferably on flat lying land. Where this is not feasible due to space constraints onsite, additional mitigation measures (such as bunds) would be implemented to provide an adequate barrier between the potential source of contaminated runoff and the receptor. The stockpiling of materials would take predicted overland flood flow paths into account so as not to introduce an obstruction. Where practicable, stockpiles would be placed to screen the pre-commencement works from receptors sensitive to noise and visual impact, for example residential areas.
- 3.6.10 Where reasonably practicable, soils would be stored in the nearest storage location to where it was excavated, allowances would be given if being moved for screening (as described above).
- 3.6.11 Stockpiles will be segregated to ensure that the topsoil and subsoil are not mixed or contaminated. Stockpiles will be sealed at the end of each working shift to minimise dust creation, avoid migration/mixing of different soil types, protect the soil from degradation due to weather, and to ensure the stockpiles remain stable.
- 3.6.12 Where practicable, agricultural soils from different field boundaries would not be mixed, to mitigate potential biosecurity issues and the potential degradation of soil quality through mixing of soils from different sources.

## 3.7 Water Quality

- 3.7.1 Water bodies shall be monitored as per the Water Quality Monitoring Plan (REAC Ref. RDWE 2).
- 3.7.2 Construction Industry Research and Information Association (CIRIA) guidance would be adopted as standard mitigation as appropriate, including from the following publications:
- Environmental Handbook for Building and Civil Engineering Projects (3 Parts: C512, C528 and C529) (CIRIA, 2000a-c) [REF1-9]
  - Control of water pollution from construction sites. Guidance for consultants and contractors (C532) (CIRIA, 2001) [REF1-10]

- Control of water pollution from linear construction projects. Technical guidance (C648) (CIRIA, 2006a) and site guide (C649) (CIRIA, 2006b) [REF1-11]
- Groundwater control: design and practice, second edition (C750) (CIRIA, 2016) [REF1-12]
- Environmental good practice onsite guide (fourth edition) (C741) (CIRIA, 2015) [REF1-13]
- Working practices would be aligned with the Environment Agency guidance, Protect Groundwater and Prevent Groundwater Pollution (Environment Agency, 2017). [REF1-14]

### 3.7.3 **General mitigation measures**

3.7.4 Mitigation measures can be considered as source control (i.e. to prevent fine sediment-laden runoff forming and to treat contaminated runoff close to where it forms), barriers and conveyance measures (i.e. to prevent site runoff draining uncontrolled into water bodies and to direct and treat it en-route to storage areas), and storage and final treatment areas (i.e. where water is stored onsite and treated to the required quality prior to it being discharged from the site).

3.7.5 In any construction site temporary drainage system and where treatment is required, it is typical for a combination of treatment systems or proprietary measures (i.e. engineered device for treatment such as a lamella clarifier) to be used. Measures are often used in series to make maximum use of available space and to ensure adequate removal of fine sediment prior to any discharge being made from the site (for example runoff may be initially stored in small storage areas before being pumped via settlement tanks or lamella clarifiers to final treatment storage areas).

3.7.6 Temporary site drainage would be planned to manage the risks associated with heavy rainfall or flood events appropriate to the risk during construction such as the topography, catchment size and duration of the works. Where temporary drainage is required, it would be sized to provide an appropriate standard of flood protection, with a 10% (1 in 10) AEP event standard. The specific treatment would be determined by the PC with reference to good practice Technical Guidance C648 Control of Water Pollution from Linear Construction Projects (CIRIA, 2006a) and would be adapted throughout the works depending on the need and circumstances at any given time. Measures that may be used include:

- Drainage ditches with check dams and/or sediment traps. Ditches would be excavated in appropriate locations to reduce the likelihood of any surface water collecting in compounds, material storage or works areas.
- Outfalls from temporary site drainage would be to local surface water bodies and would maintain existing catchment boundaries wherever practicable.

- Sediment barriers such as silt fences, straw bales and earth bunds (used and positioned in appropriate locations).
- Temporary storage areas (for example settlement ponds, tanks and skips in series).

