The Great Grid Upgrade

Sea Link

Sea Link

Volume 7: Other Documents

Document 7.5.2 Outline Offshore Construction Environmental Management Plan

Planning Inspectorate Reference: EN020026

Version: F
September 2026

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(q)

nationalgrid

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Version History			
Date	**Version**	**Status**	**Description / Changes**
March 2025	A	Final	For DCO submission
February 2026	B	Final	For Deadline 4A submission
March 2026	C	Final	Issued to PINS Deadline 5
April 2026	D	Final	Issued to PINS Deadline 6
April 2026	E	Final	Issued to PINS Deadline 7
September 2026	F	Final	SoS Request for Further Information

Executive Summary

Ex1.1.1 This Offshore Outline Construction Environmental Management Plan (CEMP) has been prepared on behalf of National Grid to support the application for a Development Consent Order (DCO).

Ex1.1.2 The purpose of a CEMP is to specify the overarching principles and detailed measures to minimise as far as reasonably practicable and mitigate the effects of the construction activities associated with the proposed Project on the surrounding environment. It will also ensure that construction activities cause minimum disruption to local residents and members of the public, by helping to create a safe and secure working environment. This Outline Offshore CEMP presents the information to:

- ensure that relevant mitigation measures set out in the Environmental Statement (ES) as submitted in support of the DCO application are implemented during all relevant construction activities;
- take into account relevant planning policies; and
- ensure that relevant legislation, Government and industry standards, and construction industry codes of practice and best practice standards are complied with.

Ex1.1.3 This Outline Offshore CEMP is structured as follows:

- **Section 1.1** Introduction
- **Section 1.2** Roles and Responsibilities
- **Section 1.3** Legislation and Guidance
- **Section 1.4** Related Plans and Procedures
- **Section 1.5** Competence, Training and Awareness
- **Section 1.6** Communication
- **Section 1.7** Method Statements
- **Section 1.8** Environmental Incidents
- **Section 1.9** Monitoring and Review
- **Section 1.10** Offshore Environmental Control Measures
- **Section 1.11** Landfall Installation – Environmental Commitments
- **Section 1.12** Offshore Environmental Commitments
- **Section 1.13** Maintenance Measures

Ex1.1.4 On confirmation of a Principal Contractor, this Outline Offshore CEMP will be updated to reflect specific proposed construction methods and approved by the relevant authorities. The Offshore CEMP will be a live document which will continue to evolve and is subject to refinement, amendment, and expansion as necessary.

Ex1.1.5 Compliance with the contents of the Offshore CEMP is intended to provide a systematic approach to environmental management so that environmental risks are identified, incorporated in all decision-making, and managed appropriately.

Ex1.1.6 The Final Offshore CEMP will be approved by the relevant licencing authority and will be periodically reviewed and updated by National Grid as required, to ensure environmental risks are managed and mitigated throughout.

1. Outline Offshore Construction Environmental Management Plan

1.1 Introduction

1.1.1 The Sea Link Project (hereafter referred to as the 'Proposed Project') is a proposal by National Grid Electricity Transmission plc (hereafter referred to as National Grid) to reinforce the transmission network in the South East and East Anglia. The Proposed Project is required to accommodate additional power flows generated from renewable and low carbon generation, as well as accommodating additional new interconnection with mainland Europe.

1.1.2 National Grid owns, builds and maintains the electricity transmission network in England and Wales. Under the Electricity Act 1989, National Grid holds a transmission licence under which it is required to develop and maintain an efficient, coordinated, and economic electricity transmission system.

1.1.3 This would be achieved by reinforcing the network with a High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk and the existing Richborough to Canterbury 400 kV overhead line close to Richborough in Kent.

1.1.4 National Grid is also required, under Section 38 of the Electricity Act 1989, to comply with the provisions of Schedule 9 of the Act. Schedule 9 requires licence holders, in the formulation of proposals to transmit electricity, to:

1.1.5 Schedule 9(1)(a) '…have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest;' and

1.1.6 Schedule 9(1)(b) 'do what [it] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects'.

Purpose of this Document

1.1.7 This Offshore Outline Construction Environmental Management Plan (CEMP) has been prepared on behalf of National Grid to support the Application for a Development Consent Order (DCO). The Offshore CEMP provides a key mechanism, through which the relevant regulatory authorities can be assured that environmental management required during the construction and operation of the Proposed Project will be formally controlled. The Offshore CEMP is secured by requirement 6 of the DCO and condition 3 of the deemed marine licence (dML) (see **Schedule 15 Deemed Marine Licence** in **Application Document 3.1 (E) draft Development Consent Order**). This document should be read in conjunction with **Application Document 7.5.3 Onshore Construction Environmental Management Plan**.

1.1.8 The purpose of a CEMP is to specify the overarching principles and detailed measures to minimise as far as reasonably practicable and mitigate the effects of the construction

activities associated with the Proposed Project on the surrounding environment. It will also ensure that construction activities cause minimum disruption to local residents and members of the public, by helping to create a safe and secure working environment. More specifically, the Offshore CEMP will:

- ensure that relevant mitigation measures set out in the Environmental Statement (ES) as submitted in support of the DCO application are implemented during all relevant construction activities;
- take into account relevant planning policies; and
- ensure that relevant legislation, Government and industry standards, and construction industry codes of practice and best practice standards are complied with.

1.1.9 On confirmation of a Principal Contractor (the organisation that will manage the construction of the Proposed Project), this Outline Offshore CEMP will be updated to reflect specific proposed construction methods and approved by the relevant authorities.

1.1.10 Compliance with the contents of this Outline Offshore CEMP is intended to provide a systematic approach to environmental management so that environmental risks are identified, incorporated in all decision-making, and managed appropriately.

1.1.11 The Final Offshore CEMP will be approved by the relevant licensing authority and will be periodically reviewed and updated by National Grid as required, to ensure environmental risks are managed and mitigated throughout. Any updates to the Final Offshore CEMP would be agreed with the relevant licensing authority. In particular, it will be updated to take account of the following:

- changes in design;
- changes in external factors such as regulations and standards;
- any unforeseen circumstances as they arise such as new protected species or new archaeological finds and provide a mitigation framework for this;
- good construction practices and ensure these are adopted and maintained throughout;
- the results of audits and inspections; and
- learning points from environmental near misses and accidents.

