RWE

Tween Bridge Solar Farm

7.1 Outline Construction Environmental Management Plan

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

APFP Regulation 5(2)(q)

Document Reference: 7.1

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Revision 2

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1 Introduction

1.1. Introduction

1.1.1. RWE Renewables UK Solar and Storage Ltd (hereafter referred to as the 'Applicant') has prepared this Outline Construction Environmental Management Plan ('Outline CEMP') in relation to an application for Development Consent Order ('DCO') for Tween Bridge Solar Farm ('the Scheme').

1.1.2. The main element of the Scheme is the construction, operation, maintenance and decommissioning of a ground mounted solar farm with an intended design capacity of over 50MW, and battery energy storage system (BESS). Once fully operational, the Scheme will export approximately 800MW of electricity to the National Electricity Transmission System (NETS). Flexibility in panel layout design would be required to accommodate expected future technology developments as technology continues to evolve and become more efficient.

1.1.3. It is anticipated that the Scheme will include the following key components: -

- Ground-mounted solar PV generating station and associated mounting structures,
- On-site supporting equipment including inverters, transformers and switchgear,
- A BESS including batteries and associated enclosures, monitoring systems, air conditioning, electrical cable and fire safety infrastructure. The BESS is indicatively split into four separate 100MW compounds. Each 100MW compound would be located next to and connected to one of the seven on-site 132kV Substations,
- Seven on-site 132kV Substation compounds, including transformers, switchgear, circuit breakers, control equipment buildings, control functions, material storage, parking, as well as wider monitoring and maintenance equipment,
- Low voltage and 33kV interconnecting cabling to connect and transmit electricity from the solar PV modules and BESS to one of the seven on-site 132kV Substations,
- RWE on-site 400kV Substation,

- Underground 132kV interconnecting cabling to connect the seven on-site 132kV Substations to RWE on-site 400kV Substation,
- Underground 400kV interconnecting cabling from the RWE on site 400kV substation to edge of Order Limits Associated infrastructure including access tracks, parking, CCTV, gates and fencing, lighting, drainage infrastructure, storage containers, earthworks, culverts, surface water management, maintenance and welfare facilities, security cabins and any other works identified as necessary to enable the development,
- Horizontal Directional Drilling for selected cable works where trenching or culvert is not possible or appropriate, including the canal, railway and the M180,
- Highways works to facilitate access for construction vehicles, comprising passing places where necessary to ensure that heavy goods vehicles (HGVs) can be safely accommodated amongst existing traffic, new or improved site accesses and visibility splays,
- Environmental mitigation and enhancement measures, including landscaping, habitat management and biodiversity enhancement,
- Permissive pathways and bird viewing gallery, and
- Temporary development during the construction phase of the Scheme including construction compounds, parking, temporary diversions of Public Rights of Way, and temporary access roadways to facilitate access to all parts of the Order Limits.

1.2. Purpose of this Document

1.2.1. The aim of this Outline CEMP is to provide a clear and consistent approach to the control of construction activities undertaken within the Order Limits.

1.2.2. In accordance with the requirements in **Schedule 2** of the **Draft DCO [Document Ref 3.1 Revision 3]**, no phase of the Scheme is to be commenced until a Final Construction Environmental Management Plan, covering that phase (or phases of development) has been submitted to and approved by the local planning authorities (City of Doncaster Council and North Lincolnshire Council in consultation with the Environment Agency, where relevant). The Final Construction Environmental Management Plan should be in substantial accordance with this

Outline CEMP. This document sits alongside the **Outline Ecological Construction Management Plan [Document Reference 7.5 Revision 2]**.

1.2.3. This document does not address measures for the operation (including maintenance) or decommissioning phases, which are provided in the separate **Outline Operational Environmental Management Plan [APP-177]** and the **Outline Decommissioning Environmental Management Plan [Document Reference 7.3 Revision 2]** respectively.

1.2.4. Likely significant effects have been identified through the Environmental Impact Assessment (EIA) process and are reported in the **ES [APP-037 to APP-175 and Document Reference 6.4.6.4 Revision 2]**. A range of best practice mitigation and construction methodology measures were accounted for in the assessments, and these will be implemented during the construction of the Scheme. This Outline CEMP sets out how these measures will be implemented. It also sets out the monitoring activities designed to ensure that mitigation measures are carried out, and that they are effective.

1.2.5. This Outline CEMP has been prepared with the objective of compliance with the relevant legislation and mitigation measures identified through the EIA process.

1.2.6. The Construction Environmental Management Plan(s) will be prepared following the appointment of a Principal Contractor. The Principal Contractor will be responsible for working in accordance with the environmental controls documented in this Outline CEMP.

1.2.7. The overall responsibility for implementation of the Construction Environmental Management Plan(s) will lie with the appointed Principal Contractor as a contractual responsibility to the Applicant who is ultimately responsible for compliance with the DCO.

1.2.8. Table 1-1 outlines the other outline environmental management plans that have been secured in **Schedule 2** of the **Draft DCO [Document Reference 3.1 Revision 3]** and have been prepared as part of the DCO application. Detailed versions of these plans will be prepared prior to construction of the Scheme.

Table 1-1: Other management Plans

	Purpose	Phase	

Management Plan		Construction	Operation	Decommissioning	Document reference
Outline Operational Environment Management Plan	Sets out how potential environmental effects would be minimised and mitigated during the operation (including maintenance) phase.		**x**		**7.2**
Outline Decommissioning Management Plan	Sets out how environmental effects would be minimised during decommissioning.			**x**	**7.3**
Outline Battery Safety Management Plan	Sets out the key measures to minimise the chances of a battery fire event and fire spread in the event of a fire. Sets out the proposed operational response to a fire event.		**x**		**7.4**
Outline Ecological Construction Management Plan	Sets out how environmental effects on ecological receptors would be avoided and minimised during construction.	x			**7.5**
Outline Landscape and Ecological Management Plan (Outline LEMP)	Sets out how landscape and ecological effects would be minimised and mitigated for during the operation (including maintenance) phase.		**x**		**7.6**
Outline Construction Traffic Management Plan	Sets out the proposed traffic management for construction vehicles	x		**x**	**7.7**
Outline Soil Management Plan (Outline SMP)	Sets out the overall approach to managing soil resources affected by the Scheme.	x	**x**	**x**	**7.8**

Outline Archaeological Management Strategy (AMS)	Sets out the management of archaeological remains, both known and currently unknown, during construction.	x			**6.3.8.6**

2 Scheme Description

2.1. Construction Programme

2.1.1. The Environmental Statement assumes that construction of the Scheme is built out over up to, a 54 month-period (2028- 2032) in either a single phased approach (development of Land Parcels completed one after another with the potential for breaks between development of Land Parcels) or through multiple phases (development of Land Parcels concurrently). For the multiple phase construction option, no more than two land parcels (within land parcels A-E) would be built out at the same time. ES Environmental Aspect Chapters determine in the methodology 'Assessment Approach' section which of the two options for the construction phasing approach would give rise to the 'worst-case scenario' for the purpose of their assessment. The current connection date for the Scheme, within the NESO Connection Agreement is 2029. As with all electricity generation projects, this date is under review by NESO as part of the ongoing connections reform process.

2.1.2. If the NESO Connection Agreement remains with the connection date of 2029, it would be possible to operate a phased start to operational generation. This phased approach would connect each Land Parcel to the RWE on-site 400kV substation when construction of that Land Parcel was completed. In this operational scenario there would be partial Scheme operation from 2029-2032 (3 years). From 2032 onwards the full Scheme would be generating at full operational capacity. The full Scheme would operate for 40 years until 2072. If the NESO Grid Connection date varies, which is not within the Applicants direct control, the timeframe where there could be partial operation of the Scheme could reduce or fail to materialise. In this situation the full operational Scheme would operate for 40 years from its new grid connection date. In either connection scenario there will be full operational generation for 40 years, which would be the worst-case scenario operational time period for the Scheme.

