Lower Thames Crossing

6.3 Environmental Statement Appendices
Appendix 2.2 – Code of Construction Practice including Register of Environmental Actions and Commitments (REAC), First Iteration of Environmental Management Plan
Annex C - Preliminary Works Environmental Management Plan
(Clean version)

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1 Preliminary works

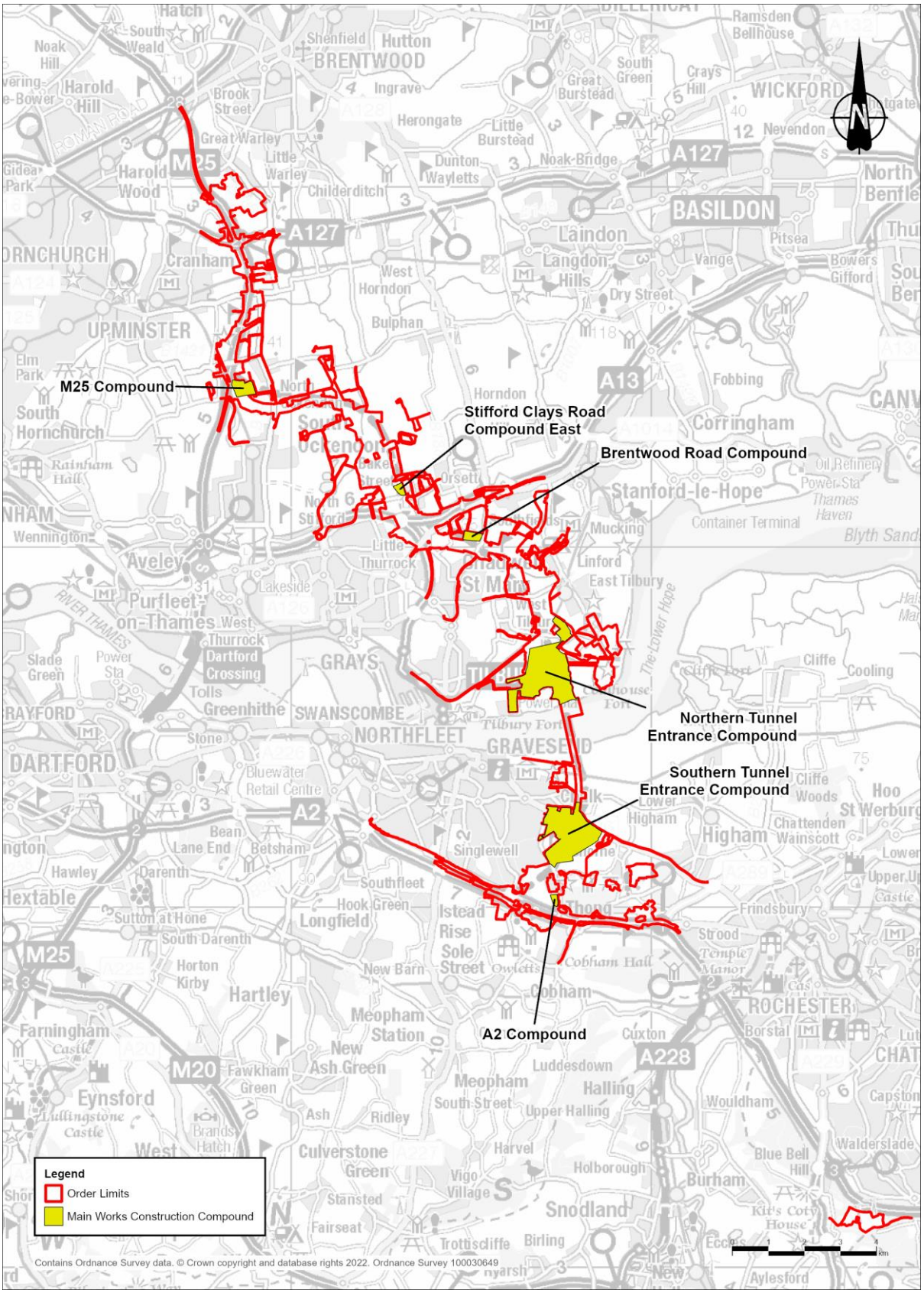
1.1 Preliminary works

1.1.1 Preliminary works are those that would be undertaken between the DCO coming into effect and commencement of construction as defined by the draft DCO. Paragraph 1 of Schedule 2 to the draft DCO (Application Document 3.1) provides a definition of commencement.

1.1.2 For ease of reference, this definition is included here: ‘commence’ means beginning to carry out any material operation (as defined in Section 56(4) (time when development begun) of the 1990 Act [The Town and Country Planning Act 1990]) forming part of the authorised development other than preliminary works. “Preliminary works” is in turn defined as operations consisting of archaeological investigations and pre-construction ecological mitigation (including vegetation clearance), environmental surveys and monitoring, investigations for the purpose of assessing and monitoring ground conditions and levels, erection of any temporary means of enclosure, receipt and erection of construction plant and equipment for advanced compound areas, diversion and laying of underground apparatus (except any excluded utilities works) for advanced compound areas, vegetation clearance and accesses for advanced compound areas, and the temporary display of site notices or information and ‘commencement’ is to be construed accordingly.

1.1.3 In the definition of ‘commence’ above, ‘excluded utilities works’ is defined in the draft DCO (Application Document 3.1) and ‘advanced compound areas’ is defined to mean the areas shown as advanced compound areas in Plate 1.1.

Plate 1.1 Advanced compounds



1.1.4 The effect of this definition is that some works outside the scope of commencement can be carried out prior to the discharge of the requirements contained in Schedule 2 of the DCO and the approvals required therein. These works are described as preliminary works.

1.1.5 The preliminary works have been identified as works that may be carried out early in the construction programme and that would have negligible or relatively minor environmental impacts.

1.1.6 Land access is required to undertake the preliminary works. Land access will be secured under article 35 of the Development Consent Order or, land access will be sought through a voluntary agreement with the relevant landowner.

1.1.7 The only preliminary works that can be undertaken, and their locations, are listed in Table 1.1.

1.1.8 These preliminary works shall be undertaken in accordance with relevant commitments in the Preliminary Works REAC (see Table 2.1). Ecology activities will also require protected species licences, thereby adding an additional layer of control.

1.1.9 The Contractor is responsible for identifying and securing all relevant consents for preliminary works prior to the works beginning.

1.1.10 The nature of the preliminary works will not affect the baseline monitoring.

1.1.11 The Contractor is responsible for constructing any required access where an existing access is not available and obtaining relevant consents or permissions.

Table 1.1 Preliminary works and locations

Preliminary work	Location
Archaeological investigations as set out in the outline Written Scheme of Investigation (OWSI) (Application Document 6.3)	Site-wide
Pre-construction ecological mitigation (preparation of ecological receiving site for reptiles)	Site-wide
Pre-construction ecological mitigation (preparation of ecological receiving site for great crested newts (GCN))	Site-wide
Pre-construction ecological mitigation (translocation of protected species)	Site-wide
Pre-construction ecological mitigation (installation of bat boxes and hibernaculum)	Site-wide
Pre-construction ecological mitigation (installation of dormouse boxes)	Site-wide
Pre-construction ecological mitigation (installation of artificial badger setts)	Site-wide
Pre-construction ecological mitigation (installation of bird boxes)	Site-wide