1.1.12 A Marine Licence will be deemed to have been granted within the DCO which will secure the necessary mechanism for protection of the marine environment associated with licensed activities. The DML will provide consent for all construction works below the Mean High Water Spring (MHWS) tidal mark and includes Conditions to control those works and mitigate potential impacts.

Overview of the Proposed Project

1.1.13 The Proposed Project would comprise the following elements:

The Suffolk Onshore Scheme

- A connection from the existing transmission network via Friston Substation, including the substation itself. Friston Substation already has development consent as part of other third-party projects. If Friston Substation has already been constructed under

another consent, only a connection into the substation would be constructed as part of the Proposed Project.

- A high voltage alternating current (HVAC) underground cable of approximately 1.9 km in length between the proposed Friston Substation and a proposed converter station (below).
- A 2 GW HVDC converter station (including permanent access from the B1121 and a new bridge over the River Fromus) up to 26 m high plus external equipment (such as lightning protection, safety rails for maintenance works, ventilation equipment, aerials, similar small scale operational plant, or other roof treatment) near Saxmundham.
- A HVDC underground cable connection of approximately 10 km in length between the proposed converter station near Saxmundham, and a transition joint bay (TJB) approximately 900 m inshore from a landfall point (below) where the cable transitions from onshore to offshore technology.
- A landfall on the Suffolk coast (between Aldeburgh and Thorpeness).

The Offshore Scheme:

- Approximately 122 km of subsea HVDC cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay.

The Kent Onshore Scheme:

- A landfall point on the Kent coast at Pegwell Bay.
- A TJB approximately 800 m inshore to transition from offshore HVDC cable to onshore HVDC cable, before continuing underground for approximately 1.7 km to a new converter station (below).
- A 2 GW HVDC converter station (including a new permanent access off the A256), up to 28 m high plus external equipment such as lightning protection, safety rails for maintenance works, ventilation equipment, aerials, and similar small scale operational plant near Minster. A new substation would be located immediately adjacent.
- Removal of approximately 2.2 km of existing HVAC overhead line, and installation of two sections of new HVAC overhead line, together totalling approximately 3.5 km, each connecting from the substation near Minster and the existing Richborough to Canterbury overhead line.

1.1.14 The Proposed Project also includes modifications to sections of existing overhead lines in Suffolk (only if Friston Substation is not built pursuant to another consent) and Kent, diversions of third-party assets, and land drainage from the construction and operational footprint. It also includes opportunities for environmental mitigation and compensation. The construction phase will involve various temporary construction activities including overhead line diversions, use of temporary towers or masts, working areas for construction equipment and machinery, site offices, parking spaces, storage, accesses, bellmouths, and haul roads, as well as watercourse crossings and the diversion of public rights of way (PROWs) and other ancillary operations.

Summary of Key Offshore Environmental Receptors

1.1.15 A summary of the key environmental receptors for the Proposed Project are contained within Table 1.1. The Final Offshore CEMP will provide further detail on the specific receptors for each topic relevant to environmental management and whether any specific measures are required for a given receptor.

Table 1.1 Key environmental receptors during construction

Topic	Key Receptors
Physical Processes	Seabed geology and morphology; Local sediment transport regimes; and Impacts on coastal and marine processes.
Benthic Ecology	Benthic habitats and species; and Marine Protected Areas.
Fish and Shellfish	Marine fish and shellfish species; and Marine Protected Areas.
Marine Mammals	Cetaceans; Pinnipeds; and Marine Protected Areas.
Marine Ornithology	Marine bird habitats; Prey species and habitats; and Marine Protected Areas.
Marine Archaeology	Known wreck sites; Potential maritime/aviation receptors; Seabed prehistory; and Historic seascape character.
Shipping and Navigation	Commercial shipping.
Commercial Fisheries	UK fishing fleet; and International fishing fleets.
Other Sea Users	Recreational activities; Recreational angling; and Other marine users.

Timing of Activities

1.1.16 Subject to gaining development consent, construction works would be expected to start in 2026 and be functionally completed by 2031. Indicative timings of the Proposed Project are outlined below in Table 1.2.

Table 1.2 Outline offshore construction timelines (below MHWS)

Key Task	Related Activities	Indicative Duration	Timeframe
Pre-Installation	Unexploded Ordnance (UXO) Surveys/Clearance	124 days	Q2 2026 to Q1 2028
	Trial Trenching (If required)	TBC	
	Pre-Sweeping	48 days	
	Crossing Preparation	10 days	
	Cable Route Clearance	10 days	
Suffolk Landfall Installation	Marine Mobilisation	6 days	Q1 to Q3 2028
	Trenchless Operations	28 days per duct	
	Marine Demobilisation/Contingency	16 days	
Kent Landfall Installation	Marine Mobilisation	6 days	Q1 to Q3 2027
	Trenchless Operations	19 days per duct	
	Marine Demobilisation	4 days	
2028 Submarine Cable Installation (Pegwell Bay to the Sunk)	Cable Lay	86 days	Q2 to Q4 2028
	Cable Burial	64 days	
	Post-Lay Rock	37 days	
2029 Submarine Cable Installation (Aldeburgh to the Sunk)	Cable Lay	303 days	Q2 2029 to Q1 2030
	Cable Burial	34 days	
	Post-Lay Rock	72 days	

1.2 Roles and Responsibilities

1.2.1 Envisaged roles with defined environmental responsibilities are detailed below. The Final Offshore CEMP will provide details of all roles relevant to environmental management. An organogram depicting environmental management roles and arrangements will also be provided in the Final Offshore CEMP.