2.1.3. Following 40- years of a fully operational Scheme, it is proposed that the Scheme will be decommissioned. This decommissioning with take approximately 24 months and will be in a phased approach.

2.1.4. The final construction programme will depend on the detailed layout, design and potential environmental constraints on the timing of construction activities. An

indicative overview of the final construction programme will be set out in the Construction Environmental Management Plan(s) for information.

2.2. Construction Activities

2.2.1. The Scheme is described in **ES, Chapter 2 Scheme Description [Document Reference 6.1.2]** and **Schedule 1** of the **Draft DCO [Document Reference 3.1]**, where the "authorised development" is divided into work packages.

2.2.2. The types of construction activities that would be required to construct the Scheme comprise (not necessarily in order):

Preparatory works

- Establishment of and/or works to site access points
- Installation of any temporary/permanent culverts under watercourses/ditches
- Stripping of topsoil, trenching (if required), storage and capping of soil
- Construction of any access tracks and laydown areas
- Establishment of construction compounds
- Establishment of mobilisation areas, running tracks and temporary construction compounds for cable installation.
- Erection of security fencing around the Scheme's Perimeter, as well as access gates
- Delivery of plant and machinery, and
- Delivery of materials

Construction of Scheme Infrastructure

- Solar PV module installation
- Installation of solar PV module support structures
- Mounting of solar PV modules

- Installation of supporting infrastructure, including inverters, transformers, DC-DC converters and switchgear
- Installation of the BESS
- Installation of storage containers
- Installation of construction drainage with pumping (if required), and
- Site establishment and habitat creation

Cable Installation

- Site preparation
- Set up of temporary construction compounds
- Stripping of topsoil in sections
- Trenching and installation of cabling
- Cable joint installation
- Implementation of crossing methodologies for watercourses, railway, canal and motorway where required (e.g. HDD), and
- Reinstatement works

3 Roles and Responsibilities

3.1.1. The Principal Contractor shall make available sufficient time and resources for the effective management of environmental risks that could arise during construction work. This includes appointing adequately qualified personnel with knowledge and capability in the environmental management of construction site works. Persons having responsibility for environmental site management, and in particular any persons required to undertake and oversee response to any incidents with potential environmental consequences, shall be empowered to make decisions and take appropriate action necessary to avoid or mitigate adverse environmental effects, even when this may lead to delay and/or additional cost to the Principal Contractor.

3.1.2. The Applicant, and all appointed contractors will be responsible for ensuring that the potential risks to the environment are adequately avoided or controlled by the application of measures as documented with the Construction Environmental Management Plan(s), which shall be complied with throughout construction. The main organisations and persons involved in the construction stage works are set out in **Table 2-1**. The key roles and responsibilities during the construction phase in managing environmental impacts will likely include, but are not limited to:

- **Site Manager –** Overall responsibility for activity onsite and will be based onsite full time.
- **Construction Project Manager –** Overall responsibility for ensuring all elements in the DCO, Construction Environmental Management Plan(s) and all environmental, legal and other requirements are implemented, and appropriately resourced, managed, reviewed and reported.
- **Environment Manager -** Responsible for the overall management of environmental aspects on site, ensuring environmental legislation and best practices are complied with, and environmental mitigation and monitoring measures identified in the Construction Environmental Management Plan are implemented. The Environmental Manager will oversee environmental monitoring on-site and carry out regular environmental site inspections, reporting and responding to any incidents or non-compliance. The Environment Manager will liaise with relevant environmental bodies and other third parties as appropriate.

- **Environmental Advisor –** Oversee the management of and provide advice about environmental and ecological risks during construction including for example, management of protected species, surface water management, air quality and noise.
- **Ecological Clerk of Works (ECoW) –** Management of the risks to biodiversity on site, advising how to protect valued biodiversity features and providing practical solutions.
- **Flood Warden –** There will be a dedicated responsibility to be prepared for, and manage, the response to flood incidents.
- **Health and Safety Manager –** Responsible for the monitoring and controlling of health and safety compliance and related rules and regulations on-site.
- **Community Liaison Officer –** A Community Liaison Group will be set up prior to construction and will continue through until final commissioning of the Scheme as a formal forum for local issues to be raised. A Community Liaison Officer will be appointed to lead discussions with local communities and also act as the primary point of contact should there be any queries or complaints.

3.1.3. These roles and responsibilities are indicative and will be confirmed in the Construction Environmental Management Plan(s).

Table 3-1: Roles and responsibilities

Process Task	Role								
	Project Manager	Site Manager	Health and Safety Manager	Environmental Manager	Environmental Advisor	ECoW	Flood Warden	Community Liaison Officer	All Staff/ Contractors
R – Responsible: The individual(s) who perform an activity responsible for action/implementation – although usually only one, R's can be shared. A – Accountable: The individual who is ultimately accountable including yes/no decision and power of veto – only one (A) can be assigned. C – Consulted: The individual (s) to be consulted prior to a final decision being made or action taken – two-way communication. I – Informed: The individual(s) who need to be informed after a decision is made or action is taken – one-way communication. M – Monitor: Monitor the delivery of the Scheme on behalf of third parties and report on compliance.									
Developing and maintaining the Construction Environmental Management Plan.	R	A	C	R	M	M	M	M	I
Monitor environmental aspects through review of construction	R	A	C	R	M	M	M	M	I

method statement, identify and control issues.									
Monitoring construction works to ensure any necessary environmental issues and control measures are in place; ensuring they are effectively communicated, appropriate and implemented on site. Ensuring the work is performed by trained and qualified staff; and providing training where necessary.	R	A	C	R	M	M	M	M	I
Ensuring the adequate resources are allocated for environmental management.	R	A	I	R	M	M	M	M	I

Ensuring that all relevant environmental documentation and information (including permission, consents, permits and assessments) is communicated.	R	A	C	R	M	M	M	M	I
Regular site inspections and maintaining a record of environmental performance and reporting performance and monitoring environmental performance.	R	A	I	R	M	M	M	M	I
Following good practice and minimising environmental impacts during constructions.	R	A	C	R	M	M		M	I

Understanding project environmental obligations and mitigation measures.	R	A	C	R	I	I	I	I	I
Liaison with local authorities, other statutory bodies, members of the public, press and the media.	R	A	C	R	C	C	C	C	I
Supporting all site staff with environmental management including reviewing and commenting on method statements and risk assessments.	R	A	C	R	C	C	C	C	I
Ensuring that the environmental policy of the Applicant is delivered.	R	A	I	R	M	M	M	M	I
Providing information on waste	R	A	R	R	M	I	I	I	I

management/reduction procedures to relevant staff.									

4 Construction Environmental management and Mitigation

4.1. Construction Hours

4.1.1. Unless otherwise agreed with the relevant local planning authority, the core construction hours on any part of the Scheme will be:

- 07:00 hours to 19:00 hours Mondays to Saturdays; and
- 09:00 hours to 13:00 hours on Sundays.

4.1.2. The following controls will also apply to the works:

- Working days will be one 12-hour shift, with employees travelling to and from the Order Limits an hour on either side of these times (i.e. between 06:00 and 07:00, and 19:00 and 20:00) (exceptions may be required for abnormal loads and emergency purposes); and
- Where onsite works are to be conducted outside the core working hours, they will comply with the restrictions pursuant to the consenting process.

4.2. Site Establishment

4.2.1. Temporary construction compounds will be required at various locations within the Order Limits and they will generally be required to support the works as the Scheme is bult out across the various Land Parcels. It is envisaged that at the time of construction, the Final CEMP will differentiate the construction compound into main construction compounds and satellite construction compounds.

4.2.2. There are expected to be up to 31 temporary construction compounds, which would be located across each Land Area (A - E). This would mean that construction activities and the use of the compound(s) in each Land Area is kept to a shorter period of time compared with all construction activities being based from a single, main compound.

4.2.3. The main compounds will be positioned near entrance points wherever practicable, for each phase / or phases of development and from here and workers will be transported via from these locations to the secondary compounds closer to the

work sites. It is anticipated that there will be one main compound within each Land Area.