### **Construction site establishment and general earthworks**

- 3.7.7 During the initial preparation works prior to the start of construction, temporary measures to control runoff draining from the construction site would be implemented, and then managed and adapted by the PC accordingly as the works progress.
- 3.7.8 Preconstruction drainage would be installed to intercept the existing land drainage system and divert water away from the working area where practicable.
- 3.7.9 Drainage installation would commence at the furthest point on the system and work back so that construction drainage is discharged through the new system.
- 3.7.10 Where practicable, vehicle traffic would be limited to haul roads across the site to prevent soil compaction and associated increase in surface water runoff.
- 3.7.11 Runoff from the construction site would not be allowed into any natural pond. Construction runoff would be discharged into a watercourse under a permit from the relevant authority (where required) and following treatment and attenuation where required.
- 3.7.12 This would ensure that any sediment (including any adsorbed pollutants) carried in suspension in the surface water runoff from the site would have settled out before it can be discharged to receiving watercourses under an environmental permit from the Environment Agency or Watercourse Consent from the Lead Local Flood Authority (LLFA).

### **Timing of works and programming**

- 3.7.13 The timing of certain works or the programming of specific tasks on 'day-to-day', 'week-to-week' and 'month-to-month' basis can be important to reduce flood risk and the risk of water pollution occurring during the pre-commencement works. It is recognised that many factors affect the programme and avoidance of the wetter months of the year or periods of wet weather is impractical. However, where this can be done the PC should look for opportunities to reduce the water pollution risk.:
- 3.7.14 Proposed drainage should be constructed prior to works where practicable, to ensure no increase to surface water flood risk that could occur as a result of the pre-commencement works causing an increase in the rate and volume of surface water runoff from an increase in impermeable areas or by reducing permeability by compacting soils.

### **Measures to intercept and treat suspended fine sediments**

- 3.7.15 Mitigation measures relevant to controlling surface runoff, focusing on those areas where there would be exposed soils, excavations, storage of topsoil and other aggregate materials, are summarised below.
- 3.7.16 In practice, the application of these measures would be a continuously adaptive process in response to site specific constraints and changing needs onsite. For example, different types and levels of treatment of fine sediment in runoff may occur depending on the time of year, the location of the works, and the nature of works being undertaken at that point in time. It is therefore not appropriate to be entirely descriptive at this stage, but to focus on the range of measures that the PC can deploy to provide the necessary water environment protection.
- 3.7.17 Measures to intercept and treat suspended fine sediments may include:
- Where practicable, scheduling construction activities to minimise the area and period of time that soils would be exposed, particularly during the wetter months (i.e. autumn to early spring) or periods of forecast heavy or prolonged rain.
  - Installation of drains/ditches around the working areas to intercept surface runoff and divert it around the working areas.
  - Installation of diversion drains where necessary to channel water to a desired location.
  - Existing land drains are to be identified and covered or protected. During heavy rain land drains may transport silt pollution from the site into local watercourses. Where land drains are truncated by the pre-commencement works they would be intercepted either by the permanent drainage design or the flows would be temporarily incorporated into the temporary drainage system which would take the water through a treatment point prior to discharge.
  - Minimising the stockpiling of materials and, where practical, stockpiles are to be located in excess of 10m from any existing watercourse, ponds, boreholes and site drainage, preferably on flat lying land. Where this is not practicable due to space constraints, onsite additional mitigation measures (such as bunds) would be implemented to provide an adequate barrier between the potential source of contaminated runoff and the receptor. The stockpiling of materials would take predicted overland flood flow paths into account so as not to introduce an obstruction.
  - Movement of construction vehicles and plant would be controlled to minimise the potential for soil compaction and erosion.
  - For surface water quality, water would be discharged following settlement to remove suspended solids. Appropriately sized runoff storage areas for the settlement of excessive fine particulates in runoff would be provided. The PC would monitor the build-up of

fine sediment in temporary construction drainage systems and ensure they remain effective by either removing sediment or providing replacement measures. Where the permanent attenuation ponds are used during construction for drainage and treatment, any sediment accumulated shall be removed prior to the end of the construction period so as to maintain the capacity of the ponds for attenuation and water quality treatment purposes during operation.