1.2.2 It is the responsibility of all staff involved with the Proposed Project to ensure the correct implementation of the CEMP and the environmental mitigation contained within. The Final Offshore CEMP will include details on roles and responsibilities, however, during the construction phase of the Proposed Project the key environmental responsibilities are likely to be held by the following:

Table 1.3 Outline roles and responsibilities

Role	Responsibilities
Project Manager / Director	Overall environmental management of the Proposed Project, ensuring that all works are carried out in accordance with the Offshore CEMP.
Environmental Manager	Work with programme planners and project managers to ensure consents (including any secondaries to the DCO application) are embedded within the programme. Monitor submission of consent applications and ensure their timely delivery. Provide input to consultation with consent granting bodies, commitment holders and other third parties. Co-ordinate and manage all required scheduled consents. Ensure environmental consents are obtained in line with the programme. Monitor and report progress on consents and commitments. Monitoring construction works for compliance against Environmental Risk Assessment and method statement control measures. Co-ordination of all environmental documentation. Monitoring environmental training, consultation and implementation of contractor procedures. Attending appropriate HSE committee meetings. Monitoring of all environmental incidents and ensuring they are reported and investigated. Undertaking audits/inspections, Monitor and advise on compliance with duty of care, the Waste Management Plan or any permits and/or exemptions. Monitoring and measurement of waste. Communicate sustainability good practice, innovation and targets to the project team and supply chain. Keep a record of key performance indicators. Act as the main point of contact on environmental matters relating to the Proposed Project.
Environmental Clerk of Works	A qualified and experienced Environmental Clerk of Works (EnvCoW) will be available during the construction phase in Pegwell Bay to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the CEMP. The EnvCoW will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required good practice and mitigation measures.
Community Relations Agency / Public Relations Officer	To advise on dissemination of project material to the public. To track complaints from members of the public and respond within reasonable time frames.

Role	Responsibilities
	To liaise with members of the public regarding issues such as any specific anticipated nuisance.
Fisheries Liaison Officer (FLO)	Will be maintained throughout installation to ensure project information is effectively disseminated to ensure a dialogue is maintained with the commercial fishing industry and access to home ports remains during the main fishing season.
Engineering Manager	Ensure environmental issues and constraints are included in individual designs, in accordance with environmental design procedures.
Construction Manager	Advising Contractor representative on the implementation of the Offshore CEMP. Monitoring construction works for compliance against Environmental Risk Assessment and any method statement control measures. Monitoring environmental training, consultation and implementation of contractor procedures. Accompanying Environment Inspections where required and any environmental authority inspections. Attending Environmental co-ordination meetings.
Works Supervisors	Ensuring that all work is carried out in accordance with project requirements. Ensure that staff under their supervision are aware of their environmental responsibilities. Ensure key risks are identified and brief operatives on environmental topics. Carry out inspections to identify any environmental issues.
General Operatives	Ensuring environmental mitigation measures are carried out during the course of their duties, in line with project requirements. Working considerately with a good working ethic in order to minimise adverse environmental impacts and follow all requirements communicated during briefings and project training sessions. Informing relevant persons of any environmental issues through timely reporting, so that these can be communicated to the project management team for further investigation and for immediate appropriate action when safe to do to prevent a worsening situation. Attending the project induction prior to commencing work where details of the environmental requirements will be provided. A Contractors key role listing will be included in the Final Offshore CEMP.

1.3 Legislation and Guidance

Legal Compliance

1.3.1 Considerable environmental legislation applies to the works to be undertaken. All relevant legislation, including requirements for licences, permits and / or consents shall be identified, and the appointed Contractors will be required to provide details on how compliance is to be achieved, as part of the construction process.

1.3.2 The progress of the preparation, submission and internal approval of the consents identified as being required will be tracked prior to construction. The relevant applicable environmental legislation and regulations will be identified.

1.3.3 The list of relevant legislation and its applicability to the works will be reviewed and updated whenever necessary by National Grid and relevant Contractors.

National Legislation and Guidance

1.3.4 A number of national legislative measures and guidance are specifically applicable to the Marine works. These are listed below.

- Marine and Coastal Access Act (MCAA) 2009.
- The Conservation of Habitats and Species Regulations 2017 (amended 2019) (known as the Habitats Regulations) which transpose the EC Directive 92/43/EEC (the Habitats Directive) into national law. This legislation covers waters within the 12 nautical mile (NM) limit (known as territorial waters).
- The Conservation of Offshore Marine Habitats and Species Regulations 2017 (known as the Offshore Regulations) which transpose the Habitats Directive into UK law for all offshore activities. This legislation covers UK waters beyond the 12 NM limit;
- The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Statutory Instrument 2017 No. 407).
- Wildlife and Countryside Act 1981 (as amended).
- Environment Act 2021.
- UK Biodiversity Action Plan 2007.
- Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

Other Relevant Legislation and Guidance

1.3.5 International legislation and guidance relevant to the marine works are listed below.

- United Nations Convention on the Law of the Sea;
- Convention on the International Regulations for Preventing Collisions at Sea;
- International Convention for the Safety of Life at Sea (SOLAS) Chapter V;
- Standards of Training, Certification and Watch keeping for Seafarers (STCW) 1978;
- Submarine Telegraph Act (1885);

- International Convention for the Prevention of Pollution from Ships (MARPOL);
- International Convention on the Control of Harmful Anti-Fouling Systems in Ships (AFS Convention);
- IMO Biofouling Guidelines (resolution MEPC.207(62)); and
- International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM).

1.4 Related Plans and Procedures

1.4.1 Other related plans and procedures submitted with this application of relevance to this Outline Offshore CEMP are outlined in Table 1.4. These plans set out receptor specific measures and commitments and provide details on processes and procedures for ensuring compliance with specific measures and commitments. Final versions of these plans will be prepared post consent in consultation with relevant stakeholders (as required) prior to submission to the relevant regulatory authorities for approval.

Table 1.4 Other relevant plans

Plan	Application Document Reference
Onshore Construction Environmental Management Plan	7.5.3
Register of Environmental Actions and Commitments (REAC)	9.84
Outline Offshore Overarching Written Scheme of Investigation (OWSI)	7.5.5
Outline Marine Mammal Mitigation Plan	7.5.11
Outline Offshore Invasive Non-Native Species Management Plan	7.5.12
Outline Marine Biosecurity Plan	7.7
Red Throated Diver Protocol	7.8
Outline Navigation and Installation Plan	9.12
Outline Cable Specification and Installation Plan	9.92
Outline Fisheries Liaison and Coexistence Plan	9.85

1.5 Competence, Training and Awareness

1.5.1 National Grid will have a system in place to ensure that Contractors are competent to perform their scope of work.

1.5.2 Contractors shall identify the training needs of their employees and subcontractors so that they can implement the requirements of this Outline Offshore CEMP (and the Final Offshore CEMP once agreed) into briefings and construction method statements.