4.2.4. All compounds would include hardstanding areas, construction worker welfare facilities, a site office, car parking, wheel wash area, plant and machinery storage, HGV/delivery turning area and waste storage areas. The set up, layout and use of compounds will be confirmed by the Principal Contractor with further details described in the Construction Environmental Management Plan(s).

4.3. Public Right of Way (PRoW) Management Plan

4.3.1. There are several PRoW which are located within the Order limits and within the immediate vicinity. The details of the PRoW that fall within or intersect with the Order limits have been obtained from City of Doncaster Council and North Lincolnshire Council.

4.3.2. The following measures that will be delivered to minimise the construction impacts of the Scheme on any PRoW. The measures will be primarily secured through this document and the **Outline Construction Traffic Management Plan [Document Reference 7.7].**

- Maintaining access to/along PRoW during construction, including any minimum legal widths for PRoW users
- Providing temporary PRoW diversion routes where necessary to avoid any PRoW closures. Each diversion will be clearly marked out, along with appropriate signage at either end of the diversion. The diversion routes will be agreed with City of Doncaster Council and / or North Lincolnshire Council prior to the commencement of construction
- Ensure that any hazards (e.g. overhanging branches, cables etc.) have a suitable clearance above any affected PRoW
- Use of manned controls and crossing points where the Scheme crosses PRoW (i.e. marshals or banksmen), with a default priority that construction traffic will give way to other users

PRoW Temporary Diversion Management

4.3.3. PRoW diversions will be managed to ensure they are safe to use during construction. Measures that will be implemented include:

- Giving advanced notice of where PRoW will be subject to management measures and this to be clearly signed at the PRoW
- Fencing to be installed around the panel areas as one of the first stage of construction to ensure preservation of PRoW during construction
- Each diversion will be clearly marked out, along with appropriate signage at either end of the diversion

4.4. Site Security

4.4.1. Site security during construction will be managed by the Principal Contractor. The site security fencing will remain in place throughout the duration of the construction period. CCTV will be in operation at all main and satellite compounds. Any storage of materials will be kept secure to prevent theft or vandalism. A safe storage system for accessing the materials storage areas would be implemented by the Principal Contractor.

4.4.2. Further on-site security and fencing to be installed during the construction phase will be confirmed by the Principal Contractor and included in the Construction Environmental Management Plan(s).

4.4.3. In instances whereby an offender is identified through the security measures, the police or relevant authorities will be notified. A robust escalation process for when an offender is identified will be included in the Construction Environmental Management Plan.

4.5. Control of Light

4.5.1. Construction temporary Site lighting, in the form of mobile lighting towers will be required in areas where natural lighting is unable to reach (sheltered/confined areas) and during core working hours within winter months. Artificial lighting would be provided to maintain sufficient security and health and safety for the Site, whilst adopting the mitigation principles to avoid excessive glare and minimise spill of light to nearby receptors (including ecology and residents) outside of the Order Limits as far as reasonably practicable.

4.5.2. All construction lighting will be deployed in accordance with the following recommendations to prevent or reduce the impact on human and ecological receptors:

- The use of lighting will be minimised to that required for safe site operations;
- Lighting will conform to best practice guidelines with respect to minimising light spill into adjacent habitats and prevent disturbance to bats and other species during construction;
- Lighting will utilise directional fittings to minimise outward light spill and glare (e.g. via use of light hoods/cowls which direct light below the horizontal place, preferably at an angle greater than 20° from horizontal); and
- Lighting will be directed towards the interior of the Site rather than towards the boundaries.

4.6. Control of Noise

4.6.1. Noise thresholds have been identified for nearby sensitive receptors during construction, presented in **ES Chapter 13: Noise and Vibration [Document Ref 6.2.13]** These will be defined in the Construction Environmental Management Plan(s). Thus, where on-site works are required to be conducted outside of the core working hours, they will comply with any restrictions agreed with the relevant planning authorities, in particular regarding the control of noise and traffic. Compliance with these noise limits will ensure adverse effects are unlikely. Abnormal or emergency construction traffic movements may occur outside of normal working hours. In the event of these occurrences, specific noise mitigation measure will be put in place to reduce potential noise impacts at nearby noise sensitive receptors, if required, as set out in **Section 3** of this Outline CEMP.

4.7. Construction Traffic Management and Access Routes

4.7.1. During construction, the Principal Contractor will ensure that the impacts from construction traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised, where reasonably practicable by implementing the measures set out in **ES Chapter 12: Transport and Access [Document Reference 6.2.12]** and the **Outline CTMP [Document Ref 7.7]**.

4.7.2. The **Outline CTMP [7.7]** outlines measures for construction logistics and construction worker travel; alongside controls to guide the delivery of material, plant equipment and staff during the construction phase. A Construction Traffic Management Plan will be produced by the Principal Contractor and agreed with the relevant highways authorities prior to the commencement of construction activities.

4.7.3. In the interests of highway safety, wheel cleaning facilities will be used by vehicles prior to exiting the Site onto the public highway if there is mud or debris from the construction site on the vehicles.

4.8. Parking Provisions

4.8.1. As detailed in the **Outline CTMP [Document Ref 7.7],** car parking will be located at or adjacent to each of the construction compounds. Adequate parking spaces will be provided for the maximum number of personnel at each main compound with three workers per vehicle.

4.8.2. Long-term parking will not be available at satellite compounds. Staff will park at the relevant main compound and would be transported to the satellite compounds via shuttle bus.

4.8.3. Further details of parking provision will be confirmed by the Principal Contactor in the Construction Traffic Management Plan and agreed with Doncaster Council or North Lincolnshire Council as relevant prior to commencement.

4.9. Horizontal Directional Drilling (HDD) Breakout

4.9.1. HDD will generally be utilised during construction under highways and some watercourses. General HDD practices are outlined below:

- Reflect known ground conditions to select a specific route and depth through the most homogeneous geological conditions possible;
- Casing of weaker un-cohesive layers to reduce bentonite breakout;
- Use as low a concentration of bentonite as reasonably practicable;
- Operatives to monitor the drilling for evidence of breakout and cease drilling and seal fissures or voids if applicable, as required;

- Monitoring of drilling fluid returns and volumes to help identify losses;
- Retain a stock of sandbags and pumps on site to contain breakout and dispose accordingly;
- Bentonite water slurry will be stored in the launch pits and transported to a registered disposal site(s); and,
- HDD wastewater (including bentonite) will be incarcerated within the launch pit and transported to a specialised local facility for disposal

4.9.2. Additional outline measures are also included in **Table 5-1**. Further details regarding HDD breakout will be included within a HDD Method Statement that will form part of the final Construction Environmental Management Plan(s).

4.10. Open Cut Trenching

4.10.1. Measures for the management of soils during the open-cut trenching proposed for the construction phase would be detailed in a Soil Management Plan that must be substantially in accordance with the **Outline SMP [Document Ref 7.8]**.

4.11. Management of Materials

4.11.1. It is expected that the Scheme would achieve a cut/fill balance. Any excess material would be used for the proposed landscape and habitats planting across the Site.

4.11.2. Should any contaminated material be discovered, this will not be used on-site and will be dealt with in line with the process detailed in the Site Waste Management Plan that would support the CEMP.

4.11.3. All staff will remain vigilant of ground conditions at all times and any suspect areas of potential contamination will report to the Site Manager. Should any potentially contaminated ground, including isolated 'hotspots' of contamination and/or potential deposits of asbestos containing materials be encountered, the Principal Contractor will be required to investigate the areas and assess the need for containment or disposal of the material. Advice should be sought from an environmental specialist should materials suspected of being contaminated be found. The Principal Contractor will also be required to assess whether any additional health and safety measures are required.