- Tools and heavy plant to be washed down and cleaned in designated areas onsite only. At all wash down locations, the wash down water would be collected for treatment before discharge to surface water drainage under appropriate permit/consent and/or agreement with the sewerage company, or otherwise removed from site for appropriate disposal at a licenced waste facility.
- Debris and other material from the works would be prevented from entering surface water drainage or falling into the channel from height, through maintenance of a clean and tidy site, provision of clearly labelled waste receptacles, grid covers, the presence of site security fencing and debris netting beneath structures where required and necessary.
- Biosecurity measures would be required to ensure that no invasive species are brought onto site. Measures would include checks of plant/vehicles and footwear to ensure clean and clear of potential contaminants with best practice implemented as necessary..
- The rate of discharge to any watercourse of construction site runoff would be no greater than a controlled rate agreed in advance with the relevant regulatory authority and appropriate measures would be taken to dissipate the flow energy at the temporary outfall to prevent erosion of the bed and banks of the receiving water body (for example correct orientation of the outfall and the use of baffle pads).
- Existing road or track crossings of watercourses should be used where practicable. Where temporary crossings of the watercourses are required, plant would not track along the channel without adequate protection being installed prior to works, and temporary open-span crossings should be used as far as reasonably practicable.
- If needing to create a dry working area in the channel, the use of sand bags would be avoided if possible to avoid them breaking open and polluting the channel.
- All access roads or purpose-built haul roads would be kept free of mud by the use of a road sweeper, and if deemed required by the PC, a vehicle wheel wash facility on the main accesses to the site.

### **Flood risk**

- 3.7.18 Activities within areas at risk of flooding would be managed (i.e. kept to a minimum and/or timed for periods of lowest risk of flooding), with temporary land take required for construction located outside the floodplain as far as reasonably practicable, or with allowances made for floodplain control measures and contingency actions.
- 3.7.19 Where necessary, implementation of temporary mitigation measures would prevent an increase in flood risk as a result of flood waters displaced during temporary pre-commencement works (for example due to raised storage areas, haul roads and cabins).
- 3.7.20 Where practicable, site layout would ensure material stockpiles and storage areas would not be located less than 10m from adjacent watercourses, ponds, boreholes, site drainage, nor within Flood Zone 3 and take predicted overland flood flow paths into account so as not to introduce an obstruction. Where this cannot be achieved, stockpiles would be limited such that they can be moved upon receipt of any flood warning/adverse weather conditions, or onsite additional mitigation measures (such as bunds) would be implemented to provide an adequate barrier between the potential source of contaminated runoff and the receptor.
- 3.7.21 Where haul roads and temporary roads would cross areas of floodplain, existing ground levels would be maintained where practicable.
- 3.7.22 Where watercourse crossings would be required during construction, a 10% (1 in 10) AEP event standard is proposed to be used to size these crossing structures. As part of the relevant Flood Risk Activity Permit or Watercourse Consent application, the flood event appropriate for each watercourse would be consulted with the Environment Agency (for Main Rivers) or the LLFA (for Ordinary Watercourses) respectively. This would ensure a low risk of the works causing an increase in flooding to receptors, particularly as the risk of an event occurring during the short construction timescales would be low.
- 3.7.23 The Environment Agency's Flood Warning Service would be adopted by the PC during construction and a suitable flood risk action plan developed. This would plan for the effective and safe evacuation of personnel (and plant, if safe to do so) from areas at risk on receipt of a flood warning. Areas of the Chelmer, Brain and Blackwater Rivers are within Environment Agency flood warning areas.

#### **Agricultural land drainage**

- 3.7.24 Details of the existing and proposed drainage within the scheme footprint is available in the proposed scheme Surface Water Drainage Strategy (Appendix 14.6 of the Environmental Statement [APP-174]).
- 3.7.25 Particular care would be taken to ensure that the existing land drainage system is not compromised as a result of construction of the proposed scheme. Where practicable, land drainage systems