1.5.3 Specific training needs will be developed for individuals to reflect the work to be carried out on the Proposed Project and the significant risks and opportunities identified.

1.5.4 A project introduction will be given to all personnel prior to starting on the project. Detailed of this induction will be provided in the Final Offshore CEMP.

1.5.5 All personnel will be aware of their general environmental management responsibilities, and for those whose work may cause, or have the potential to cause, a significant impact on the environment, to receive specific environmental awareness briefings. Environmental awareness will be reinforced through information, such as toolbox talks, poster campaigns, environmental/sustainability performance indicator reports and environmental alerts.

1.5.6 All contractors are responsible for ensuring the competency of their environmental staff. In the event that environmental training is needed for staff, a contractor is responsible for ensuring this requirement is fulfilled. Any training provided to members of the project team will be logged by the project administrator and any certification documents will be produced by the relevant members of staff as evidence that they hold the required competencies.

Toolbox Talks and Training

1.5.7 To provide on-going reinforcement and awareness training, the below topics, along with any other environmental issues which arise, will be discussed at regular toolbox talks. Where applicable to the works the following topics will be included in the induction:

- Waste management.
- Pollution prevention and control.
- Biosecurity.
- Environmental measures.
- Archaeology.
- Emergency response procedures.

1.5.8 Additional toolbox talks shall be added as required based on circumstances such as unforeseen risks, repeated observation of bad practices, perceived lack of awareness, pollution event, etc.

1.5.9 Records of all toolbox talks and their attendees shall be maintained and recorded.

1.6 Communication

Internal Communication

1.6.1 Communication on environmental issues within the project team will take place through face-to-face conversations, e-mails and telephone calls. Environmental incidents will be recorded on a formal reporting platform to be confirmed by the Principal Contractor. The project management team will be made aware of all environmental issues at the earliest possible opportunity. Communication on environmental matters will be maintained through construction meetings chaired by the Environmental Manager or a senior manager.

1.6.2 Environmental issues identified by any member of the project team will be communicated to the relevant personnel to ensure any required actions are carried out. Dissemination of information will take place in several forms, as appropriate, including meetings to discuss particular project issues, method statements, task / activity briefings, toolbox talks, inductions, environmental notices and environmental alerts. Records that these have been carried out and who received them will be recorded. The Environmental Manager will notify Supervisors of any legislation changes which may affect working practices.

1.6.3 Any unexpected finds/occurrences by project staff can be reported to their supervisors, which will then give notification to the relevant member of the National Grid Environmental Team who will advise on the course of action to be taken.

External Communication

Notifications

1.6.4 Notifications of the Offshore Scheme will be made; this shall include:

- Notice(s) to Mariners, Radio Navigational Warnings, NAVTEX and / or broadcast warnings will be issued prior to the commencement of installation works, to include the following as a minimum:
  - Notifications to the Trinity House, the Maritime and Coastguard Agency and relevant harbour and port authorities.
  - Regular vessel operators (e.g., ferry operators).
  - The Ministry of Defence (MoD) will be notified prior to commencement of construction activities within any Military Practice and Exercise Areas.
- Appropriate notification will be provided to advise beachgoers and those using the area for recreation in the close vicinity of each landfall.
- Other marine energy infrastructure operators to confirm operation dates and otherwise rationalise activity schedules, as required.
- Regular consultation will be made with third-party infrastructure asset owners to notify them of any activities associated with the Offshore Scheme and avoid spatial and temporal interactions between vessels.

1.6.5 This list will be confirmed within the Final Offshore CEMP.

Communication with National Grid

1.6.6 Contractors will liaise regularly with National Grid and its representatives regarding the programme of works, nature of the operations and methods to be employed to minimise adverse environmental impacts. This will include progress meetings as well as the production and submission of progress reports which will cover environmental / sustainability issues. Contractors will also supply all relevant supporting information and documentation to National Grid for matters concerning consents and the environment in accordance with the appropriate timescales.

Statutory authorities and other stakeholders

1.6.7 Unless otherwise agreed in other documentation within Condition 4 of the dML, In the event of stakeholder liaison being required with local authorities or other stakeholders, the Contractors will identify the requirement and seek authorisation from National Grid to undertake the task. Where consultation is required, a representative from National Grid will be invited to attend alongside the relevant Contractor personnel.

1.6.8 Project staff will keep an archive of any e-mail correspondence between themselves and statutory authorities and other stakeholders concerning the activities taking place. In the event that any complaints are received a log of correspondence, and complaints will be kept up to date by the relevant Contractor.

Public relations

1.6.9 A community relations agency will be appointed to provide dedicated community relations and external communications support. The community relations agency will work with the internal established communications team at National Grid.

1.6.10 A 24 hour free telephone hotline will be available, and a project website will be established and managed by the community relations team. The project helpline number and website URL details will be visible on boards placed around the perimeter of the construction site in appropriate locations where they would be visible to the public. The telephone number and project website details will also be provided to the local authorities.

1.6.11 The community relations team will ensure the details of any complaints are recorded and all complaints are appropriately managed. Complaints will be investigated, and appropriate action will be taken.

1.6.12 In addition to the project telephone helpline and project website, complaints from an external party may also be received via a number of other communication routes to be confirmed on appointment of a Principal Contractor. Any such communications will also be passed to the community relations team.

1.6.13 Where a person from a community local to the works makes a complaint, it will be passed initially to the community relations team. The community relations team will liaise with the other members of the project team to investigate the complaint. Appropriate action will be taken by the project construction team and both the complaint, and the action taken in response, will be recorded.

Complaints procedure

1.6.14 Any complaints associated with the construction of the Proposed Project, including non-conformance with the CEMP and other management plans, will be reported, recorded and investigated using a detailed complaints procedure developed by the contractor in consultation with the community relations team.