Preliminary work	Location
Pre-construction ecological mitigation (closure of badger setts)	Site-wide
Pre-construction ecological mitigation (installation of ecological exclusion fencing)	Site-wide
Pre-construction ecological mitigation (vegetation clearance)	Site-wide
Environmental surveys and monitoring, e.g. noise	Site-wide
Investigations for the purpose of assessing and monitoring ground conditions and levels	Site-wide
Erection of temporary means of enclosure	Sitewide
Receipt and erection of plant and equipment	Advance compound areas at A2 compound, southern tunnel entrance compound, northern tunnel entrance compound, Brentwood Road compound, Stifford Clays Road compound East, M25 compound, (Temporary Works Plans (Application Document 2.17))
Diversion and laying of underground apparatus (except for excluded utilities work)	Services to compounds A2 compound, southern tunnel entrance compound, northern tunnel entrance compound, Brentwood Road compound, Stifford Clays Road compound East, M25 compound, (Temporary Works Plans (Application Document 2.17))
Vegetation clearance and construction of accesses for advanced compound areas	Advance compound areas at A2 Compound, southern tunnel entrance compound, northern tunnel entrance compound, Brentwood Road Compound, Stifford Clays Road Compound East, M25 Compound, (Temporary Works Plans (Application Document 2.17))
Temporary display of site notices or information	Site-wide

1.1.12 Requirement 7 of the draft DCO in relation to protected species applies in relation to the preliminary works.

1.1.13 The REAC within the CoCP (ES Appendix 2.2, Application Document 6.3), which contains a list of good practice and essential mitigation commitments that will be incorporated in the Environmental Management Plans (EMPs) produced for construction and handover stages of the Project in accordance with Requirement 4 of Schedule 2 to the DCO, has been reviewed to identify those environmental commitments relevant to the preliminary works in Table 1.1. These primarily serve to provide for:

a. pre-condition surveys

b. measures for the protection of heritage assets

c. measures for the protection of ecology, trees and agriculture

d. Section 61 controls over noise

e. a measure to protect site remediation work at a former petrol station near an access point to the A2 Compound.

1.1.14 Table 1.2 lists the commitments in the REAC identified to be relevant to preliminary works and included in the Preliminary Works REAC. These commitments will be implemented when carrying out the preliminary works identified in Table 1.1.

1.1.15 These controls will be in place on the date the DCO comes into force to provide assurance that appropriate environmental controls would be applied to works which may be carried out prior to the discharge of requirements under the DCO (as per Requirement 4(1) of Schedule 2 to the DCO).

1.1.16 REAC reference numbers in Table 1.2 correspond to reference numbers and commitments in the REAC. The detail of these commitments applicable to the preliminary works is presented in the Preliminary Works REAC at Table 2.1.

Table 1.2 REAC commitment references relevant to preliminary works

Topic	REAC Ref No.
Cultural Heritage	CH001
Geology and soils	GS002, GS015, GS030
Landscape	LV028, LV030, LV031
Noise and vibration	NV002, NV004, NV005, NV007
Terrestrial biodiversity	TB002, TB003, TB004, TB005, TB006, TB008, TB009, TB010, TB011, TB012, TB013, TB014, TB015, TB016, TB017, TB018, TB020

1.2 Considerate constructors

1.2.1 The Contractors shall sign up to and adhere to the Considerate Constructors Scheme (CCS).

1.2.2 The CCS is a national scheme that promotes good practice on construction sites through its codes of considerate practice; these commit registered sites to be considerate and good neighbours, as well as being respectful, environmentally conscious, responsible and accountable.

1.3 Enforcement and control procedures

1.3.1 Subcontractor performance is the responsibility of the Contractors and will be monitored by the Contractors, however, National Highways will not differentiate between Contractors and Subcontractors performance and will monitor both.

1.3.2 The Contractors and National Highways will clearly define the roles and responsibilities of key personnel (in accordance with Table 1.3 below).

1.3.3 Arrangements and responsibilities for implementing, monitoring, auditing and enforcing the environmental mitigation set out in this Preliminary Works EMP and REAC Table 2.1.

1.3.4 National Highways or its representatives will carry out site inspections and audits to verify the Contractors' compliance with Preliminary Works EMP. On request, relevant planning authorities, the Environment Agency, Natural England and the SoS, will be given access to the results of the site inspections and audits, along with the opportunity to attend and observe National Highways site inspections and audits. All non-conformances will be recorded and monitored through a Contractor's action plan within an agreed risk based timescale for resolution.

1.4 Project team roles and responsibilities during preliminary works

1.4.1 Table 1.3 identifies the National Highways and Contractors Project team roles and responsibilities the during the preliminary works.

Table 1.3 Envisaged roles and responsibilities for the Project preliminary works

Role	Main environmental responsibility
National Highways Project Director	General responsibilities for the National Highways Project Director include the following: • Collate and provide Project information to prospective Contractors • Oversee implementation of the whole Project and the individuals undertaking specific roles and duties • Assume accountability for delivery of contract requirements and the EMS for the Project.
National Highways Environmental Manager	General responsibilities for the National Highways Environmental Manager include the following: • Monitor and ensure compliance of the Project's works with all environmental commitments set out in this CoCP, other Project documentation and relevant environmental legislation • Develop and maintain a Project EMS compliant with ISO 14001:2015 • Integrate with the Quality, Health, Safety and Wellbeing and Security teams for a joint assurance focus • Support and incorporate the Digital Strategy • Take overall responsibility for the environmental audit and inspection programme based on risk and opportunities, including undertaking assurance activities • Coordinate a joined-up approach to environmental management and continual improvement across the Project, including Contractors • Monitor environmental complaints and their investigation and resolution • Report on Contractors' environmental performance • Support development of scope of works to incorporate environmental management requirements suitable for delivery and integration of potential works interfaces

Role	Main environmental responsibility
	• Lead on developing appropriate and effective environmental processes to ensure compliance and to stimulate high environmental performance • Consider Project legacy in all decision making in the same way as cost, risk and time • Encourage innovative thinking and Contractors' initiatives, which deliver and improve the Project's legacy benefits • Uphold Health, Safety, Security and Wellbeing as key Project values and participate in the creation, development and implementation of Health, Safety, Security and Wellbeing (HSSW) strategies by the Project leadership team.
National Highways Traffic Manager	General responsibilities for the National Highways Traffic Manager include ensuring that any traffic management required by the Project is planned, delivered, and managed collaboratively, and that the commitments of the Traffic Management Plan (TMP) to are adhered to, with a specific focus on the following: • Planning and delivery • Network occupancy • Delivering safely • Operations • Ensure that standards and best practices are applied in the planning and delivery of traffic management • Establish and chair the Traffic Management Forums, ensuring that all affected stakeholders are invited • Review feedback from local highway authorities in terms of planned traffic management as well as the performance of key traffic management phases • Receive data from the main works Contractors as to the performance of traffic management in terms of the impact on the strategic road network (SRN) and local authority roads • Represent the Traffic Management Forum at the Joint Operations Forum (JOF) to report on traffic management performance and to escalate issues of concern raised by stakeholders • Review the performance of incident management that occurs within the designated 'Works Zone' as set out in a TMP and any relevant Detailed Local Operating Agreements • Act as the interface between the Community Liaison Team and the Traffic Management Forum Group • Generally, oversee the performance of the wider Lower Thames Crossing construction network in terms of the coordination, planning and delivery of traffic management on the SRN and local road network.
Contractor Community Liaison Officers (CLO)	General responsibilities for the Contractor CLOs include the following: • Deliver the Community Engagement Plan • Engage with those who may be affected by construction impacts, including local residents, community groups and local businesses • Provide information on the construction process to local stakeholders and be the first line of response to resolve issues of concern