- within the Order Limits would be maintained during construction and if required, reinstated on completion of the proposed scheme.
- 3.7.26 The Agricultural Liaison Officer (ALO) will coordinate drainage surveys to understand the existing land drainage and any related farm drainage that may be affected by the proposed scheme. This will include review of as-built information supplied by landowners or occupiers (as applicable) and some trial trenching works. Based on this understanding of the land drainage, the PC would assess any additional need for surveys during the detailed design phase of the proposed scheme.
- 3.7.27 Existing agricultural land drains, where encountered during the construction of the proposed scheme, would be appropriately marked. The location of drains cut or disturbed by the pre-commencement works would be photographed, given a unique number and geo-referenced. The actual condition and characteristics (e.g. depth of installation, pipe type and diameter) of the existing drainage would also be recorded upon excavation.
- 3.7.28 During the pre-commencement works, temporary drainage or the proposed scheme permanent drainage would be installed to intercept existing field drains and ditches to maintain the integrity of the existing field-drainage system during construction. Such measures would also assist in reducing the potential for wet areas to form during the works, thereby reducing the impact on soil structure and fertility.
- 3.7.29 Any field drainage intercepted during construction would either be reinstated following reinstatement of the land or diverted to a secondary channel. Landowners and occupiers would be informed of the design of drainage works required during construction, including: pipe layout, falls, dimensions and outfalls (if required). The drainage would be reinstated in a condition that is at least as effective as the previous condition (as identified in the relevant condition and/or drainage survey) and would follow best practice for field drainage installations taking into account site-specific conditions.
- 3.7.30 The reinstatement of land drainage would only be undertaken within the order limits for the proposed scheme.
- 3.7.31 Records of existing and remedial drainage would be maintained by the PC with copies provided to the landowner or occupier (if applicable) following the completion of works in each location. Furthermore, landowners and occupiers would be provided with the opportunity to inspect land drainage works as they progress, subject to health and safety considerations.

#### **Existing sewer and water supply infrastructure**

- 3.7.32 Plans of existing services (including existing sewer and water supply infrastructure) would be used to identify services close to any pre-commencement works. Where necessary, existing services would be highlighted as a risk on design drawings to ensure awareness of

these services and reduce the risk of service strike during construction.

### **Private water supplies and irrigation**

- 3.7.33 Details of the private water supply, septic tank and irrigation system on each land holding, where relevant, would be gathered during the detailed design. The ALO would be responsible for consulting with each individual landowner to obtain the relevant information and to be a point of contact to report concerns regarding private water supply, septic tank and irrigation systems during construction.
- 3.7.34 The following information would be requested:
- Source of water supply mains or private supply, e.g. location of boreholes used by each landowner/occupier.
  - Details on the private water supply installation, e.g. borehole diameter and depth.
  - Details on how the water is abstracted, e.g. pumped and how the water is conveyed to the point of use.
  - How the private water supply is used, e.g. drinking water, livestock, irrigation purposes.
  - System of irrigation applied and the location of the irrigation network for each field.
  - Details on the volume and quality of water.
  - Abstraction, irrigation or impoundment licence granted by the Environment Agency.
  - Details on foul drainage for the landowner.
- 3.7.35 Where an existing mains or private water supply to a landowner or occupier (if applicable) is adversely and directly affected by the construction of the proposed scheme, the PC would provide or procure or meet the reasonable cost of the provision of an alternative supply of water (the form and type of which shall be at the PC's option). Where the supply is affected temporarily by the construction of the proposed scheme, then the alternative supply need only be supplied for the period during which it is affected.
- 3.7.36 The PC would produce water supply statements for landowners/occupiers who rely on private water supplies which could be affected by the proposed scheme. These would identify how a water supply is to be maintained in the unlikely event that existing supplies are adversely affected as a consequence of the works. The statements shall be provided to landowners/occupiers prior to works affecting the private water supply commencing and include, as a minimum:
- Details and locations of existing private water supply which supply the landowner/occupier.



- Where relevant, recorded results from groundwater monitoring undertaken by the PC that are relevant to private water supply boreholes.
- The procedure for getting water to a landowner and how it would be distributed, for example for irrigation purposes to livestock.
- How an emergency would be reported if water is contaminated.
- The procedure for getting a new supply of water whether from a borehole, mains supply or combination of both to a landowner or occupier if the private water supply is contaminated on a permanent basis.