1.6.15 The detailed complaints procedure (including but not limited to complaints relating to noise, dust, vibration, pollution and construction traffic) will set out:

- how and to whom complaints can be made;
- a reasonable timeframe for responding to complaints;
- the potential remedies available to address complaints; and
- who to contact in the event that the complainant is not satisfied with the outcome.

1.6.16 Primarily any minor issues or complaints relating to site incidents will be dealt with by the contractor site management team. For the escalation of these issues or for more serious issues these will be dealt with by National Grid project team.

1.7 Method Statements

1.7.1 The implementation of Method Statements for the different activities of the Proposed Project works shall be completed by the relevant Contractor(s), by trained staff or other appropriate experienced personnel, in consultation with specialists. Their production shall include a review of the environmental/health and safety risks and commitments, so that appropriate control measures are developed and included within the construction process.

1.7.2 Method Statements will be reviewed by National Grid, the Contractor's Project Manager and, where necessary, by an appropriate environmental specialist. Where appropriate, method statements will be submitted to the relevant regulatory authorities.

1.7.3 Method statements must contain as a minimum:

- Location and duration of the activity;
- work to be undertaken and methods of construction;
- plant and materials to be used;
- labour and supervision requirements;
- health, safety and environmental considerations (including relevant control measures); and
- permit or consent requirements.

1.7.4 Deviation from approved method statements (where this is a statutory requirement) will be permitted only with prior approval from relevant parties. This will be facilitated by formal review and authorised amendment to the method statement which will be re-issued before any deviation is undertaken.

1.8 Environmental Incidents

1.8.1 The formal procedure for handling Environmental Incidents will be developed and agreed by the Contractor / Construction Manager and communicated through the Final Offshore CEMP, however it is envisaged that it will be similar to that detailed below:

- environmental Incidents are to be reported to the Construction Manager and relevant authorities as required;
- the Construction Manager (or nominated representative) will record full details of the Environmental Incident and ensure that they are responded to as soon as reasonably practicable (preferably within one hour but always within 24 hours; and
- the Construction Manager (or nominated representative) will undertake an investigation to assess what corrective and preventative action, or further investigation is necessary to avoid recurrence of the Environmental Incident.

Environmental Incident Response Procedure

1.8.2 A Marine Pollution Contingency Plan (MPCP) will be developed for the Proposed Project as part of the Final Offshore CEMP. The production of this document be submitted to the licensing authority for approval prior to construction.

1.8.3 At this stage, it is envisaged that the plan will incorporate the following processes. The final response procedure will be presented in the MPCP which will be produced post consent.

1.8.4 Each vessel utilised on the project will have an effective spill response process in place, i.e. a Ship Oil Pollution Emergency Plan (SOPEP), or equivalent.

1.8.5 SOPEP is a MARPOL 73/78 requirement under Annex I. All ships with 400 GT and above must carry an oil prevention plan as per the norms and guidelines laid down by the International Maritime Organisation (IMO) under Marine Environmental Protection Committee (MEPC) act.

1.8.6 The Master of the ship has overall charge of the SOPEP of the ship, along with the chief officer as subordinate in charge for implementation of SOPEP on board. SOPEP also describes the plan for the master, officer and the crew of the ship to tackle various oil spill scenario that can occur on a ship.

1.8.7 All vessels will carry spill kits, and, on all vessels, suitable individuals will be available to provide 24 hour spill response (where 24 hour working is planned). Individuals will have been trained in the use of spill kits and procedures so that any response is carried out immediately and efficiently.

1.8.8 In addition, Contractors will work with local authorities to provide support in any incident occurring where pollution of the marine environment occurs.

Dropped Objects

1.8.9 Dropped objects will be reported in line with the requirements set out in the deemed marine licence.

Emergency Contact Details

1.8.10 This section in the Final CEMP will outline the emergency contact details for the Proposed Project once finalised prior to the commencement of construction activities.

1.8.11 The Marine Management Organisation must be notified of any oil, fuel or contaminant spill to the marine environment as soon as possible. The notifications must be made through internal reporting to National Grid in the first instance shortly followed by the Marine Management Organisation (MMO) (0300 200 2024 office hours; 07770 977 825 outside office hours).

1.9 Monitoring and Review

1.9.1 The Environmental Manager will hold the responsibility for maintaining a register of all environmental monitoring, which will be made available for auditing and inspection.

1.9.2 Reporting procedures will be defined by the Environmental Manager who will hold overall responsibility for providing feedback to the Contractors and National Grid on the environmental performance of the construction works.

Audits and Inspections

1.9.3 Regular monitoring shall occur to ensure compliance with the Offshore CEMP, check compliance with the legal and contractual requirements and to minimise the risk of damage to the environment. All environmental incidents shall be reported to the Environmental Manager.

1.9.4 The Environmental Manager shall assess the works' environmental performance measured against environmental standards, relevant legislation and the Offshore CEMP objectives.

1.9.5 Document control shall be in accordance with a Quality Management System and copies of all environmental audit reports, consents and licences shall be maintained by the Contractor's Environmental Manager.

1.9.6 Contractors shall be responsible for investigating and addressing any non-conformances raised by the inspection within an agreed time frame and ensuring that corrective and preventative actions have been fully closed out.

1.9.7 Contractors and a National Grid representative shall be responsible for updating and reviewing the Offshore CEMP on a regular basis to ensure continual improvements.

Data Sharing

1.9.8 Relevant survey and monitoring data will be shared in the appropriate formats with the relevant Local Environmental Records Centre(s) and / or relevant national and regional environmental recording schemes.

1.10 Offshore Environmental Control Measures

Overview

1.10.1 This section sets out the environmental control measures to be adopted during construction. The Developer will ensure that all sub-contractors adhere to the environmental good practice guidelines for implementation during work activities.

Pre-Installation Surveys

1.10.2 Pre-installation surveys will be completed to inform detailed engineering and cable installation planning. They will focus on collection of detailed information within the preferred route for the bundled cables, all within the Offshore Scheme. They will confirm the absence or presence of any new obstructions or significant changes to seabed conditions and bathymetry. Survey methods may include:

- geophysical survey including multibeam and single beam echo sounders, side scan sonar (SSS), and sub-bottom profiler (SBP);
- magnetometer/gradiometer to identify magnetic anomalies and metallic targets;
- visual methods including remotely operated vehicle (ROV); and
- geotechnical investigations such as grabs, vibrocore and cone penetration test (CPT).