Role	Main environmental responsibility
	• In the case of emergency work, engage with and advise the local authority and local residents of relevant information as soon as reasonably practical • Ensure compliance with community engagement commitments, as defined in the CoCP • Maintain a correspondence register.
Contractor Project Director	General responsibilities for the Contractor Project Director include the following: • Management of the delivery of the construction phase related to their works package/contract • The environmental performance of the construction phase related to their works package/contract • Regular communication with National Highways and the relevant statutory environmental bodies on all environmental matters as they arise • Implementation of the measures set out in the CoCP.
Contractor Construction Environmental Manager	General responsibilities for the Contractor Construction Environmental Manager include the following: • Ongoing liaison with the Contractors' site management team and general site workforce • Ensuring compliance with environmental legislation, consents, objectives, targets and other environmental commitments, including those arising from the ES • Maintenance of the environmental documentation and ensuring compliance with ISO 14001:2015 including updates • Management and coordination of environmental specialists and monitoring compliance of construction activities in line with the EMPs and the relevant environmental legislation/licences • Acting as the focal point for all environmental matters onsite • Liaising with Contractors' Contractor Construction Environmental Managers and the National Highways Environmental Manager • Liaising with the local authorities and statutory bodies • Liaising with the local authority archaeology advisers as well as statutory bodies such as Historic England • Liaising with National Highways Operations Division • Reviewing and developing the Environmental Management Plans throughout the duration of the construction phase • Liaising with the statutory environmental bodies/consultees • Accompanying statutory environmental bodies/consultees on site visits • Compiling applications for unexpected authorisations where required • Leading investigations into environmental incidents, ensuring immediate actions following environmental incidents are implemented to negate or limit impacts • Identification of key environmental concerns onsite as the construction phase develops

Role	Main environmental responsibility
	• Assisting with the delivery of environmental training to the workforce • Assisting in the review of method statements • Assessing and checking ongoing monitoring and survey results and updating relevant databases or management plans with any new information • Identifying cost savings and best practice activities.
Contractor Environmental Clerk of Works	General responsibilities for the Contractor Environmental Clerk of Works include the following: • Providing daily updates to the Contractor Construction Environmental Manager on site progress, compliance, issues, problems and successes • Ongoing liaison with the Contractors' site management team and general site workforce • Supporting the Project team in delivering the environmental components of the works during the construction phase • Delivering environmental training to the workforce • Recording the progress of the environmental works • Monitoring and supervising construction activities in relation to environmental aspects • Walkover of activities on the site and ongoing monitoring of the works area to ensure compliance with key environmental legislation and EMPs • Assisting in the review of method statements • Identification of key environmental concerns onsite as the construction phase develops • Instruction and confirmation of key requirements of each section to site personnel as the job progresses • Monitoring and updating the Contractor Construction Environmental Manager on the progress of pre-construction surveys • Assisting in monthly formal audits with the Contractor Construction Environmental Manager • Assessing and checking survey results and updating databases and EMPs with new information • Identification of cost savings and best practice activities • Immediate reporting of incidents to the HSSW team • Supporting the Contractor Construction Environmental Manager in liaising with the statutory environmental bodies/consultees • Accompanying statutory environmental bodies/consultees on site visits.
Environmental specialists	The Contractor Construction Environmental Manager and Clerk of Works will require ongoing support from several specialists, including but not limited to archaeologists, landscape designers, ecologists, geotechnical engineers and hydrogeologists. Specialists would be responsible for undertaking activities such as pre-construction surveys, watching briefs and advising on specific issues as and when they arise throughout the construction phase, e.g. choice of materials and methodology.

Role	Main environmental responsibility
Contractor Consents Manager	General responsibilities for the Contractor Consents Manager include the following: • Preparing, implementing, maintaining and updating the Consents Management Plan and Consents Register(s) • Providing the main point of contact for all consents matters and cooperating with National Highways in all matters relating to consents Applications, notifications and compliance • Facilitating the provision of drawings and other design or Project information required for the preparation and submission of consent application(s) • Managing and monitoring the status of all consents requirements, such that the works or any part of the works for which consents are required are not commenced until consent is granted, notification given, and relevant conditions are complied with • Monitoring compliance with consents throughout the works to ensure the consents are complied with and discharged • Liaising with third parties, stakeholders and National Highways including arranging and attending liaison meetings or telephone calls as necessary as well as attending regular or standing meetings (or in both cases arranging for a deputy to attend, as agreed with National Highways from time to time) • Maintaining, managing and updating the Consents Register and minuting all meetings and calls • Notifying National Highways as soon as reasonably practical of a breach of consent(s) or a potential breach or dispute with a third party, or any situation where the Contractors consider that the third party is not facilitating the smooth progress of consents.

1.5 Engagement and Communications Plan

1.5.1 The Contractors' Engagement and Communications Plan (ECP) will be submitted to National Highways for review and will include the following:

a. The Contractors' processes and procedures that demonstrate how they will meet the requirements of scope of works and National Highways' Communications and Engagement Strategy (CES)

b. How the Contractors will distribute communications to stakeholders, local authorities, local residents and communities

c. How any communication-specific commitments in the DCO will be discharged

d. The roles, responsibilities and contact information for the Contractors' staff involved in delivering the ECP

e. A programme of initial communication activities with stakeholders and communities

f. Key messages, communication channels and target audiences

g. Reporting metrics to be used to monitor and report on communications performance.

Community helpline, enquiries and complaints procedure

1.5.2 The National Highways Customer Contact Centre will be used to deal with enquiries and complaints from the public. This consists of a phone line, email and website contact facility. The information line is staffed by National Highways 24 hours a day, seven days a week. The relevant contact number, email and website addresses for the National Highways Customer Contact Centre will be displayed on signs around the construction site in locations easily accessible to the public. The National Highways Customer Contact Centre will provide a response to enquiries and complaints within 10 working days.

1.5.3 The procedure, which is already in place as a standard National Highways process, will:

a. log enquiries and complaints in a register

b. deal with enquiries and complaints appropriately, recognising that they may be due to the effect of construction works on people, their properties and other interests

c. direct the enquiry or complaint to the correct person for review and appropriate action if the person recording it cannot do so

d. take appropriate action and respond to enquiries or complaints

e. outline the process for National Highways to review enquiries and complaints regularly, to assess the adequacy, efficiency and effectiveness of the enquiries and complaints system and procedure, and the measures being taken to respond to any enquiries or complaints, and close out on resolution

f. identify clusters of enquiries and complaints by location and topic for further consideration by National Highways.

1.5.4 The extent of the action taken will depend on the nature of the enquiry or complaint. All complaints will be investigated to establish the cause and whether the works or issue complained about, complies with the Project's environmental requirements and other relevant requirements such as legislation, standards and codes of practice.

1.5.5 The Project will follow the National Highways complaints procedure, which includes a mechanism for referring complaints to the DfT's Independent Complaints Assessors, and the Parliamentary and Health Service Ombudsman (PHSO). This complaints process is used by National Highways on its other NSIPs.

Community Liaison Groups

1.5.6 National Highways will work closely with relevant stakeholders on the membership of the proposed CLGs, which will include representation from the local community. Attendance and membership will be published on the Project website.

1.5.7 The scope of the CLGs will be to ensure that local residents are appropriately informed and therefore prepared for forthcoming changes and construction activities.

1.5.8 Terms of Reference, such as frequency of meetings, for the CLGs will be developed with the participants and agreed in advance of construction commencing. It is anticipated that the Terms of Reference will then evolve as the Project progresses.

1.5.9 The local community leaders of the CLGs will be invited to the Traffic Management Forum.

1.6 Interface management of construction works

1.6.1 It is anticipated that the construction works will be split into three packages across the Project to enable appropriate management. Some of these packages will proceed concurrently with ongoing construction activities in either the same or different locations under the control of other Contractors.