**Measures to control the storage, handling, spillages and disposal of potentially polluting substances**

3.7.37 Mitigation measures to control the storage, handling, spillages and disposal of potentially polluting substances should include as a minimum:

- Plant and machinery would be inspected before use to ensure they are clean and fit for operation onsite.
- All static plant or mobile plant parked for prolonged periods would be fitted with 'plant nappies' or drip trays, which would be checked regularly (i.e. prior to first use following the prolonged period) and emptied if required by the PC into the bunded waste oil containers.
- All mobile plant would carry spill kits where practicable, with other spill kits placed in sealed containers at key locations and at all works near to watercourses. Spill kits are to be checked regularly and replaced after use.
- All construction workers onsite, where identified through risk assessment are to be trained in the use of spill kits.
- All tanks containing fuel would be located in a secure and designated area on hardstanding, where practicable, away from surface drains and any watercourses. Fuel oil in mobile bowzers would be double skinned to 110% of their capacity. All bowzers would be fitted with automatic shut-off refuelling. Where movements occur of mobile fuel bowzers, the refuelling valves and flaps should be shut down to prevent lapping liquids escaping.
- Refuelling of mobile plant to be undertaken in designated areas, for example construction compounds on an impermeable surface.
- Other liquid chemicals to be used onsite to be stored within a secure container in a designated area and clearly labelled.
- Implementation of site working practices to minimise the risk of concrete spillages. In particular, specific concrete wash out facilities are to be provided away from any watercourse (minimum 10m), on flat land and operated to ensure no spillage of wet concrete to ground (for example by use of geotextiles, skips).

- The construction site and construction compounds should be kept secure at all times to prevent vandalism and anti-social behaviour that could lead to a pollution incident.

#### **Use of cement and wet concrete**

- 3.7.38 Any work involving wet concrete and cement carried out over, under or near a watercourse would be carried out in accordance with the agreed consent from the relevant authority. Where such work is required, detailed method statements would be produced to meet the conditions of the consent, identifying controls that would be implemented to ensure wet cement does not come into contact with controlled waters.
- 3.7.39 Designated areas would be set out for the purpose of concrete wash out (i.e. for concrete mixer and associated chute, tools or equipment) and care would be taken to ensure concrete washout areas are sited away from sensitive receptors such as watercourses and drains. The PC would detail the method to be used appropriate to the activity, location and sensitivity of the site. Delivery drivers would be made aware of the requirement on arrival at site.

#### **Surface water and foul water from compounds and welfare facilities**

- 3.7.40 The main site compounds and any temporary or smaller satellite compounds and laydown areas are located away from any waterbodies and watercourses, and where practicable on flat land.
- 3.7.41 Any surface flows from compound areas that could be contaminated (for example adjacent to fuel stores) would pass through suitable attenuation and treatment measures prior to discharge to any watercourse (under a permit), such as an oil separator, or otherwise pumped out for offsite disposal at a suitably licensed waste facility.
- 3.7.42 Foul water could be treated via a Package Treatment Plant system which treats the effluent prior to discharging treated water via the compound drainage system, however a connection to the main sewerage network would be implemented where practical. Where applicable for smaller compounds all waste from welfare facilities would be stored in storage tanks. The storage tanks would be emptied regularly by a tanker (with appropriate waste carrier licence etc.) for offsite disposal at a suitably licenced waste facility.
- 3.7.43 Under no circumstances would untreated sewage be discharged to the ground, watercourse or to a surface water drainage system.

## **3.8 Contaminated Land**

- 3.8.1 While no contaminated land is anticipated to be encountered during the pre-commencement works, in the unlikely event that contamination is encountered during excavation works, in accordance with Requirement 6 of the dDCO [Applicant Reference TR010060/APP/3.1 rev 5] submitted at Deadline 5];

- In the event that contaminated land, including groundwater, is found at any time when carrying out the pre-commencement works, which was not previously identified in the Environmental Statement - Chapter 10: Geology and Soils [APP-077], it must be reported as soon as reasonably practicable to the Secretary of State, the Environment Agency and relevant planning authority, and National Highways must complete a risk assessment of the contamination in consultation with the Environment Agency and the relevant planning authority.
- Where National Highways determines that remediation of the contaminated land is necessary, a written scheme and programme for the remedial measures to be taken to render the land fit for its intended purpose must be submitted to and approved in writing by the Secretary of State following consultation with the Environment Agency and the relevant planning authority.
- Remediation must be carried out in accordance with the approved scheme.