1.10.3 These surveys (geophysical and geotechnical) will provide information on the following:

- Debris;
- Boulders;
- Archaeological features;
- Unexploded Ordnance (UXO) presence;
- Sediment features;
- Sediment depth; and
- The specific nature of the seabed.

1.10.4 Data collected during the geophysical and geotechnical surveys will also be used to inform the identification and mapping of any features of importance for benthic ecology.

1.10.5 A confirmed list of pre-installation survey methods will be included in the Final Offshore CEMP which will be subject to approval by the MMO in consultation with Natural England.

Micro-Routing/Detailed Design

1.10.6 As set out in Commitment GM04 presented in Table 1.5 detailed route development and micro-routeing will be undertaken within the Offshore Scheme Boundary, informed by pre-installation evaluation of site-specific survey data to avoid or minimise localised engineering and environmental constraints. This will include minimising the footprint as much as possible.

1.10.7 Navigational features such as charted or known anchorages, maintained channel depths and prohibited regions will be avoided.

1.10.8 Changes to the sedimentary and metocean environments will be minimised by careful route selection and the use of appropriate burial techniques and cable protection methods for the laying of rock placement.

1.10.9 Cable configuration will be optimised to minimise electromagnetic field (EMF) during detailed design and reduction in charted water depth to lowest astronomical tide (LAT) will be limited to less than 5% where possible (excluding the Areas of Safeguarded Water Depth where no reduction is implemented).

Table 1.5 Micro-Routing/Detailed Design

Commitment	REAC Number	Relevant Plan
Sensitive routeing and siting of infrastructure and temporary works.	GM04	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP 9.140 Outline In Principle Monitoring Plan

Commitment	REAC Number	Relevant Plan
All phases of the cable routing and design will seek to minimise impacts on habitats of principal importance (qualifying as Habitats Regulations Annex I habitats; Natural Environment and Rural Communities (NERC) Section 41 habitats and species), including micrositing and consideration of the use, type and location of cable protection.	BE06	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP 9.140 Outline In Principle Monitoring Plan

1.10.10 A Cable Burial Risk Assessment (CBRA) and Burial Assessment Study (BAS) have been undertaken to include detailed micro-routeing, trenching methods and external protection measures for the final design of the Offshore Scheme prior to commencement of construction activities.

1.10.11 The current CBRA (**Application Document 9.21 Sea Link Cable Burial Risk Assessment [PDA-039]**) will be updated post-consent and prior to construction.

Post-Installation Survey and Monitoring

Engineering monitoring (routine)

1.10.12 Post-installation monitoring will comprise two phases, focusing on cable installation and ensuring DOL is achieved as required:

- Immediate post installation:
  - Baseline as-built depth of lowering (DOL) survey (ideally a continuous survey after installation and protection completed).
  - DOL monitoring survey 12 months after commissioning comprising General Visual Inspection (GVI), bathymetric survey (MBES) and buried cable detection (cable tracker) to chart the cable depth of lowering over time.
- Operational inspection, maintenance and repair (IMR) programme:
  - Electrical testing and monitoring of the system.
  - DTAS (Digital Temperature and Acoustic Sensing) HVDC status monitoring via fibre optic cable (innovative in-situ monitoring of cable via near real-time temperature and acoustic monitoring which can inform of changes to the cable by intrusive contact as well as variations in depth of burial dependant on thermal changes on the baseline conditions).
  - Targeted surveys of areas where DOL hotspots are detected from DTAS monitoring such as shipping channels and cable crossings.
  - Occasional visual surveys of shipping channels and cable crossing may also be required to ensure DOL is maintained in these locations e.g. every five years.
- Automatic Identification System (AIS) vessel monitoring to track any vessels stationery or acting suspiciously in the vicinity of the cable.

Emergency Repairs

1.10.13 For the purposes of this document, emergency cable repair means works whose execution, at the time when they are carried out, is required in order to put an end to, or to prevent the occurrence of, circumstances which are existing or imminent (or reasonably believed to be so) and which may give rise to danger to persons or property, or adversely affect the safe and proper functioning, integrity, or operability of the offshore HVDC cable asset. Such works are deemed to be time-critical in order to minimise disruption to the continued transmission of electricity, maintain the stability and security of the national electricity transmission network, and reduce risks to other marine users and third parties.

Environmental Monitoring Commitments

1.10.14 In line with good practice, monitoring must have a clear purpose in order to provide answers to specific questions where significant environmental impacts have been identified.

1.10.15 Monitoring should be targeted towards significant evidence gaps or uncertainties, which are relevant to the project and can be realistically delivered by project level monitoring, as well as those receptors considered to be the most sensitive to project specific impacts including those of conservation, ecological and/or economic importance. The significance of a residual effect, should not, on its own, necessarily lead to a requirement for monitoring.

1.10.16 Although no moderate or major residual significant effects have been identified for any marine environmental receptors, and no significant data gaps or areas of uncertainty have been identified for the Proposed Project with regards to baseline data, the Proposed Project has prepared **Application Document 9.140 Offshore Outline In-Principal Monitoring Plan (IPMP)**.

1.10.17 **Application Document 9.140 Offshore Outline In-Principal Monitoring Plan (IPMP)** sets out the basis for delivering offshore monitoring measures for the Proposed Project as expected to be required under the deemed Marine Licence (dML). It provides a framework for further discussions post consent with the MMO and the relevant authorities to agree the exact detail (timings, methodologies etc.) of the monitoring that is required. Final detailed plans will be produced prior to the commencement of any monitoring work.

1.10.18 Agreeing guiding principles reinforces commitments made in the Environmental Statement (ES) and complements Conditions set out in the DCO/dML and allows refinements to be made based on the best available knowledge and technology. Final detailed plans for monitoring work would be produced closer to the time that the actual work would be undertaken and based on information available at that time.