4.12. Environmental Incidents and Emergencies

4.12.1. An Emergency Response Plan (including flood emergency management plan) will be developed by the Principal Contractor in consultation with the relevant local authority emergency planning officer, emergency services including the local fire service, as well as the Environmental Agency in relation to responding to flood warnings and events. The Flood Emergency Management Plan will be in accordance with the details set out in Appendix H of the **ES Technical Appendix 10.1 Flood Risk Assessment [Document Reference 6.3.10.1**]

4.12.2. The Construction Environmental Management Plan(s) will detail the procedures for responding to incidents and emergencies on site, and any reporting.

4.13. Protection of Below Ground Utilities

4.13.1. Engagement with utilities companies will be undertaken prior to commencement of construction activities to agree safe methods of working around existing utilities.

4.13.2. Offsets around identified utilities will be implemented to avoid impacts, including provisional 20m buffers above major gas pipelines where no project infrastructure is placed.

4.13.3. Adequate protection for statutory undertakers' assets is included within the protective provisions in the **Draft DCO [Document Ref 3.1]**.

4.14. Geo-Environmental Investigation

4.14.1. The written strategy must include geo-environmental investigations in line with the technical approach presented in Land Contamination Risk Management (LCRM) (Environment Agency, 2023) and in general accordance with BS 10175: 2011 + A2 2017 (BSI, 2017). It is also compliant with relevant planning policy and guidance (i.e. National Planning Policy Framework). The scope of the intrusive investigation is to be designed in line with the recommendations of BS5930:2015+A1:2020 Code of practice for ground investigations (BSI, 2020), which maintains compliance with BS EN 1997-1 and 1997-2 and ground gas assessments designed in general accordance with BS8576: 2013 and BS 8485:2015+A1:2019.

4.15. Site Waste Management Plans

4.15.1. Key environmental consideration for construction sites include the reduction of waste and the re-use of recycling of waste materials. Waste such as packaging, plastic, pallets, metal, general waste, etc, will be segregated on site and removed from site by an appointed waste contractor(s) for either reuse, recycling or disposal. All equipment associated with the development would be manufactured off site and delivered to the Order Limits in appropriate packaging.

4.15.2. Prior to the commencement of the proposed development a member of the on-site construction management staff will be assigned the role of Construction Waste Manager. The Construction Waste Manager will be in charge of preparing and implementation of the objectives of the Waste Management Plan (WMP), ensuring that all hired waste contractors have the necessary authorisations and that the waste management hierarchy, waste segregation arrangements and waste collection arrangements are adhered to.

4.16. Housekeeping and Site Maintenance

4.16.1. Good housekeeping is an important part of good environmental practice and helps to maintain a more efficient and safer site. The Site should be tidy, secure, and have clear access routes that are well signposted. The appearance of a tidy, well-managed Site can reduce the likelihood of theft, vandalism, complaints and/or specific hazards that could affect the safe operation of the other businesses in the area, such as bird hazards and wind-blown litter.

4.16.2. As outlined in the fifth edition of CIRIA's 'Environmental good practice on site guide' (C811) **[Ref. 1-1]**, when considering good housekeeping, the Principal Contractor will implement the following recommendations:

- Adequately plan the Site with designated areas of materials and waste storage;
- Segregate and label different types of waste as it is produced and arrange frequent removal;
- Keep the Site tidy and clean;
- Ensure that no wind-blown litter or debris leaves the site, use covered skips to prevent wind-blown litter;

- Keep hoarding tidy - repair and repaint when necessary, removing any fly posting or graffiti;
- Frequently brush-clean wheel washing facilities and keep haul routes clean from site derived materials;
- Keep roads free from mud by using a road sweeper; and
- Ensure the Site is secure.

4.17. Invasive Non-native Species

4.17.1. An Invasive Non-Native Species Management Plan will be prepared as part of the Construction Environmental Management Plan to prevent importation of species on construction plant and control any invasive non-native species found on-site that are listed under the Wildlife and Countryside Act 1981 (as amended). This will contain detailed biosecurity measures ensure the spread of non-native species is controlled during the construction phase.

4.18. Best Practice Measures

4.18.1. The Considerate Constructors Scheme will be adopted by the Principal Contractor to assist in reducing pollution and nuisance from the Scheme, by employing good practice measures which go beyond statutory compliance.

5 Construction Environmental Management Mitigation Procedures

5.1. Topic Specific mitigation

5.1.1. A summary of the mitigation and management measures to be included as minimum in the Construction Environmental Management Plan(s), using information presented in **ES [Document Ref - Volume 6 documents]**, is provided in **Table 5-1**. It also identifies where monitoring is proposed to assess the effectiveness of the mitigation measure

Table 5-1: Construction phase environmental management and monitoring measures

Measure	Monitoring Requirements	Responsibility
General		
All internal access tracks and cable routes would use existing tracks, crossings and/or gaps in the hedgerows where reasonably practicable.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
All existing hedgerows, trees and woodland would be retained and proposed protection measures detailed in the Construction Environmental Management Plan will be implemented during construction (except where removal is indicated on the vegetation removal plans shown on the **Tree Preservation Order and Hedgerow Plans [Document Ref 6.6]).**	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Pre-construction surveys will be used to microsite and determine the final location of the HDD pits, open trenching areas, compound and access routes, thus aiming to avoid the most plant-rich areas.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Air Quality		
Where possible, the Scheme will avoid development on areas of important or priority habitat	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and	Principal Contractor (responsibilities will be confirmed in the Construction

	make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Environmental Management Plan(s)).
Standard of good practice for air quality, as set out in the Institute of Air Quality Management 'Guidance on the Assessment of Dust from Demolition and Construction V2.2' **[Ref 3],** will be followed during construction phase to minimise dust from Site activities, plant and vehicles.	Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to Doncaster Council and North Lincolnshire Council when asked. Monitoring will, where possible, include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the Order Limits in agreement with the relevant homeowners/landowners.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Develop and implement a stakeholder communications plan that includes community engagement before work commences on Site.	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10} continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Display the name and contact details of people accountable for air quality and dust issues with respect to the Scheme. This may be the environment manager/engineer or the site manager.	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10} continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10}	Principal Contractor (responsibilities will be confirmed in the Construction

emissions in a timely manner, and record the measures taken.	continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council.	Environmental Management Plan(s)).
Display the head or regional office contact information.	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10} continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Make the complaints log available to Doncaster Council and North Lincolnshire Council when asked.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Plan site layout so that machinery and dust causing activities are located away from sensitive receptors, as far as is reasonably necessary.	Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to Doncaster Council and North Lincolnshire Council when asked. Monitoring will, where possible, include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the Order Limits in agreement with the relevant homeowners/landowners.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Erect solid screens or barriers around dusty activities or the Order Limits.	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10}	Principal Contractor (responsibilities will be confirmed in the Construction

	continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council.	Environmental Management Plan(s)).
Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site and the action taken to resolve the situation in the logbook.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Fully enclose site or specific operations where there is a high potential for dust production and the Site is active for an extensive period.	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10} continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Avoid runoff of water or mud from the Site.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to East Riding of Yorkshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to Doncaster Council and North Lincolnshire Council when asked.	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10} continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

	Monitoring will, where reasonably practicable, include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the Order Limits in agreement with the relevant homeowners/landowners	
Keep site fencing, barriers and scaffolding clean.	Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to Doncaster Council and North Lincolnshire Council when asked. Monitoring will, where possible, include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the Order Limits in agreement with the relevant homeowners/landowners.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Remove materials that have a potential to produce dust from site as soon as reasonably practicable, unless being re-used on site. If they are being re-used on-site cover as described below.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Cover, seed or fence stockpiles to prevent wind whipping.	Increase the frequency of Site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Ensure all vehicles switch off engines when stationary - no idling vehicles.	Carry out regular site inspections to monitor compliance with the Construction Environmental	Principal Contractor (responsibilities will be confirmed

Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery-powered equipment where practicable	Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	in the Construction Environmental Management Plan(s)).
Impose and signpost a maximum speed limit of 10 miles per hour on internal access tracks and work areas.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Produce a detailed Construction Traffic Management Plan to manage the sustainable delivery of goods and materials.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Implement a Travel Plan that supports and encourages sustainable travel.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where reasonably practicable and appropriate.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Use enclosed chutes and conveyors and covered skips.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Ensure equipment is readily available on Site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
No bonfires or burning of waste material.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where reasonably practicable and necessary, to provide a screen against dust).	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Avoid explosive blasting, using appropriate manual or mechanical alternatives.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Bag and remove any biological debris or damp down such material before demolition.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Only remove the cover in stages during work and not all at once.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Avoid scabbling (roughening of concrete surfaces) if reasonably practicable and necessary.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the Site.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Avoid any dry sweeping of large areas.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Ensure vehicles entering and leaving Site are covered to prevent escape of materials during transport.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Inspect on-Site haul routes for integrity and instigate necessary repairs to the surface.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Record all inspections of haul routes and any subsequent action in a site logbook.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Implement a wheel washing system where required	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the Site exit.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan, record inspection results, and make an inspection log available to Doncaster Council and North Lincolnshire Council when asked.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Access gates to be located at least 10m from sensitive receptors.	Undertake regular on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to Doncaster Council and North Lincolnshire Council when asked. Monitoring will, where possible, include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of the Order Limits in agreement with the relevant homeowners/landowners.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Any emissions from non-road mobile machinery can be reduced by ensuring that any plant used on-site comply with the nitrogen oxides, particulate matter and carbon monoxide emissions standards specified in the Regulation (EU) 2016/1628 of the European Parliament and of the Council (as amended) as a minimum, where they have net power of between 37kW and 560kW.	Monitoring for the construction phase is proposed to commence at least three months before work commences on Site. Dust flux, or real-time PM_{10} continuous monitoring locations would be agreed with Doncaster Council and North Lincolnshire Council.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Biodiversity		
A suitably qualified ecologist would be appointed during construction to advise on protecting important biodiversity features and provide advice on how to achieve compliance with environmental legislation. Relevant site staff would receive toolbox talks on the ecological risks present, legal requirements and working arrangements necessary to comply with legislation. Toolbox talks would be repeated as necessary over the duration of the relevant works.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Species Protection Plans as appropriate will be produced by the Principal Contractor, if required, based on pre-construction surveys. Each Species Protection Plan would be a live document subject to review and updating and would assist site personnel in the protection of species during construction, under the guidance of the suitably qualified ecologist.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
In the event protected species are found to be a constraint during the pre-construction surveys and if a protected species licence is deemed by the ecologist to be required, then applications would be submitted to Natural England sufficiently in advance of the relevant works commencing to meet with the optimum time for mitigation and to minimise any changes to the construction programme.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

To reduce potential for invasive species to be introduced, for example by construction traffic, biosecurity procedures will be set out and secured in the Construction Environmental Management Plan to ensure that no invasive species are brought onto the Site. In the event that any future infestations of invasive non-native species are identified prior to and or during construction, exclusion zones would be established around them and the suitably qualified ecologist contacted for advice as required.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Adherence to the guidelines set out in The Code of Practice for Noise and Vibration Control on Construction and Open Sites, 2009 and subsequent updates.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The use of push-press piling methods.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Visual and acoustic barriers (typically 3m high) will be installed between bird mitigation areas and the working areas.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Provision of lined and sealed acoustic covers for noisy equipment, such as generators and static pumps.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Directing noise from machinery, including exhausts or engines, away from sensitive locations.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Ensuring that regularly maintained and appropriately silenced equipment is used.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
All plant, equipment and noise control measures applied to plant and equipment to be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Box culverts and single span bailey bridges will incorporate measures to allow species to continue to use the watercourses. Box culverts will include measures including ledges and gravel base to encourage use by riparian mammals and fish. Where it is possible, mammal ledges will be a minimum	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

of 500mm wide, at least 150mm above the highest water level and allow 600mm head room. Ramps must be provided to allow an otter access to the ledge.		
New culverts excluding those used within watercourses which infrequently contain water will be designed to be as short as possible. Culvert diameter should be a minimum of 600mm when under 20m in length and a minimum of 900mm when above 20m in length.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Riparian vegetation will be included at the culvert inlet and outlet to provide transitional light levels. New culverts excluding those used within watercourses which infrequently contain water will have inlets depressed at least 150mm below the watercourse bed, baffles built into the culvert base to limit sediment loss during surcharging and improve the design for fish passage. Pools will be incorporated at culvert outlets to limit scour, dissipate energy and maintain channel stability.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
There will be no night-time working (19:00 to 07:00), unless otherwise agreed with the Doncaster Council and North Lincolnshire Council or in an emergency as set out in paragraph 4.1.2, and any artificial lighting will be kept to a minimum and not directed towards hedgerows, tree lines, watercourses, badger setts, ecological mitigation and enhancement areas.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Where generators/site cabins are required overnight, then they would be positioned a minimum of 50m from watercourses.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Any hedgerow sections that require removal would be reinstated in the same location, if for any reason this is not possible the hedgerow will be reinstated elsewhere within the Order Limits, using a mixture of native species appropriate for the local area, as soon as reasonably practicable. If reinstatement is not possible on the original alignment, then planting a mixture of native species would be undertaken within an appropriate location within the Order Limits as directed by a suitably qualified ecologist.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
For internal track highways access, new hedgerows would be planted along new highway boundaries and visibility splays as soon as reasonably practicable after the relevant works.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Any vegetation clearance or ground clearance (if suitable for ground nesting birds) during the nesting season (March to August inclusive) would be checked for the presence of nesting birds by a suitably qualified ecologist immediately prior to and during works. In the unlikely event of ground nesting birds being present, then a suitable buffer distance would	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

be agreed with the site ecologist and no works undertaken within the buffer until the chicks have fledged.		
Measures to repel nesting birds would be implemented if required, such as installing wind powered bird spinners within the centre of fields due to be impacted between the months of March and July. Care would be taken when implementing the measures to prevent impact to other species including, bird species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), non-ground nesting birds using undisturbed habitat and otters.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
A suitably qualified ecologist would use a bird Species Protection Plan and other appropriate documents to ensure all contractors know where any identified active nest sites are and the appropriate buffer zones that have been put in place.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The Construction Environmental Management Plan will secure control measures and additional details via subsequent riparian mammal Species Protection Plan, to be implemented during construction to protect watercourses.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Where HDD is not practicable, culverts or single span bridges would be used to allow the cables to be attached to the structures. Where works would be	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction

within 10m of a watercourse/waterbody, such as during culvert works, measures detailed in and secured by the Construction Environmental Management Plan would mitigate potential impacts on water quality.		Environmental Management Plan(s)).
Pipe culverts will be used within watercourses which infrequently contain water. New culverts excluding those used within watercourses which infrequently contain water will be designed to be as short as reasonably necessary, with as large a diameter as reasonably necessary (minimum of 900mm) with a minimum of 600mm of headroom. Culverts will provide as much light penetration as possible at the culvert inlets and outlets to encourage use by water vole and otter. Riparian vegetation will be included at the entry to an exit of culverts to provide transitional light levels for species using these and avoid startling the species (including otter) using these structures.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
New culverts excluding those used within watercourses which infrequently contain water will have depressed inverts, natural beds (with 300mm minimum of natural bed material), low-flow channels and sediment baffles to limit sediment loss during surcharging. Pools will be incorporated at culvert outlets to limit scour, dissipate energy and maintain channel stability; these will be of benefit to fish species and, in turn, otter.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Generators and/or welfare cabins to be switched off at night and not positioned within 30m of trees or structures suitable for roosting bats. If generators and/or welfare cabins are required at night, then they would be positioned at least 10m from linear features such as ditches and hedgerows, which could be used as potential bat flight lines. Acoustic barriers would also be installed around generators and/or site cabins as necessary.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Throughout construction, the use of motion detection or manually operated lighting would be used to avoid constant lighting and the inward/downward direction of light would avoid light spill on to adjacent hedgerows, woodlands, field margins and ditches, which are likely to be used by bats.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Security lighting would use infrared triggers where reasonably practicable to help avoid impacts on bats.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
All sections of hedgerow which are to be removed during the bat activity season (April to October) which are 10m long or greater, would have appropriate mitigation to maintain linear connectivity for foraging/commuting bats. This would involve the temporary installation of structures in hedgerow gaps mimicking the hedgerow structure which bats could	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