### 3.9 Fuels and Oils

- 3.9.1 The storage, dispensing, containment and use of all fuels, oils and COSHH materials and waste shall be undertaken in accordance with regulatory and good practice guidance.
- 3.9.2 For COSHH materials and waste, relevant control and management measures shall include:
- Storage will be in a secure, bunded and sheltered area.
  - Waste will be segregated.
  - COSHH liquids will not be stored in flood zones.
  - Areas will be supervised, records of materials and waste stored and removed from the area recorded.
  - The handling, storage and disposal must be undertaken as described in the COSHH Assessment and any Material Safety Data Sheet (MSDS).
- 3.9.3 Fuel and oil (including mould oil) shall be stored in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001 [Ref 1-15], with fuels and oil handled in such a way that risk of pollution is minimised. Specifically:
- Fuel and oil storage tanks must comply with The Control of Pollution (Oil Storage) (England) Regulations 2001 [Ref 1-7] and must be locked outside working hours.
  - Storage areas shall not be located within 20m of watercourses, ponds, site drainage or within any areas of flood zones or on a gradient.

- Refuelling shall not be permitted within 20m of a watercourse/pond, within 20m of a highway drainage gully/site drainage, or within areas of flood zones.
- Mobile bowzers shall be integrally bunded and must comply with The Control of Pollution (Oil Storage) (England) Regulations [Ref 1-15] and must be secured outside working hours.
- Trained operatives will carry out refuelling of plant and equipment.
- Plant nappies will be used during refuelling.

## 3.10 Energy and resources

- 3.10.1 Opportunities to implement measures and techniques to provide more efficient and cost-effective use of energy and resources, and thereby reduce carbon and water footprints, shall be investigated during the pre-commencement works. Examples of this include;
- The potential use of low energy eco-cabins, hybrid and solar power generators and the use of low carbon fuel options such as substituting diesel for Hydrotreated Vegetable Oil (HVO).
  - The use of green energy tariffs, such as Renewable Energy Guarantee of Origin certificate (REGO) tariffs, for the main site compounds.
  - The use of alternative energy sources for certain appliances, such as solar power for the site accommodation, task and security lighting and hot water, to reduce energy consumption.
  - The use of double-glazed windows and efficient insulation within site offices and welfare units to reduce heat loss.
  - Conducting regular site audits to identify opportunities for energy savings and to check that lighting, equipment and facilities are running efficiently.
  - The control of lighting through passive infrared sensors to reduce energy consumption.
  - The control of heating and cooling units individually, allowing areas not in frequent use to be turned down or off when required, to reduce energy consumption.
  - The use of 'switch off' labels on electrical switches, lighting and appliances to encourage users to turn apparatus off when not in use.
  - The use of rainwater harvesting equipment and greywater recycling equipment to recycle water resources and reduce reliance on mains water supplies.
  - The specification of low-energy or energy star rated appliances and equipment.

- The deployment of toolbox talks to all site operatives to encourage them to switch off construction plant, equipment and machinery, to reduce fuel and energy consumption.
- Undertaking lifecycle costing for construction plant, equipment and machinery, and accommodation hire, specifying low energy, battery powered and hybrid powered equipment where feasible.
- Installing sub-metering and regularly recording and reporting onsite energy use to identify areas of high consumption and potential efficiencies.
- The sustainable use of soil and aggregate materials won from excavation and demolition activities, to minimise greenhouse gas emissions associated with the importation of materials to site and embodied carbon associated with additional materials.

### 3.11 Archaeology

- 3.11.1 No works will take place within area's requiring archaeology investigations until those investigations are complete.
- 3.11.2 Should unexpected archaeology be found during the pre commencement works then works will be halted and advice taken from the project Archaeology specialist.