1.10.19 Key offshore monitoring commitments are listed in Table 1.6 below.

Table 1.6 Offshore Environmental Monitoring Commitments

Commitment	REAC Number	Relevant Plan
As outlined within the Cable Specification and Installation Plan secured under Condition 4 of the	MPE05	9.92 Outline Cable Specification and

Commitment	REAC Number	Relevant Plan
dML, during the lifetime of the project, scheduled monitoring of the system would be undertaken via a preliminary inspection, maintenance and repair (IMR) programme as the basis for preventative maintenance may comprise of the following: • Base-line as-built depth of lowering (DOL) survey (ideally a continuous survey after installation and protection completed). • Initial DOL monitoring survey 12 months after commissioning and handover to operations. • Monitoring surveys (either using DTAS or vessels) to establish any areas where any DOL or cable system anomalies may develop and inform the maintenance programme.		Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP 9.140 Outline In Principle Monitoring Plan
Over the operational lifetime of the Proposed Project, monitoring of the beach profile and erosion rates will be carried out at both the Suffolk and Kent landfall sites in relation to the trenchless technique construction areas associated with the exit pits. The frequency and scope of monitoring would be dependent on the outcomes of the pre-construction surveys and ‘as-built’ status of the Offshore Scheme. The Applicant will produce a monitoring plan, in substantial accordance with the outline In-Principle Monitoring Plan to be submitted to the MMO to cover works below Mean High Water Springs within three months of the 'as-built survey' unless otherwise agreed in writing by the MMO.	MPE06	7.5.2 Outline Offshore CEMP 9.140 Outline In Principle Monitoring Plan
Further analysis will be undertaken to consider the potential for coastal erosion over the lifetime of the project in line with the Final Offshore Construction and Environmental Management Plan (CEMP). This information will be used to inform the detailed design of the Proposed Project, to ensure that the risk of future exposure of the intertidal and offshore buried cables is as reduced as far as practicable.	MPE08	7.5.2 Outline Offshore CEMP 9.140 Outline In Principle Monitoring Plan
The River Stour Channel will be monitored throughout the operational life of the asset in line with a monitoring and contingency plan as a Requirement. The plan will set out the frequency and methods for monitoring the location of the channel, contingency actions to be undertaken should the River Stour migrate to a location close to the cable and a ‘trigger’ point for when actions would be taken.	MPE09	7.5.2 Outline Offshore CEMP 9.140 Outline In Principle Monitoring Plan
In accordance with the Environmental Principles set out in the Outline Cable Specification and Installation Plan, where benthic habitats of principal importance	BE05	7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan
(qualifying as Habitats Regulations Annex I habitats; Natural Environment and Rural Communities or (NERC) Section 41 habitats and species) are identified during pre-construction surveys and additional mitigation is required to avoid or reduce impacts on these habitats, National Grid must prepare a Benthic Mitigation Plan. Any necessary Benthic Mitigation Plan(s) must be submitted to and approved in writing by the MMO prior to Work 6 in the dML commencing and should include a timetable for implementation of the mitigation and details of any necessary monitoring. Any agreed mitigation and/or monitoring must be implemented in accordance with the agreed timetable. A monitoring plan, in substantial accordance with the outline In-Principle Monitoring Plan will be submitted to the MMO (unless otherwise agreed in writing by the MMO) within three months of the 'as-built survey'		9.140 Outline In Principle Monitoring Plan
The Applicant will prepare a hoverport condition monitoring plan post consent to monitor the condition of the hoverport during construction. This will include measures for identifying and managing any potential contamination risk and will be prepared in consultation with the EA, NE, KWT and TDC for approval by TDC.	W37	7.5.2 Outline Offshore CEMP 7.5.3 Outline Onshore CEMP

Working Hours

1.10.20 Offshore Scheme installation will be a 24-hour / 7 days a week operation in the marine environment where viable to minimise overall installation time, maximise use of weather windows, and take advantage of vessel and equipment availability.

Pollution Prevention

1.10.21 A Marine Pollution Contingency Plan (MPCP) will be developed post-consent prior to construction of the Proposed Project. This plan will set out the measures to be in place to minimise the risks of pollution incidents as well as the procedures to be followed if a pollution incident does occur. These include key measures listed in Table 1.7 below.

1.10.22 The MPCP will also include the key roles and their responsibilities and relevant contact details.

Table 1.7 Pollution Prevention Measures and Commitments

Commitment	REAC Number
All project vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention).	LVS01

Commitment	REAC Number
All project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972) (IMO, 2019), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) (IMO, 2019) with the aim of preventing and minimising pollution from ships and the international Convention for the Safety of Life at Sea (SOLAS, 1974).	LVS02
An installation machine failure contingency plan will be produced prior to installation.	LVS03
All oil, fuel and chemical spills will be reported to the MMO Marine Pollution response team.	LVS04
Drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include: • the use of biodegradable drilling fluids (pose little or no risk (PLONOR) substances) where practicable; • drilling fluids will be tested for contamination to determine possible reuse or disposal; and • If disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.	LVS05

Drilling Fluid Management

1.10.23 Drilling fluids would be used to suspend rock cuttings and carry them out of the borehole, cooling the drilling equipment, clearing debris from the drilling bit, sealing the borehole and reducing friction on the drilling equipment.

1.10.24 As set out in Table 1.8 below, under measure GH10 the contractor will produce a detailed, drilling fluid management plan to be approved by the MMO in consultation with relevant stakeholders including Natural England, that includes drilling fluid breakout mitigation measures, where Horizontal Directional Drilling (HDD) (or similar) is proposed. This is applicable to all trenchless techniques at landfall. This plan will include consideration of potential impacts on nearby archaeological remains and sensitive benthic ecology (both direct and indirect) as a result of drilling fluid breakout. The plan will be developed by the contractor. All relevant permits will be obtained or exemption/exclusions registered by the Main Works Contractor(s) for the use of drilling fluids / additives, as applicable.

1.10.25 The essence of the plan will be as follows:

- During pilot hole drilling the contractor will monitor the drilling fluid pressure several metres behind the drilling bit using sensors in the downhole steering and surveying tool. This monitoring will give immediate warning of any significant change of pressure that might indicate fluid loss or surface frac out of drilling fluid. Additionally, during the pilot drilling the contractor will have a “spotter” walking the drill alignment as the HDD (or similar) drills from the saltmarsh to the exit monitoring for any frac out. The spotter will quickly identify any frac out, drilling will stop, and the frac out will be contained and removed. Containment is typically achieved by placing sandbags

around the fluid. Removal is typically by a small hand carried pump connected to layflat hoses that are extended to either the entry pit, exit pit, or a bowser at a suitable location nearby.