use for echolocation when commuting e.g. a double row of 'heras' type fencing with camouflage type netting on top or filled with brash. To ensure the temporary structures are moveable, heras gates would be used rather than fencing. This mitigation would be installed immediately after hedge removal (if in the bat activity season of April to October) and left in place until works are completed. If the mitigation needs to be removed for works, such as to allow passage of construction traffic, then the mitigation would be re-instated at the end of each day		
The temporary structures within the hedgerow gaps would be retained until any new or replacement hedgerow is sufficiently established to be used by bats as an effective flightline.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
A suitably qualified ecologist would be responsible for assessing potential disturbance to roosting bats during each work activity.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
An Arboricultural Method Statement will be compiled prior to construction of the Scheme commencing, detailing the exact location and nature of protective fencing, tree pruning, signage, timings and methods of works and other protection measures. All site	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

operatives must be made aware of the nature of the protection detailed in the Arboricultural Method Statement and it should remain in place throughout construction. The roles and responsibilities for implementation and monitoring of measures in the Arboricultural Method Statement will be detailed in the Construction Environmental Management Plan.		
Climate		
Implement measures to decrease fuel use by maximising energy efficiencies, for example to ensure all vehicles switch off engines when stationary and ensure vehicles are well maintained and conform to current emissions standards.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Promoting the use of sustainable fuels in vehicles, and where reasonably practicable making use of electric vehicles and plant to reduce fuel consumption.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Actions to meet the waste hierarchy in accordance with the principles of the Government's Resources and waste strategy for England 2018 **[Ref 4]** will be taken. This includes promoting the recycling of materials by segregating construction waste.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s) and Decommissioning Environmental Management Plan.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Ensure that there is coordination with construction staff on measures to minimise the GHG emissions associated with commuting during construction. Such measures include provision of staff minibuses and promoting lower carbon modes of travel such as car sharing , Active travel and use of public transport.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
In procuring components and materials for the scheme, procurement decisions will consider and give priority to the following where practical and viable: - Local suppliers; - Recycled products or products with a recycled component (e.g. aggregates for foundations, subbases, hard standing and pavements) - Products and services with a low carbon footprint (evidenced through PCF, LCA or EPD); Carbon savings as a result of project procurement decisions will be estimated and reported.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Cultural Heritage		
Ensure that there is coordination with construction staff on measures to minimise the impacts upon below ground archaeological remains.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Ensure that areas of archaeological remains to be preserved in situ are clearly identified on construction plans and demarked by barrier fencing during construction	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Use non-intrusive concrete foundations for solar arrays overlying areas of archaeological remains to be preserved in situ where required	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
An archaeological mitigation strategy, supported by written schemes of investigation will be compiled prior to construction of the Scheme commencing, detailing the exact location and nature of archaeological works, exclusion areas, timings and methods of works and other protection measures. All site operatives must be made aware of the nature of the protection detailed in the archaeological mitigation strategy and supporting written schemes of investigation and they should remain in place throughout construction.	Carry out regular site inspections to monitor compliance with the Construction Environmental Management Plan.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Land, soil and groundwater		
An Emergency Response Plan will be developed to provide a framework for responding to environmental incidents and emergencies.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction

		Environmental Management Plan(s)).
The Applicant will use reasonable endeavours to ensure that drainage within the Order Limits continues to operate efficiently, which will include implementing good working practices during construction to avoid damage to existing land drains as far as reasonably practicable. Ground Penetration Radar surveys may be carried out where appropriate prior to piling and cable trenching works being carried out. Where interference with the existing land drainage network cannot be avoided, the Applicant will ensure that any damage is repaired as soon as reasonably practicable, or will put in place no less effective drainage measures to avoid adversely affecting drainage beyond the Order Limits following the completion of construction.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s)	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Good housekeeping and site maintenance will be required, including management of materials and waste.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Best practice measures will be adhered to in order to reduce pollution.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction

		Environmental Management Plan(s)).
Records will be maintained relating to routine inspections, investigations, corrective actions and action schedules.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Cable ploughing will be utilised where ground conditions and other site factors allow. Where this is not possible, other methods such as open cut trenching or Horizontal Directional Drilling will be used.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
A Piling Risk Assessment will be prepared, if piling is required as part of the Scheme. The assessment should be written in accordance with the Environment Agency Guidance document "Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention. National Groundwater & Contaminated Land Centre report NC/99/73, or any updates to this guidance [REF-5]	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Use of non-Best and Most Versatile agricultural land will be prioritised for the areas of environmental mitigation and enhancement where reasonably practicable.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

When soil, aggregates or fill material are imported, it must be ensured that it is from a certified clean source and is suitable for use.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Any potential mitigation measures or remediation works that are determined to be necessary, once an assessment of site investigation results has been completed, will be undertaken.	If any monitoring relating to contaminated land or groundwater is necessary, the requirements for these will be agreed in discussions with the relevant planning authority. .	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The following measures will be taken, as a minimum, with regard to safe and responsible fuel storage: Fuel levels shall be monitored and recorded regularly (sudden changes may be a sign of leaks). • Fuel tanks, secondary containers and storage compounds shall be inspected regularly for damage, corrosion, leaks, faults and vandalism. Repair defects/faults immediately and retain records. • The secondary containment system must provide storage for at least 110% of the tanks maximum capacity and ensure that any valves, filters, sight gauges, vent pipes or other ancillary equipment are also situated within the	The activities undertaken during the construction phase will be audited against the requirements of the Construction Environmental Management Plan(s) and the Soil Management Plan by the Principal Contractor to ensure adherence.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

secondary containment system and arranged so that any discharges would be contained. • Fully lockable and labelled 'Fuel Safe Static Tank' will be deployed. • Sufficient spill kits will be provided. Spill kit supply to be monitored regularly to ensure adequate stock remains full. • Spill kits will be available within each plant onsite and located close to identified pollution sources or sensitive receptors (fuel storage areas, water course crossings, etc.). • All drains located adjacent or near to refuelling points shall be covered by a drain guard before commencing transfer. All fuel transfers to be supervised. • Drums must be stored in a secure interceptor drum store within the designated refuelling area. • Oil spill and oil impacted water must be collected in a fuel safe container with fuel tags. Fuel spills must be contained using the spill kits provided, spills should be reported to the Principal Contractor's Site Manager immediately.		

• Records must be maintained of all environmental incidents, mitigation works, clean up method and validation. • A suitable container for hazardous wastes must be provided within the waste compound.		
The following measures will be taken, as a minimum, with regard to safe and responsible use and storage of hazardous materials/substances. • Concrete wash-out onsite shall only be permitted when the Principal Contractor has provided a designated, suitably prepared wash-out area with signage identifying the area as suitable for wagon wash-out. • Concrete wash-out may be dried and crushed to be re-used on Site or disposed of in accordance with a Site Waste Management Plan. Surplus dry concrete, cement and grout is to be collected and reused where reasonably practicable e.g., as inert rubble; reuse of dried materials may require environmental permits or exemptions. • Areas of permeable pavements are not to be used for the temporary storage of cement bags. If unavoidable ensure adequate	The activities undertaken during the construction phase will be audited against the requirements of the Construction Environmental Management Plan(s) and the Soil Management Plan by the Principal Contractor to ensure adherence.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

protection measures are in place to prevent the pavement from becoming blocked. • The Principal Contractor is responsible for carrying out a risk assessment of each substance and ensuring that all appropriate storage, protective equipment and if necessary, emergency procedures are put in place on Site. • All hazardous materials shall be labelled, sealed and stored with their COSHH assessment in a bunded and lockable container away from drains and watercourses when not in use. • COSHH datasheet will be read and understood before using any hazardous materials. • Any spent (contaminated) spill kits, absorbent granules, sheets or fibres must be disposed of in accordance with COSHH regulations and Site Waste Management Plan requirements. • Hazardous liquids shall be transferred using a funnel and drip tray and sealed and returned to the container immediately after use. Damaged containers shall be reported to the Site Manager.		