### 3.12 Traffic Management

- 3.12.1 None of the pre-commencement works require long-term traffic management i.e. It is expected that any traffic management required to complete pre-commencement works will be erected at the start of a shift and removed at the end of the same shift.
- 3.12.2 The use of traffic management systems will be avoided where possible and only used where absolutely necessary. If there are more suitable, safe systems of work that do not require traffic management then they will be prioritised.
- 3.12.3 Where traffic management is required, it will be designed and implemented by a specialist traffic management contractor, only in accordance with any consents necessary.
- 3.12.4 In advance of any temporary traffic management being implemented, the specialist traffic management contractor will submit applications to the applicable Local Authorities for the relevant highway licences and permits. These include but are not limited to Temporary Traffic Regulation Orders, Road space bookings and temporary traffic lights. Where traffic management is complex in nature, advice and coordination will be sought from the Local Highway Authority, to avoid any conflict with other works on the network.
- 3.12.5 Traffic management on the strategic road network will also be avoided where possible during pre-commencement works and will also be subject to all applicable roadspace bookings, permits and licences.

- 3.12.6 No traffic management will commence without all applicable permits and consents in place. If the application for the licence or permit is denied, the traffic management and therefore the affected element of the pre-commencement work will not proceed until an alternative suitable licence or permit is approved.
- 3.12.7 It is envisaged that the numbers of HGV movements during the pre commencement works will average 50 (two way) movements per day.

### 3.13 Emergency procedures

- 3.13.1 Pollution is the presence or introduction of substances into the environment that in excess of normal levels has a harmful or poisonous effect on receptors. Receptors can include residents (human health), water resources, surface water courses or the wider environment.
- 3.13.2 An overarching identification of potential pollution sources, pathways and receptors is necessary in order to ensure that mitigation/control measures effectively remove/reduce pollution sources, eradicate/manage pathways and protect receptors.
- 3.13.3 If an incident (for example a large fuel spillage) occurred onsite, the following general principles should be followed:
- Identify the cause of the emergency or incident and act immediately to prevent it from getting worse.
  - Make sure that the appropriate Personal Protective Equipment (PPE) is available to use wherever necessary.
  - Report any emergency or incidents to the PC Project Manager and/or Environmental manager immediately, detailing the nature, cause and location so that appropriate action can be taken.
  - The PC would inform the Local Authority, Environment Agency and/or Natural England, as relevant, of the incident.
  - Ensure that any lessons from the incident are communicated to all relevant staff and appropriate action taken elsewhere onsite if necessary.
  - Update all relevant method statements, sections of the EMP, toolbox talks, etc. and ensure new information is communicated to all staff.
- 3.13.4 Procedures in the event of an environmental emergency are included below.

#### **Spill response**

- 3.13.5 In the event of a spill occurring the spill response would be followed:
- Immediately contain the source (if practicable)

- Protect any pollution pathways for example drains and watercourses
- Absorb the spill by using spill response materials
- Dispose of the used spill materials as COSHH waste
- Report any emergency or incidents to the PC Project Manager and/or Environmental manager immediately

### **Watercourse pollution – sediments**

3.13.6 In the event of an incident or emergency where sediments or other contaminants have entered or are at an imminent risk of entering a watercourse or drain (for example a large chemical spillage), the measures set out in this section would be implemented.

- Check (monitor where required) watercourses during periods of high rainfall or construction activities with potential for significant runoff.
- Take immediate action if you identify any high sediment which is causing pollution.
- Implement mitigation actions immediately. Control pollution at source whenever practicable. Consider whether the site activity should be halted. Consult the PC Project Manager or Environmental team if in doubt.
- Place straw bales/silt fencing, to help control sediment immediately and/or check measures already in place for effectiveness.
- Monitor the effectiveness of protection measures daily and replan as necessary.
- Remove silted bales/screens, etc. regularly so they do not make problems worse.
- The Environmental Manager and relevant site management representative should talk to the Environment Agency regularly and check plans for emergency procedures.
- Reconsider working practices which may be causing pollution in poor weather conditions and replan/programme.