1.6.2 Therefore, activities by other Contractors will require coordination to manage this interface efficiently and increase opportunities for reducing the overall impact on the surrounding communities and environment. Contractors will work with National Highways in managing these interfaces. The outline Traffic Management Plan for Construction (oTMPfC) includes the appointment of a National Highways Traffic Manager for the Project network, whose role would include oversight of the various programmes so as to minimise the impacts on stakeholders. Additionally, the Framework Construction Travel Plan includes the appointment of a National Highways Travel Plan Manager, whose role would include the management of travel planning for the movement of personnel to and from the construction worksites and compounds (including the Utility Logistics Hubs (ULH)) during the construction phase of all works related to the Project, with the aim of minimising their impact on the road network.

1.6.3 To facilitate this interface, National Highways will establish and chair a JOF, attended by senior representatives from the Contractors. The forum will meet regularly to discuss the interface between the Contractors' areas of influence. There will be two-way communication between the JOF, the Project's community liaison team, the Traffic Manager, Chair of the Workers Accommodation Working Group (WAWG) and the Travel Plan Manager to ensure relevant information is shared.

1.6.4 The JOF will be required to coordinate several activities as well as the potential interaction with other schemes and external stakeholders. Some of the key coordination responsibilities will include the following, as appropriate:

a. Coordination of delivery to ensure mitigation and management of environmental effects will be delivered and maintained. This shall include the coordination and implementation of ecological mitigation.

b. Emergency response – maintaining communication and holding meetings with emergency services and other key stakeholders and ensuring that emergency response plans employed by the Contractors are coordinated.

c. Coordination of construction phasing and logistics – working collaboratively to ensure that all Contractors' construction programmes are aligned.

d. Access to the sites – communication and collaboration in respect of logistics planning including arrangements for site access and abnormal loads with highway authorities and emergency services.

e. Construction workforce – monitoring the impact of the workforce on the community in its travel to and from work and its use of temporary accommodation.

f. Interface with other schemes – maintaining communication between the works on the Project and those of other relevant schemes in the area to help minimise the disruption on local communities.

g. Construction (Design & Management) Regulations 2015 (CDM) – coordination and communication between Principal Designers and Principal Contractors to ensure discussion activities take place between the Contractors to deliver a consistent approach across the Project, reduce risk, share lessons learnt and agree commonality through design. Legal obligation to ensure there is cooperation and communication between Principal Contractors and Principal Designers.

h. Ensuring construction phasing plans have been made available to the relevant local authorities for information, prior to works commencing in that phase.

i. Security – ensuring consistency and sharing security issues across all sites.

1.6.5 The terms of reference of the respective forums within the outline Traffic Management Plan for Construction and Framework Construction Travel Plan incorporate a dispute resolution process, with the JOF forming a key role within it. The JOF would be required to operate as an arbitration forum tasked with resolving issues raised by other forums including the Traffic Management Forum, Travel Plan Liaison Group, and WAWG.

1.6.6 As representatives, the Chairs of the respective forums (or appropriate delegate) must attend the JOF when matters of dispute are presented.

1.6.7 The JOF must carefully evaluate all relevant information and views presented during the dispute settlement process, giving appropriate weight to evidence and supporting documentation provided by the parties involved.

1.6.8 To avoid project or process delays, the JOF must make decisions within an appropriate time frame. Transparency is an essential principle of the dispute resolution process, which requires the JOF to accurately document their decisions and the underlying rationale.

1.7 Consents and permissions

1.7.1 A number of consents will be sought within the DCO, and in addition there will be further permission and consenting requirements. The Project's approach to consents and permissions is detailed within the Consents and Agreements Position Statement (Application Document 3.3).

1.8 Notice of work

1.8.1 Contractors will notify occupiers of nearby properties in advance of works taking place if there is a possibility of their being impacted, taking account of the type and duration of the activity. This notification will be undertaken in accordance with the Engagement and Communication Plan. Such notices would be in addition to notices required under the temporary possession articles of the DCO.

1.8.2 At least two weeks before planned works are carried out, the Contractors will distribute information sheets relating to the programmed activities. The information sheets will detail the expected disruptions and measures being taken to avoid, minimise or mitigate the adverse impacts of these works. There may be circumstances where, for example, emergency works need to be carried out and notification may not meet the timeframe.

1.9 Traffic management

1.9.1 The oTMPfC (Application Document 7.14) has been produced to provide outline concepts and principles that will be applied for the design and management of construction traffic management and transport logistics for the Project. This outline document provides a framework for discussion purposes with relevant authorities.

1.9.2 Section 6 of the oTMPfC lists the envisaged traffic management measures including certain preliminary works (namely, to facilitate construction access). Other than those listed (which are deemed to have higher traffic management requirements than other preliminary activities) there may be further traffic management requirements. These are envisaged to largely be in the form of specific short term measures (day(s)). These measures would be shared with the relevant local authority as required and be subject to NRSWA.

1.10 Construction site layout and good housekeeping

1.10.1 The Contractors will plan for construction sites to be organised, having due regard for nearby residential, commercial, environmental and other sensitive receptors, to reduce the likelihood of an environmental incident or nuisance occurring.

1.10.2 In addition to the measures in the REAC Table 2.1, the following principles will be implemented subject to local constraints:

a. General 'good housekeeping' arrangements will ensure the sites are safe, clean and tidy.

b. There will be 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 infestation occurs, the Contractors will take immediate action to eliminate the infestation and prevent further occurrence.

c. Adequate welfare facilities will be provided for all working personnel and visitors.

d. Smoking areas will be provided at site offices and worksites, equipped with containers for smoking wastes, and located away from site entrances and residential areas.

e. There will be management of staff congregating outside the sites prior to commencing or leaving work.

1.11 Working hours

1.11.1 The working hours at the worksites will depend on the construction activities. Table 1.4 classifies the standard working hours.

1.11.2 Activities outside normal working hours that could give rise to disturbance will be kept to a reasonably practicable minimum.

Table 1.4 Working hours

Classification	Description
Standard working hours: 07:00 to 19:00 weekdays 07:00 to 16:00 Saturday Plus, up to one hour before and/or after for mobilisation (start-up and close down) procedures.	These standard working hours will apply to all works authorised under the DCO unless they fall within the scope of the extended hours described in the rows directly below. Mobilisation period (I.e., the period up to one hour after and/or before the standard hours) is required in relation to daily start-up and close down procedures will include the following: • Deliveries and unloading • Workforce movement to place of work

Classification	Description
	• Site briefings • Inspections, refuelling, maintenance • General preparation and housekeeping works. During the mobilisation period, activities will not include operation of plant or machinery and will be limited to activities that do not cause a disturbance to local residents, schools, businesses or other sensitive receptors.
Extended working hours for repair and maintenance hours (where required) 08:00 to 17:00 Sunday	Repair and maintenance activities will comprise general mechanical maintenance to construction machinery and plant.
Extended working hours for emergency or short notice working 00:00 to 24:00 Monday to Sunday (as necessary)	These extended working hours will only apply in the case of work required in response to an emergency or which if not completed would be unsafe or harmful to the works, staff, public or local environment or would increase disruption to asset owners and customers of the utility network. These extended hours would also apply to completion of other emergency works which if not completed is likely to cause danger to persons or property or the environment. The Contractor must use all reasonable endeavours to carry out such activities in the standard working hours. The Contractor must ensure the period for such operations is kept as short as reasonably practicable. The local authority will be informed as soon as reasonably practicable of the reasons for, and (if not completed) the likely duration of, the works.
Extended working hours for security 00:00 to 24:00 Monday to Sunday	Security personnel and monitoring will be operational on a continuous 24-hours, seven days a week basis.
Extended working hours for monitoring 00:00 to 24:00 Monday to Sunday	Non-intrusive environmental and construction monitoring will be operational on a continuous 24-hours, seven days a week basis.
Other extended working hours as agreed with the local authority	In the case of work which falls outside of the standard working hours or extended working hours above, the Contractor will obtain the approval of the local authority for carrying out those works. The local authority will be provided the reasons for, and likely duration of, the works. This would include works which if not completed would be unsafe or harmful to the works, staff, public or local environment.