• All usages of hazardous liquids shall comply with its requirements for safe handling and storage. • Hazardous liquids must be re-sealed after use. Empty containers are to be disposed of to the designated container within the waste compound. • Construction workers are required to wear PPE such as gloves and face masks (where appropriate) to prevent dermal contact and inhalation or ingestion.		
The following measures will be taken, as a minimum, with regard to safe and responsible site set up, groundwork and construction: • Minimise the use of builders skips and inspect lifting and locking points, doors and door locks and general condition weekly as minimum. • Ordered materials shall be adequately managed to avoid spoilage or overordering and surplus materials shall be minimised: provide a suitable and sufficiently sized materials storage compound that is lockable and provides an above ground covered area, protected from wind and rain. Encourage the reuse of cut-offs and arrange for suppliers to take back unused surplus materials and	The activities undertaken during the construction phase will be audited against the requirements of the Construction Environmental Management Plan(s) and the Soil Management Plan by the Principal Contractor to ensure adherence.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

packaging. Storage compounds will be located away from any identified water features. Surplus materials are to be reused onsite where reasonably practicable. All reuse and recycling to be carried out in accordance with the terms of a valid waste exemption or voluntary codes of practice/protocols. • Excavated material surplus shall be minimised so far as practicable; details of all inert material reuse onsite including composition and disposal location must be mapped and records retained. • If necessary temporary bunding and/or settlement ponds will be installed to allow for isolation and onsite treatment of any sediment laden or contaminated water prior to discharge to the drainage system. • Spill kits capable of dealing with hydrocarbon and chemical spills shall be available at all worksites. Each storage location shall be clearly visible to the workforce, for instance by deploying clear signage. • If a construction compound, fuel storage point or COSHH store is provided then additional		

spill kits will need to be available at each separate location. • The spill kit contents shall include absorbent pads, absorbent booms, absorbent granules and hazardous waste disposal sacks as a minimum. Regular checks of the spill kits shall be completed to ensure they remain adequately stocked to deal with environmental incidents. • Spill drills shall be performed periodically to confirm that the workforce can effectively contain and clear up potentially polluting spillages. All drills will be documented and details kept on record for the duration of the works.		
The following measures will be taken, as a minimum, with regard to spillages and leaks: • All pollution incidents should be managed through the STOP – CONTAIN – NOTIFY concept. • STOP: Immediately stop the discharge to prevent further spread to drainage, waterbody or ground. • CONTAIN: Control the spill to prevent environmental impact, such as by stopping	The activities undertaken during the construction phase will be audited against the requirements of the Construction Environmental Management Plan(s) and the Soil Management Plan by the Principal Contractor to ensure adherence.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

works or using containment material. Personal safety take priority, especially if the spill substance is unknown.
• NOTIFY: Promptly inform the appropriate authorities and contacts e.g. Environment Agency and the Applicant.
• Oil, Fuel or Chemical Spill to Ground:
  o Wearing protective clothing, stop release at the source and secure the area.
  o Create temporary bunds to contain the spill if it is migrating.
  o Protect nearby drains/ditches using drain seals or spill kit materials.
  o Absorb the spill with granules or pads from the spill kit.
• Notify the Environment Agency with details on time, type/quantity, location, and site contact information.
  o Inform the Applicant and Local Planning Authority if required under Environmental Damage Regulations.		

○ Keep containment in place until contamination is assessed, and a remediation strategy is developed. • Oil, Fuel or Chemical Spill to Waterbody: ○ Wearing protective clothing, prevent further release at source and contain the spill. ○ Deploy booms from the spill kit across the water to stop spread; tie them to banks and add more as needed. ○ Notify the Environment Agency with discharge details and inform the Applicant. • Oil, Fuel or Chemical Spill to Drainage System: ○ Wearing protective clothing, stop further release and deploy drain covers to affected gullies. • Supplement containment with booms around the gully to control migration. ○ Notify the Environment Agency and relevant water company with details on discharge time, type/quantity, specific drain location, and contact information.		

○ Notify the Applicant and Environment Agency as needed.		
The following measures will be taken, as a minimum, with regard to silt discharge: • Cease dewatering or other activity causing silt release. • Use drain seals, hay bales, silt fencing, or bunds to contain and direct silt away from sensitive areas. • If the silt discharge enters drains or surface waters without prior approval, notify the Environment Agency and relevant water company.	The activities undertaken during the construction phase will be audited against the requirements of the Construction Environmental Management Plan(s) and the Soil Management Plan by the Principal Contractor to ensure adherence.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The following measures will be taken, as a minimum, with regard to contamination involving waste materials: • Evacuate the area, if necessary, especially if fumes are present. • Assess whether segregation of waste can mitigate the issue. • Conduct a risk assessment including COSHH considerations.	The activities undertaken during the construction phase will be audited against the requirements of the Construction Environmental Management Plan(s) and the Soil Management Plan by the Principal Contractor to ensure adherence.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

• If segregation is unsafe, classify the entire waste volume as hazardous. • Report the incident to the Applicant. • Dispose of waste according to standard site procedures.		
Should unexpected contamination be discovered, the following measures will be employed: • Halt works immediately upon discovering contamination. • Place removed impacted materials back into the excavation or onto a membrane to prevent further spread. • Report the discovery to the Applicant. • Arrange for fast-turnaround sampling and testing. • Continue work only once contamination is confirmed and a safe working procedure is established. • Do not excavate further without supervision from a geo-environmental engineer.	The activities undertaken during the construction phase will be audited against the requirements of the Construction Environmental Management Plan(s) and the Soil Management Plan by the Principal Contractor to ensure adherence.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Landscape and visual		

The Scheme has been designed to avoid blocks of woodland and mature trees, the Construction Environmental Management Plan will secure how these important features of the landscape fabric would remain protected during construction.	Records will be maintained relating to routine inspections, investigations, corrective actions and action schedules	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Activities should be undertaken in a sensitive manner with regard to the existing landscape fabric within the Site.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The Construction Environmental Management Plan will detail how existing hedgerows, trees and woodland would be retained and explains the proposed protection measures to be implemented during construction (except where removal is indicated on the vegetation removal plans shown in **Trees and Hedgerows to be Removed or Managed Plan [Document Ref 2.6]**.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Construction compounds should be maintained with a neat and tidy appearance and that any temporary construction lighting is operated in accordance with an agreed scheme.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Construction vehicle movements would be routed in accordance with an agreed routeing strategy and avoid additional landscape and visual effects.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction

		Environmental Management Plan(s)).
The soil resource within the Site would be managed during construction in accordance with the principles established in the **Outline Soil Management Plan (SMP) [Document Ref 7.8]**.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The Scheme will be compliant with the Environment Agency's groundwater protection policies.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Noise and Vibration		
Control and limit noise from reversing alarms, using the following hierarchy: • Design the main and satellite construction compound layouts to limit and avoid the need for the reversing of vehicles and ensure that drivers are familiar with the worksite layout. • Utilise banksmen to avoid the use of reversing alarms. Where their use is necessary, use reversing alarms incorporating one or more of the features listed in	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

hierarchical order below or any other comparable system: • Highly directional sounders. • Use of broadband signals. • Self-adjusting output sounders. • Flashing warning lights; and • Set reversing alarms to the minimum output noise level required for health and safety compliance.		
Push piling of solar panel frame supports is the preferred installation approach to be taken. Where necessary, impact driving of solar panel frame supports can be undertaken, though not within 175m of an identified dwelling or other sensitive receptor location.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Toolbox talks will be carried out by the Principal Contractor to ensure that all members of the workforce are aware of their possible noise impact and of the sensitivities of the vicinity. These will also ensure that Best Practicable Means of control are delivered on the Site.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