### **Accidental fires**

3.13.7 Fire causes damage to surrounding habitats. The PC would incorporate and develop the following instructions in their Emergency Response Plan for the site:

- If safe to do so use fire beaters immediately to prevent fire spreading
- Report any emergency to the PC Project Manager immediately
- Call the fire brigade if the fire cannot be easily contained
- Inform the landowner/occupier and National Highways

## Weather

- 3.13.8 The proposed scheme would sign up to receive any available flood information related to the flood plain (where available). In the event of worsening weather, any construction within or close to the flood plain would cease and all plant/equipment would be removed to a safe area.
- 3.13.9 A 'weather warning response plan' would be developed to instruct the actions to be taken in the event of a severe weather warning being issued by the Met Office and/or a flood warning.

## Pollution control equipment

- 3.13.10 Spill response materials would be readily available and easily accessible onsite, with all staff trained in their usage.
- 3.13.11 The content of spill kits would differ depending on the nature and location of the works. Typical spill equipment is identified below, which is suitable for use in different situations and ways:
- Bulk/loose powder/granules – especially suited for use on hard-standing areas such as roads and concrete floors, absorb most liquids; apply to spill, agitate and sweep up.
  - Booms/socks – used to contain and prevent the spread of a pollutant; place around a spill to block its path, overlapping ends in direction of flow; can be placed as a precautionary measure, e.g. across a river.
  - Pads and rolls – large surface area, place directly onto the pollutant to absorb and recover it; rolls can be cut to size to reduce wastage.
  - Drain mats – made of reusable polyurethane or single-use bentonite clay; used to prevent spillages entering drainage systems.
  - Sealing putty – can be applied to a damaged container to seal the leak.
  - In addition to the spill absorbents, spill kits should also contain:
  - Appropriate PPE (suitable gloves, goggles, dust mask for granules powder)
  - Bags (not black) and ties for disposal of the used spill response materials

## Incident and corrective action reporting

- 3.13.12 All environmental incidents must be reported and investigated. Each subcontractor is responsible for ensuring that environmental incidents are reported to the PC.
- 3.13.13 Significant environmental incidents where waterborne pollution is evident must be reported to the Environment Agency immediately using their 24-hour incident telephone number 0800 80 70 60.



Copies of the incident investigation must be provided to the EA and the relevant local authority.

- 3.13.14 Where problems are recognised, the corrective action would be identified by the PC in consultation with the Environment Agency and relevant local authority and corrective actions undertaken by the PC within a defined time frame.
- 3.13.15 A record of environmental incidents is to include the following information:
- Date and location of the incident
  - Details of the reporting procedure followed
  - Description of the incident
  - Remedial actions
  - Lessons learnt
  - Details of any contact with enforcing bodies

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## 4 References

- REF 1-1 The Control of Substances Hazardous to Health Regulations 2002. The Stationery Office (2002).
- REF 1-2 BS 5837:2012 Trees in relation to design, demolition and construction. British Standards Institution (2012).
- REF 1-3 BS 3998:2010 Tree Work: Recommendations. British Standards Institution.
- REF 1-4 Wildlife and Countryside Act 1981. HMSO (1981).
- REF 1-5 Great Crested Newt Mitigation Guidelines. English Nature (2001).
- REF 1-6 Treatment and disposal of invasive non-native plants: RPS 178. Environment Agency (2016).
- REF 1-7 The Waste (England and Wales) Regulations 2011. HMSO (2011)
- REF 1-8 Department for Environment, Food & Rural Affairs (Defra). Guidance on stopping invasive non-native plants from spreading (2019)
- REF 1-9 Environmental Handbook for Building and Civil Engineering Projects (3 Parts: C512, C528 and C529) (CIRIA, 2000a-c)
- REF 1-10 Control of water pollution from construction sites. Guidance for consultants and contractors (C532) (CIRIA, 2001)
- REF 1-11 Control of water pollution from linear construction projects. Technical guidance (C648) (CIRIA, 2006a) and site guide (C649) (CIRIA, 2006b)
- REF 1-12 Groundwater control: design and practice, second edition (C750) (CIRIA, 2016)
- REF 1-13 Environmental good practice onsite guide (fourth edition) (C741) (CIRIA, 2015)
- REF 1-14 Environment Agency guidance, Protect Groundwater and Prevent Groundwater Pollution (Environment Agency, 2017).
- REF 1-15 The Control of Pollution (Oil Storage) (England) Regulations 2001. The Stationery Office (2001).