1.12 Worksite security

1.12.1 Contractors will be responsible for the appropriate securing of sites, compounds, utility logistics hubs and work areas of all land and property which is under their control including the appropriate use of fencing, hoarding and/or security monitoring to reasonably ensure that both criminal activity and trespass is prevented. This applies to all areas of the site, irrespective of whether it is an active workspace, compound or other area of the Site.

1.12.2 Using guidance from the Centre for Protection of National Infrastructure (CPNI) website (www.cpni.gov.uk), the Contractor is required to develop a Security Management Plan (SMP). The SMP should also be based on CPNI guidance which articulates the following principles:

a. Deter: stop or displace the threat,

b. Detect: verify a security event, initiate the response,

c. Delay: prevent the adversary from reaching the asset,

d. Mitigate: minimise the consequences of a security incident and

e. Respond: actions to prevent the adversary achieving their aims

1.12.3 The SMP will be reviewed and approved prior to implementation by National Highways to ensure it achieves both the desired security outcomes including:

a. all reasonable measures to reduce and negate any impact to the Project and/or programme due to security related incidents. Those measures are expected to be, as a minimum, the provision of appropriate fencing, hoarding, security personnel, CCTV and/or site boundary surveillance associated with the prevention of criminal and/or trespass related incursion.

b. all reasonable measures to negate and minimise the likelihood of protester actions which require the mobilisation of specialist support removal teams or resources that would be required to prevent, deter or remove instances of direct protester action as defined in the SEP.

1.12.4 Contractors will consult with the relevant emergency services on the production of the SMP.

1.12.5 The Contractor will be responsible for non-specialised removal of protestors and trespassers from the site, its compounds, and other work areas under their control. This includes dealing with incursions involving large numbers of protestors.

1.12.6 The following measures will be used where appropriate by the Contractors to prevent unauthorised access to sites:

a. Use of high perimeter fencing or hoarding for site security and public safety, as determined by site-specific security risk assessments.

b. Maintenance of Public Right of Ways (ProWs) assessed in the ES (Chapter 13, (Application Document 6.1)), where reasonably practical, or provision of an appropriate alternative where feasible.

c. Installation of secure gates and security provision outside working hours.

d. Security lighting around the site and site perimeters.

e. Adequate competent and accredited security guards and patrols.

f. Closed-circuit television (CCTV), infrared surveillance and alarm systems where required. The location and direction of view of security cameras or blocking software to prevent intrusion into residential properties will be considered.

g. Securing of site equipment and materials, such as fuel storage containers, outside working hours.

h. Immobilising of plant.

i. Securing of ladders and scaffolding to prevent unauthorised access to restricted areas and neighbouring properties.

Site fencing and hoarding

1.12.7 Site-specific security risk assessments carried out by the Contractors will determine the type of perimeter fencing or hoarding to be installed. This will be compliant with DCO Schedule 2, Part 1, Requirement 12, which references the Manual of Contracts Documents for Highways Works (MCHW). The form of fencing and hoarding will be fit for purpose, taking into consideration the location, construction activities and surrounding landscape. The Contractors will be responsible for obtaining hoarding licences for hoarding or fencing on the highway.

1.12.8 Locations for ecological and acoustic fencing requirements are identified on the Environmental Masterplan (Figure 2.4, Application Document 6.2).

1.12.9 The Contractors will be responsible for maintaining all their perimeter fencing and hoarding.

1.12.10 National Highways requires the Contractors to ensure that hoarding and other materials used are appropriate to the location and activities within the compound/worksite affecting noise levels at the boundary.

1.12.11 Fencing may be used in areas of low security risk to reduce visual impact on the environment and aid security patrol management of the area. The Contractors may use Heras™-type fencing, which will be double clipped as an interim measure to secure a site or adapted site boundary prior to installing permanent hoarding, or likewise when demobilising from an area.

1.12.12 Hoarding will be erected to the boundary of higher-risk activity sites or where visual screening is required. Hoarding will typically be 2.4m high but could be higher in the highest security risk areas.

1.12.13 The following measures will be applied when installing and maintaining the site perimeter fencing or hoarding, as appropriate:

a. Use of appropriate fencing or hoarding, which ensures the site is identifiable as a National Highways site, taking into consideration the outcomes of security risk assessment, construction activity and existing landscape.

b. Where possible, sustainable materials may be used for fencing, such equipment and solid wooden hoardings are to be attached to all highway-facing boundaries, including footways, bridleways and byways.

c. Hoardings may be topped with anti-climb measures, based on the risk assessment.

d. Hoardings to be of a type or design and managed so postering and graffiti is minimised.

e. Provision of information boards with key contact details such as National Highways' Customer Contact Centre number, enquiries and complaints procedure, out-of-hours contact details and information on the works.

f. Displaying notices on site boundaries to warn of hazards onsite, such as deep excavations, construction access and movements.

g. Sensitivity will be exercised in respect of visual intrusion impacts.

h. Hazardous zones for users will not be created.

1.13 Site lighting

1.13.1 Site lighting and signage will be provided by the Contractors to ensure the safety and security of the construction sites. It will be at the appropriate luminance required to provide safe working conditions. Where needed and appropriate, lighting to site boundaries will be provided, and illumination will be sufficient to provide a safe route for the passing public. Precautions will be taken to avoid shadows cast by the site hoarding on surrounding footpaths, roads and amenity areas. Where appropriate, lighting will be activated by motion sensors to prevent unnecessary usage.

1.13.2 Site lighting will comply with the Institute of Lighting Professionals' Guidance Notes for the Reduction of Obtrusive Light GN01/20 (2020) and the provisions of BS EN 12464-2:2014 Light and lighting – Lighting of workplaces Part 2: Outdoor workplaces (British Standards Institution, 2014), where applicable.

1.13.3 Lighting will also be designed, positioned and directed to prevent or minimise light disturbance to nearby residents, ecological receptors, as well as motorists and rail and marine operations. This provision will apply particularly to sites where night working or security lighting will be required.

1.13.4 Low-energy fittings shall be used unless otherwise accepted by National Highways.

Site lighting near the River Thames

1.13.5 A River Safety Lighting Management Plan (RSLMP) to be prepared by the Contractors for any lighting required during the construction phase for the northern tunnel entrance compound, the laying out of Tilbury Fields, the construction of the drainage outfall in the River Thames, and the construction of the water inlet with self-regulating valve at Coalhouse Point, insofar as that lighting is reasonably expected to adversely affect any vessels using the river Thames. The RSLMP must further include measures to minimise glare and sky glow by using, locating, aiming, and shielding luminaires demonstrating that any light spillage, insofar as that lighting is reasonably expected to adversely affect any vessels using the river Thames, will be minimised so far as is reasonably practicable.

1.13.6 As part of that RSLMP, the contractors will consider lighting of any such development alongside the bank of the River Thames in accordance with “A Guide to Good Practice on Port Marine Operations, Prepared in conjunction with the Port Marine Safety Code 2018 (Department for Transport, 2018)” so as to ensure that the night vision of mariners is not impeded, or that existing navigation lights, either ashore, on the foreshore or onboard vessels, are not masked or made less obvious. As is the case for the Project, the RSLMP must also confirm that lighting will comply with the Institute of Lighting Professionals Guidance Notes for the Reduction of Obtrusive Light GN01/20 (2020) and the provisions of BS EN 12464 2014 Light and lighting of workplaces – Part 2-outdoor workplaces, where applicable.

1.13.7 The RSLMP must be the subject of engagement with Port of London Authority, and Thurrock Council. The Contractor must have due regard to representations made by the Port of London Authority and Thurrock Council, including any substituted or new guidance or standards relating to river safety lighting.