A programme of community liaison will be carried out, including notification of works and details of the complaints process.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
A detailed construction stage vibration assessment should be undertaken once the appointed contractor's working methods and plant items are known. This should account for both existing receptors and any new, future receptors. From this, specific mitigation measures can be identified. It is considered that reasonable mitigation measures can be implemented to limit potential disturbance.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Temporary noise barriers could comprise a well-constructed site hoarding or a proprietary temporary barrier system that can be rapidly installed and modified on-site to screen specific construction activities. In all instances, the hoarding/barrier should be free from gaps, holes, slits or cracks, with no gaps between the barrier and the ground.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Best Practicable Means as defined by the Control of Pollution Act 1974 will be implemented.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Ensure that each item of equipment complies with the noise limits quoted in The Noise Emission in the Environment by Equipment for use Outdoors Regulations 2001.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Where reasonably practicable to do so, plant and equipment that generates low levels of noise and vibration shall be adopted.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
All engine compartments or acoustic enclosures are to be closed whilst engines are running.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Where practicable, temporary enclosures will be used to screen all static or semi-static plant from noise sensitive receptor locations.	Following implementation of the Construction Environmental Management Plan and DEMP, targeted monitoring can be undertaken at sensitive receptors during the construction and decommissioning phase. This will be based on the outcomes of further additional detailed construction and decommissioning assessments to be undertaken by the principal contractor, with short term monitoring proposed as a measure to ensure noise levels remain within relevant criteria.	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Use of hand-held equipment to carry out the works where practicable in lieu of mechanical means.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
All plant, equipment and noise control measures applied to plant and equipment to be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Machines in intermittent use to be shut down or throttled down to a minimum during periods between works.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
As far as is reasonably practicable, the location and orientation of semi-static equipment to be chosen to minimise the noise impact on sensitive receptors.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

A quiet working ethic will be employed to ensure that all members of the workforce have consideration for the nearby residents. At all times, workers' shouting or raised voices to be kept to a minimum.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Shouting and use of radios when entering to and from Site, and when working on Site, will be controlled.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Operatives will be briefed not to sound car horns to gain access to construction compounds. To assist, security will arrange for the Site to be unlocked up to one hour prior to the start of the core working hours.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The delivery routes set out in the **Outline CTMP [Document Ref 7.7]** will be communicated to and adhered to by all suppliers.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Where it has been identified there is potential for the construction works to give rise to potential noise impacts at sensitive receptors, setback distances to the proposed works will be included in the Construction Environmental Management Plan, in order to reduce any potential noise impacts	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Water		
Utilise permeable compacted gravel or similar for access roads, lay down areas or compounds	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
The following measures will be employed to avoid/reduce the release of sediment through soil erosion as a result of the Scheme: • Installation of access tracks and lay-down areas early in the construction programme; • Use of low-pressure tyres to limit compaction; • Planting riparian vegetation early in the programme, where reasonably practicable; • Minimise/avoid earthworks around watercourses; • Use of silt traps, fences or hay bales in flow paths or on downstream sides of earthworks to intercept sediment; and • Use of tillage, or similar, to break up compacted soils.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Constructing and using access tracks early in the programme.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Appropriate storage of hydrocarbons and other pollutants to reduce the chance for accidental spillage or reduce the chance for entry to waterbodies.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Appropriate pollution prevention such as storage of chemicals on bunded impermeable surfaces, provision of spill kits for rapid clean up.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Watercourse and defence easements will be identified in the Construction Environmental Management Plan and adhered to by the Principal Contractor and no construction will be undertaken within the relevant easement.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Where land drains are damaged during construction, record and geolocate them for potential restoration during decommissioning.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Use of HDD or trellising where cable routes cross watercourses.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Utilise existing watercourse vehicle crossings wherever reasonably practicable.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Upgrade existing crossings to increase cross sectional area and include wildlife movement features.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
New crossings to usually be temporary truss span bridges.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Low pressure tyres will be used on-site.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

Tillage and other measures to break up compacted soils on-site.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Planting riparian vegetation early in the programme, where reasonably practicable.	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).
Improved crossings to have larger dimensions than existing (e.g. replace pipe culvert with box culvert).	If required, monitoring measures will be identified in the Construction Environmental Management Plan(s).	Principal Contractor (responsibilities will be confirmed in the Construction Environmental Management Plan(s)).

6 Implementation

6.1.1. The Construction Environmental Management Plan(s) will set out all roles, responsibilities and actions required in respect of implementation of the measures described within this Outline CEMP, including:

- An organogram showing team roles, names and responsibilities;
- Training requirements for relevant personnel on environmental topics;
- Information about on-site briefings and Toolbox Talks that will be used to equip relevant staff with the necessary level of knowledge to follow environmental control procedures;
- Measures to advise employees of changing circumstances as work progresses;
- Communication Strategy (internal and external);
- Procedures for dealing with complaints;
- Procedures for monitoring, inspections and reporting of site operations;
- Document control; and
- Environmental emergency procedures.

7 Monitoring and Reporting

7.1. Process for Monitoring, Inspections and Audits

7.1.1. Monitoring and reporting will be undertaken for the duration of the construction phase in order to demonstrate the effectiveness of the requirements and measures set out in the Construction Environmental Management Plan(s) and related construction controls and allow for corrective action to be taken where necessary.

7.1.2. As part of the monitoring process the designated Environmental Manager will be present on site throughout construction. The Environmental Manager will observe site activities and report any deviations from the Construction Environmental Management Plan(s), along with the action taken and general conditions at the time. The Applicant will be informed of any deviations from the Construction Environmental Management Plan as soon as possible following identification of such issues, and if required further follow up will be sought. The Environmental Manager would also act as day-to-day contact with relevant local authorities and other regulatory agencies such as the Environment Agency.

7.1.3. During construction, the Environmental Manager will conduct walkover surveys to ensure all requirements of the Construction Environmental Management Plan(s) are being met. Action from these surveys will be documents on an Environmental Action Schedule, discussed with the Site Manager for programming requirements and issued weekly for actioning.

7.1.4. The Environmental Manager will also arrange regular formal inspections and audits, including a review of the measures secured in Table 5-1, to ensure the requirements of the Construction Environmental Management Plan(s) are being met. Details of monitoring, inspection and audits to be undertaken will be provided in the Construction Environmental Management Plan(s).

7.1.5. After completion of the works, the Environmental Manager will conduct a final review.

7.2. Records

7.2.1. Records will be managed through the Quality and Safety Management Systems (QMS) and the Environmental Management System (EMS) of the Principal Contractor which will be certified in line with the ISO 14001 standards.

7.2.2. The Environmental Manager will retain records of all monitoring, inspections and audits and records related to environmental issues at the Site. Documents shall be stored in a suitable manner and backups created to safeguard the records. These records will include:

- Results of routine site inspections by Environmental Manager;
- Environmental surveys and investigations;
- Environmental Action Schedule;
- Environmental equipment test records;
- Licenses and approvals; and
- Corrective actions taken in response to incidents, breaches of the approved Construction Environmental Management Plan(s) or complaints received from a third party.

7.2.3. The Construction Environmental Management Plan(s) will be updated if it is necessary to add additional control measures, with a full review as required throughout the construction period. Existing control measures and mitigation will not be amended without prior agreement with the local authorities.

8 References

- **Ref. 1:** CIRIA (2023) Environmental good practice on site guide (fifth edition) (C811).
- **Ref. 2**: Regulation (EU) 2016/1628 of the European Parliament and of the Council. Available online: https://www.legislation.gov.uk/eur/2016/1628/article/4
- **Ref. 3:** Institute of Air Quality Management Guidance of the Assessment of Dust from Demolition and Construction v2.2 (2024)
- **Ref 4:** Defra (2018) Our Waste, Our Resources: A Strategy For England
- **Ref 5**: Environment Agency (2001) Report NC/99/73 Piling and penetrative ground improvement methods on land affected by contamination: guidance on pollution prevention