1.14 Emergency preparedness

1.14.1 The Contractors will hold certifications for safety (ISO 45001:2018), environment (ISO 14001:2015), and quality (ISO 9001:2015), and these will include requirements to have procedures for responding to emergency events. The Contractors will ensure that emergency preparedness procedures for each worksite are developed prior to works commencing. The procedures will be standardised as far as practical across the various worksites and will be appropriate to the anticipated hazards and specific layouts including the road network. The emergency procedures will be produced in consultation with the emergency services, Kent Resilience Forum and Essex Resilience Forum, and other relevant stakeholders including relevant local highway authorities and the Integrated Care Boards. The emergency procedures will also be discussed quarterly and, if necessary, amendments agreed at Community Liaison Groups. For works on the existing railway and highway networks, as well as the tunnelling works, they will be produced in accordance with established industry procedures. Further guidance is contained within Site Clearance Capability – A

guide for effective local planning, response and recovery (Department for Communities and Local Government, 2016).

1.14.2 Emergency preparedness procedures will be reviewed quarterly or to reflect changes in procedure, whichever is sooner.

1.14.3 The Contractors will ensure that the requirements of the relevant fire authority will be followed for the provision of site access points. The accesses may vary over time and will be updated as required and should also be suitable for emergency services. This is particularly important in relation to the tunnel construction. Emergency radio channels are to be reserved and compatible with those used by Fire and Rescue Services.

1.14.4 Emergency preparedness procedures will include the following:

a. Notification procedures for emergency services in the event of an incident

b. Procedures in the event of the discovery of unexploded ordnance (UXO), including:

   i. appropriate evacuation procedures and sites to accommodate a reasonable worst-case scenario

   ii. requirements to notify relevant local authorities, the Port of Tilbury London Limited and the Port of London Authority in the event of an emergency or risk arising from UXO

   iii. other measures to be taken to reduce the risk to life, damage to property and use of the River Thames.

c. Flood emergency response procedures

d. Requirement to run emergency rescue drill from an underground location(s) including collaborative planning and participation by relevant rescue authorities

e. Emergency spill-response procedures to be developed with engagement with the Environment Agency and to take into account any specific requirements on incident response planning related to the worksite

f. The emergency phone number and method of notifying the relevant local authority, statutory bodies, contact numbers for National Highways and the Contractors' staff

g. Management and communication of diversions/alternative routes during unplanned events/emergencies.

Emergency access

1.14.5 The Contractors will ensure that the reasonable requirements of the emergency services will be followed for the provision of site access points. The accesses may vary over time and will be updated as required and communicated to the services. Specific helicopter landing provision will be at the North Portal close to hyperbaric facilities. The Contractors will ensure the site in-tunnel

communications link directly to the emergency services. Internal haul roads which might be used by the emergency services will be maintained fit for that purpose.

Fire prevention and control

1.14.6 The Contractors will ensure that all construction sites and associated accommodation and welfare facilities will have in place appropriate plans and management controls with the aim of preventing fire.

1.15 Environmental incident control

1.15.1 Contractors will develop and implement appropriate measures to control the risk of environmental incidents, such as pollution events, and contravention of ecological and archaeological legislation due to construction activities, materials and extreme weather events.

1.15.2 It will recognise the risk of pollution from construction activities and present proactive management practices to ensure that any foreseeable pollution incidents, such as diesel spillage, are prevented if possible or minimised, controlled, reported to relevant parties and remediated.

1.15.3 Emergency procedures will be produced with engagement with the emergency services, the Environment Agency and highway authorities, and in accordance with established industry procedures, including drills, exercises and scenarios.

1.15.4 In the event of an incident arising, National Highways will work with the Contractors, relevant statutory body and landowners to ensure that appropriate corrective and preventative action is taken.

1.15.5 If any emergency works are undertaken within, or with the potential to impact, a Site of Special Scientific Interest, the works will be undertaken in a way that minimises the amount of harm, and Natural England will be notified as soon as practicable; further guidance is available on the Natural England website, ‘Sites of special scientific interest: public body responsibilities’ https://www.gov.uk/guidance/sites-of-special-scientific-interest-public-body-responsibilities.

1.15.6 The Contractors will put in place arrangements to investigate and provide reports on any potential or actual significant environmental incidents.

1.15.7 The following measures shall be adopted by Contractors to manage the risk of pollution incidents:

a. Emergency response drills will be run to simulate major environmental incidents.

b. Maps will be provided showing the locations, together with address and contact details, of local emergency services facilities such as police stations, fire authorities, medical facilities and other relevant authorities.

c. Site drainage plans and flood risk plans (as appropriate) will be available onsite and kept up to date.

d. Statement of appropriate information will be held onsite and provided immediately in the event of any incident such as a spillage or release of potentially hazardous materials.

e. Pollution shut-off valves will be used in compounds with positive drainage systems.

f. The appropriate number, location and type of pollution response kits will be defined for each worksite and located on worksite plans/maps.

g. Personnel will be competent in the use of pollution response kit and emergency response techniques. The level and evidence of competency will be documented.

h. Personnel will have an awareness and understanding of the relevant plans relating to pollution response and emergency response techniques.

i. Clear protocols and communication channels will be implemented so that any spillages are dealt with as soon as they are identified. A process will be included for escalating an incident to emergency services and from site staff response to an Incident Response Team (or equivalent).

j. Contact details will be provided for the relevant authorities, such as the Environment Agency, and the persons responsible on the construction site and within the Contractors' organisation, for pollution incident response.

k. Contact details will be provided for a competent spill-response company which can be contacted at short notice for an immediate response, 24 hours, seven days a week.

l. Notification of pollution incidents will be given to relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewerage providers, where required.

m. Appropriate emergency services, authorities and personnel on the construction site notified of pollution incidents.

Extreme weather events

1.15.8 The Contractors will pay due consideration to the impacts of potential extreme weather events and related conditions during construction. The Contractors will use a short to medium-range weather forecasting service from an approved meteorological data and weather forecast provider as well as flooding information from the Environment Agency and tidal information from the Port of London Authority to inform short to medium-term programme management, environmental controls and impact mitigation measures.

1.15.9 The Contractors will ensure that the measures within this document are implemented and will, as appropriate, consider additional measures to ensure the resilience of the proposed mitigation of impacts during extreme weather events is robust. As appropriate, method statements will also consider extreme weather events where risks have been identified.

Induction, training and briefing procedures for staff

1.15.10 Each member of staff undertaking a task in the programme will receive a specific task briefing before starting work on that task, which will include any relevant environmental risks and mitigation.

1.15.11 Competence of individuals for every task will be assessed by a member of the Project team with relevant experience.

1.15.12 The commitments made in this Annex in conjunction with the Preliminary Works REAC (Table 2.1 of this document) constitute the Preliminary Works EMP under Requirement 4 of the draft DCO (Application Document 3.1).

2 Preliminary Works Register of Environmental Actions and Commitments

2.1 Introduction

2.1.1 The commitments listed in the Preliminary Works REAC apply to the preliminary works and locations identified in Table 1.1.

2.2 Guide to the Preliminary Works REAC table

2.2.1 The REAC is presented in a table format with headings set out as follows:

a. Topic of Environmental Statement (ES) chapter from which the commitment originates. Please note that the Environmental Statement [Document References 6.1, 6.2 and 6.3] has been updated, and should be read with reference to the latest version of the Environmental Statement Addendum [Document Reference 9.8].

b. Unique identifier to facilitate cross-reference with the ES and other DCO documentation

c. Name for the commitment

d. Origin of the commitment, e.g. ES assessment chapter

e. Details of the commitment, including a clear and specific description of the action, the objective of any essential mitigation and any relevant commitments relating to monitoring

f. Achievement criteria that define successful implementation of the action

g. Identification of the party responsible for the action

h. How the commitment is secured in the DCO e.g. through a Requirement.

2.2.2 Table 2.1 is the Preliminary Works REAC table as described in Chapter 1.

2.2.3 Where the word “would” is used in the REAC, this is a positive obligation and should not be construed as implying any optionality.

2.3 REAC table

Table 2.1 Preliminary Works REAC table

Topic	REAC ref. no.	Name	Origin	Commitment	Achievement criteria	Party responsible	Securing mechanism in DCO
Cultural Heritage	CH001	Physical damage to heritage assets	ES 6.5.14	The draft Archaeological Mitigation Strategy and Outline Written Scheme of Investigation (AMS-OWSI) presented in ES Appendix 6.9 (Application Document 6.3) includes details of specifically identified measures to mitigate the impact to known heritage assets and a range of generic mitigation measures from which appropriate mitigation would be applied for currently unknown heritage assets that could be physically damaged by construction. The AMS-OWSI will be updated as further information from archaeological evaluation becomes available. The AMS-OWSI sets out the scope of Written Schemes of Investigation (WSIs) to be prepared. The WSIs would define the details of specific mitigation measures for protection or recording of heritage assets that would be implemented before or during construction at locations identified within the AMS-OWSI.	Implementation of mitigation measures set out in the AMS-OWSI approved by the SoS, including measures specified in the WSIs and in accordance with Requirement 9 of the DCO	Contractor	Requirement 4(1)
Geology and Soils	GS002	Pre-construction surveys	10.5.6 b	Prior to any construction compound area being prepared, a pre-condition survey would be undertaken to determine the current land quality across the compound area. A repeat survey would be done after the compounds have been removed to confirm that the area has been restored in line with article 35 of the draft DCO.	Completion of surveys	Contractor	Requirement 4(1)
Geology and Soils	GS015	Soil management	10.5.6 k	The Contractors would have in place an agricultural liaison officer or named deputy who shall be contactable by telephone 24 hours a day, seven days a week during construction activities on agricultural land.	Implementation of commitment actions	Contractor	Requirement 4(1)
Geology and Soils	GS030	Temporary road location	10.5.10 k	Construction work (both temporary and permanent) is proposed across the former Esso petrol station (HLU0214) on the eastbound side of the LTC/A2/M2 junction. The former petrol station is identified in ES Appendix 10.6, Preliminary Risk Assessment Report (Application Document 6.3) as a low-risk site as remediation has taken place and been signed-off by the regulators. Prior to construction of both the temporary and permanent works, the Environment Agency would be consulted on the works to ensure that potential disturbance of residual contamination present in this area is avoided so as not to disturb any remediation works in this area.	National Highways to agree temporary road alignment in consultation with the Environment Agency	Contractor	Requirement 4(1)
Landscape	LV028	Protection of retained woodland, trees and hedgerows	ES 7.5.16	An Arboricultural Method Statement and Tree Protection Plan would be prepared in accordance with BS 5837:2012, identifying measures for the protection of retained woodland, trees and hedges prior to the commencement of site clearance works. All works to woodland, trees and hedges and vegetation removal would be implemented under the supervision of the Environmental Clerk of Works with a view to reducing the removal of trees and vegetation as far as reasonably practicable.	Implementation of measures for the protection of retained vegetation and avoidance of harm to retained vegetation	Contractor	Requirement 4(1)
Landscape	LV030	Veteran and ancient tree fencing		In accordance with standing advice prepared by Natural England and the Forestry Commission (2022), the following measures would be developed to protect retained veteran trees and trees in ancient woodland identified on the Environmental Masterplan (Figure 2.4, Application Document 6.2): • Screening barriers would be provided to protect retained ancient trees, ancient woodland and veteran trees from dust and pollution from nearby works. Locations of barriers will be defined in accordance with the requirements set out in REAC item LV028. • A buffer zone would be defined to avoid impact on root zones. These would be as follows: – For ancient or veteran trees, the buffer would be a minimum of 15 times the diameter of the tree trunk or 5m beyond the canopy, where practicable, whichever is the greater – For ancient woodland, a buffer of at least 15m from the boundary of the woodland would be maintained between the proposed construction activity and the asset where practicable. These measures would be followed by the Contractors unless specifically agreed by National Highways, following the advice of a qualified arboriculturist, and following	Clearly defined approach to deliver successful establishment of vegetation as set out in the Environmental Masterplan	Contractor	Requirement 4(1)

Topic	REAC ref. no.	Name	Origin	Commitment	Achievement criteria	Party responsible	Securing mechanism in DCO
				assessment which demonstrates that the implementation of other mitigation measures would permit a smaller buffer whilst still maintaining the viability of the tree or woodland. The above measures shall not apply to those trees shown to be removed on Figure 7.24 of the Arboricultural Impact Assessment (ES Appendix 7.12, Application Document 6.3) or if the Secretary of State certifies that not implementing such measures would not result in new or materially different environmental effects to those reported in the ES.			
Landscape	LV031	Relocating lost veteran trees and trees within ancient woodland	ES 7.5.16	Where removal of veteran trees is required, the intact hulks of felled veteran trees would be relocated in close proximity to a nearby ancient or veteran tree or placed within a parkland area. Where tree removal is required within ancient woodland, timber will be retained and placed in log piles and left to decompose naturally. These measures accord with standing advice prepared by Natural England and the Forestry Commission (2022). These measures would provide opportunity for invertebrates and fungi resident within the tree to relocate and will promote habitat formation. The location and method for the placement of the tree hulks and timber will be identified following liaison with the relevant local planning authorities and be informed by arboricultural and ecological assessment.	Relocation of intact tree hulks in accordance with Natural England and Forestry Commission guidance	Contractor	Requirement 4(1)
Noise and Vibration	NV002	Noise and Vibration Plan	ES 12.5.12 b i	A Noise and Vibration Management Plan (NVMP) or equivalent would be prepared for each part of the construction works subject to Section 61 control, for consideration by the relevant planning authorities.	Preparation of NVMP or equivalent for consultation with the relevant local planning authorities	Contractor	Requirement 4(1)
Noise and Vibration	NV004	Section 61 consents	ES 12.5.12 d i	Where appropriate, consents would be obtained from the relevant local authorities under Section 61 of the Control of Pollution Act 1974 (which may include noise and vibration limits where relevant) for the proposed construction works.	Compliance with the terms of Section 61 consents	Contractor	Requirement 4(1)
Noise and Vibration	NV005	Baseline noise levels	ES 12.5.12 e i	Pre-construction baseline noise levels would be submitted to the relevant planning authorities to establish a pre-construction baseline for monitoring compliance with construction noise limits.	Receipt by the Environmental Health Officer (EHO) for relevant planning authorities on baseline levels to inform Section 61 consents	Contractor	Requirement 4(1)
Noise and Vibration	NV007	Best Practicable Means	ES 12.5.12 g	Best Practicable Means as defined under Section 72 of the Control of Pollution Act 1974 would be employed during the construction phase to reduce noise nuisance. These would include measures such as: • installing and maintaining hoarding around the construction areas likely to generate noise • keeping site access routes in good condition with condition assessments onsite to inspect for defects such as potholes • turning off plant machinery when not in use • maintaining all vehicles and mobile plant such that loose body fittings or exhausts do not rattle or vibrate • using silenced equipment where available, in particular silenced power generators and pumps • no music or radios would be played for entertainment purposes outdoors onsite • planning site layout to ensure that reversing is kept to a reasonably practicable minimum • reversing manoeuvres would be supervised by a trained banksman/vehicle marshal to ensure that they are conducted safely and concluded quickly.	Implementation of commitment actions	Contractor	Requirement 4(1)

Topic	REAC ref. no.	Name	Origin	Commitment	Achievement criteria	Party responsible	Securing mechanism in DCO
Terrestrial Biodiversity	TB002	Maintaining integrity of important habitats adjacent to works	ES 8.5.21	Temporary fencing would be used to demarcate important and protected habitats, preventing construction access to protect them from accidental damage. Important and protected habitats include ecological translocation sites and retained woodland, trees and hedges shown on the Environmental Masterplan (Figure 2.4, Application Document 6.2) except where the SoS has agreed to vary the demarcation of such retained woodland, trees and hedges having consideration for REAC commitment TB003. Fencing would be installed under the supervision of the Environmental Clerk of Works and in accordance with good practice guidance. It shall include tree protection measures specified in the Arboricultural Method Statement.	Successful retention of important habitats	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB003	Maintaining integrity of important habitats adjacent to works	ES 8.5.22	Work compounds, access tracks, haulage routes, material storage areas, generators and other construction activities would not be located within areas of retained woodland, trees and hedges shown on the Environmental Masterplan (Figure 2.4, Application Document 6.2) unless the SoS agrees that any variation does not result in new or materially different significant environmental effects to those reported in the ES.	Implementation of commitment actions	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB004	Breeding birds	ES 8.5.24	Disturbance, and incidental mortality, of breeding birds would be avoided by timing vegetation clearance and structure removal outside of the bird nesting season (March to August inclusive) wherever possible. Where this is not possible, appropriate measures would be taken to avoid harming birds or their nests (such as temporary fencing around nesting sites where they are immediately adjacent to construction works), under supervision by a suitably experienced Environmental Clerk of Works.	Compliance with the Wildlife and Countryside Act 1981 (as amended)	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB005	Invasive species	ES 8.5.25	Invasive species would be identified prior to construction and would be removed or treated to prevent their spread, following the Construction Industry Research and Information Association's guidance in Wade et al. (Invasive Species Management for Infrastructure Managers and the Construction Industry, 2008)	Implementation of commitment actions	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB006	Environmental Clerk of Works	ES 8.6	Employment of suitably qualified and experienced Environmental Clerk of Works throughout the construction phase of the Project to supervise implementation of environmental mitigation and protection commitments.	Acceptance by National Highways of the Environmental Clerks of Works nominated by the Contractor	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB008	Badger setts	ES 8.5.40	Badger setts identified within the Order Limits for closure would be closed by permanently excluding badgers and then removing the empty setts. The setts would be closed under licence from Natural England outside of the badger breeding season (breeding season takes place between 1 December and 30 June). For any main setts that will be closed with no suitable naturally occurring alternative sett, an artificial sett will be constructed in a suitable location.	Compliance with the requirements of Natural England licences	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB009	Bat roosts	ES 8.5.42	Bat roosts that would be lost or heavily disturbed due to construction or operational activities would be removed under licence and alternative roosting structures would be provided in areas indicated on the Environmental Masterplan (Figure 2.4, Application Document 6.2).	Compliance with the requirements of Natural England licences	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB010	Barn owl breeding sites (direct loss)	ES 8.5.44	Barn owl breeding sites that would be lost due to construction would be removed while not in active use. Alternative breeding sites (nest boxes) would be provided >1.5km away from the Project boundary and other major roads, within an appropriate setting and in compliance with Barn Owl Trust advice (2015). A replacement ratio of two boxes for one lost site would be provided. The number of boxes required would be informed by pre-construction surveys. A minimum of 12 artificial nest boxes would be installed.	Provision of barn owl breeding sites	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB011	Barn owl breeding sites (disturbance)	ES 8.5.45	Barn owl breeding sites that would not require closure, but that may be subject to disturbance due to proximity to works as identified on ES Figure 8.18, Ornithology Main Route Transects, (Application Document 6.2), would be screened by acoustic fencing to prevent disturbance during the breeding season under the supervision of the Environmental Clerk of Works.	Implementation of commitment actions in accordance with Natural England guidance	Contractor	Requirement 4(1)

Topic	REAC ref. no.	Name	Origin	Commitment	Achievement criteria	Party responsible	Securing mechanism in DCO
Terrestrial Biodiversity	TB012	Breeding birds (temporary loss of nesting habitat)	ES 8.5.46	Bird nest boxes would be provided within areas of retained woodland, trees and hedges shown on the Environmental Masterplan (Figure 2.4, Application Document 6.2) to supplement the habitat creation by offsetting the loss of nesting opportunities whilst newly created habitats establish. A ratio of 10 assorted small nest boxes and one medium open fronted nest box per hectare of lost woodland/scrub would be adopted in accordance with British Trust for Ornithology (BTO) Field Guide No. 23, where it is reasonably practical to erect this number of nest boxes. For hedgerows, a ratio of 10 assorted small nest boxes per kilometre of hedgerow would be adopted, where it is reasonably practicable to erect these numbers within retained vegetation. The measures would be implemented under the supervision of the Environmental Clerk of Works.	Implementation of commitment actions in accordance with BTO guidance	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB013	Displacement of protected/notable species	ES 8.5.26	Where habitats are known or assumed to support protected or notable species, as identified on ES Figures 8.1 to 8.31 (Application Document 6.2) or referred to in Sections 8.1 to 8.14 of ES Chapter 8, (Application Document 6.1), clearance would take place in a phased, directional manner towards areas of contiguous retained habitat. This would encourage mobile species to actively move from the construction site into the wider landscape. These measures would be implemented under the supervision of the Environmental Clerk of Works.	Compliance with the requirements of Natural England licences	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB014	Natural England licences	ES 8.5.48	All required Natural England licences and associated working practices and method statements would be in place prior to any related construction works starting in areas where licensable species occur.	Compliance with requirements of Natural England licences	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB015	Monitoring of pre-existing protected species and important habitats	ES 8.5.51	Monitoring of protected species during and post-construction would be in line with the requirements of the protected species mitigation licence.	Compliance with requirements of Natural England licences	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB016	Translocation of protected species	ES 8.5.47	Where the approach to habitat clearance referred to in REAC ref. TB013 is not considered appropriate by the Environmental Clerk of Works to avoid potential mortality of protected species, a programme of trapping and translocation would occur to move animals away from the construction site and to established receptor sites with sufficient carrying capacity prior to habitat clearance occurring. Species or groups which may be subject to trapping and translocation are GCN (and all other native amphibian species found during this process), water voles and dormice.	Compliance with requirements of Natural England licences	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB017	Translocation of notable species	ES 8.5.49	Where protected species licences are not required, the approach to habitat clearance and the potential need to trap and translocate non-licensable species (reptiles and/or native amphibians species excluding GCN) to established receptor sites with sufficient carrying capacity would be determined and undertaken by the Environmental Clerk of Works.	Implementation of commitment actions	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB018	Translocation of habitat features of value to protected/ notable species	ES 8.5.50	Habitat features of value to protected species that can themselves be moved to mitigation areas/receptor sites (for example dead-wood features for terrestrial invertebrates, and refugia for amphibians and reptiles) would be translocated where appropriate, to be determined by the Environmental Clerk of Works.	Implementation of commitment actions	Contractor	Requirement 4(1)
Terrestrial Biodiversity	TB020	Translocation of important lichens	ES 8.5.52	Where important lichen species, *Usnea* cf. *esparantiana*, present within woodland south-west of the M25 junction 29, and *Physconia distorta* and *Fellhaneropsis vezdae*, present within The Wilderness woodland, are found on trees being felled or pruned to accommodate works, any timber hosting these species would be retained and moved immediately after felling into retained areas of the same woodland as shown in the Environmental Masterplan (Figure 2.4, Application Document 6.2). Timber would be placed on the woodland floor immediately adjacent to a tree of the same host species. All works would be supervised by the Environmental Clerk of Works.	Presence of translocated lichen 24 months after translocation	Contractor	Requirement 4(1)

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