- During reaming of the bore, the fluids are contained within the cofferdam. The cofferdam will be at least 75 m from the saltmarsh (based on trenchless exit pits located at 105 m from the saltmarsh and maximum length of the cofferdam of 30 m). There will be pumps and storage at the cofferdam to recover any fluid should any escape from the cofferdam. There will be personnel at the location who will be able to quickly identify any losses and take the necessary remediation action. If drilling fluid does escape from the cofferdam, the fluid is more dense than water and remains in situ on the seabed unless there are strong currents or wave action. This is also true for flocculated drilling fluid. The incoming tide at the location, even with a very strong easterly wind, is very unlikely to move drilling fluid more than 20 m from the loss location. Therefore, in the unlikely event that fluid is lost from the cofferdam and not removed, there is a very low risk of any fluid being washed 75 m inshore to the edge of the saltmarsh.
- Before removal of the cofferdam, the drilling fluid will be removed from within the cofferdam as far as practicable. Following removal of the cofferdam the duct end will be buried and a watch will be kept over the following week for any accumulations of drilling fluid, that will be removed using the same methods as used during pilot drilling.

Table 1.8 Drilling Fluid Management Commitments

Commitment	REAC Number	Relevant Plan
The provision of a drilling fluid management plan, that includes drilling fluid breakout mitigation measures, where horizontal directional drilling is proposed. This plan will include consideration of potential impacts on nearby archaeological remains (both direct and indirect) as a result of drilling fluid breakout. The plan will be developed by the contractor and included within the Offshore and Onshore CEMPs. All relevant permits will be obtained or exemption/exclusions registered by the Main Works Contractor(s) for the use of drilling fluids / additives, as applicable.	GH10	7.5.2 Outline Offshore CEMP
In relation to trenchless landfall works at both Suffolk and Kent, the contractor(s) will prepare the following suite of plans: Kent Landfall: • Landfall Method Statement (Trenchless Techniques) and Drilling Fluid Management Plan, in consultation with NE, Kent Wildlife Trust (KWT), Royal Society for the Protection of Birds (RSPB), National Trust, and Thanet District Council, and submit the same for approval by the Marine Management Organisation (MMO) in accordance with the Cable Specification	B59	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan
and Installation Plan prior to the commencement of any trenchless activities. • The Landfall Method Statement (Trenchless Techniques) and Pegwell Bay Landfall Construction Method Statement must ensure that works below Mean High Water Springs in Pegwell Bay are programmed to avoid the wintering period (November to February). • Undertake landfall hydrofracture modelling which is to be shared for information only with NE, KWT, RSPB and National Trust when completed. Suffolk Landfall: • Landfall Method Statement (Trenchless Techniques) and Drilling Fluid Management Plan, in consultation with NE, Royal Society for the Protection of Birds (RSPB) and East Suffolk Council (ESC) and submit the same for approval by the Marine Management Organisation (MMO) in accordance with the Cable Specification and Installation Plan prior to the commencement of any trenchless activities. • Undertake landfall hydrofracture modelling which is to be shared for information only with NE, RSPB and ESC when completed. At each landfall location (Suffolk and Kent) Natural England, ESC, RSPB and KWT (respectively) will be notified of changes to landfall depth or changes to the location of the landfall exit pits.		
Measures to manage risk of frac out: • Ensuring sufficient surveys have been undertaken to understand the ground conditions to inform the final design; • Design a profile sufficiently deep for the methodology and conditions, with hydrofracture modelling used to check that there is sufficient factor of safety; • Use of a drilling fluids engineer to design and monitor the fluid properties; • Ensure that the trenchless bore is sufficiently clean of cuttings during drilling • Monitoring fluid pressures in the bore, and returns to the entry pit during drilling; • The use of “spotters”, personnel stationed above the onshore drill line to look for any frac out or break out; and • If drilling fluid losses occur, lost circulation material (LCM) may be added to seal the ground. As a last resort, cementitious grout may be used to seal fractures.	B09	7.5.2 Outline Offshore CEMP 7.5.3 Outline Onshore Construction Environmental Management Plan

Waste Management

1.10.26 A Waste Management Plan will be developed post-consent prior to construction. All waste will be managed by the relevant contractor and requirements in accordance with the Waste Hierarchy (a tool that prioritises how to manage waste in order of preference) implemented:

- Prevention.
- Minimisation.
- Reuse.
- Recycle.
- Energy recovery.
- Disposal.

1.10.27 During the works any waste generated will be dealt with in a lawful manner. At sea, no waste will be disposed of over the side of any vessel and all produced waste will be segregated and stored on board. All waste products and rubbish will be removed from the vessel and disposed of by a registered waste disposal company. Details of waste handling and anticipated types and volumes will be provided in individual method statements.

1.10.28 Best practice measures will be followed and any waste materials arising during the works will be removed for disposal at approved locations above the tidal level of MHWS (**Application Document 7.5.3 Onshore Construction Environmental Management Plan**).

Vessel Management

1.10.29 All vessels will follow the International Regulations for Preventing Collisions at Sea 1972 (COLREGS) and International Convention for the Safety of Life at Sea 1974 (SOLAS);

1.10.30 All vessels will be in compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL) regulations and will therefore be equipped with waste disposal facilities onboard. The discharging of contaminants is not permitted within 12 NM from the coast to preserve bathing waters;

1.10.31 Control measures and shipboard oil pollution emergency plans (SOPEP) will be in place and adhered to under MARPOL Annex I requirements for all vessels. Ballast water discharges from all vessels will be managed under International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention);

1.10.32 All vessels will adhere to the IMO guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (Biofouling Guidelines) (resolution MEPC.207(62);

1.10.33 Where possible, vessels will operate with dynamic positioning which will minimise anchor disturbance on the seabed;

1.10.34 All vessels will:

- display appropriate lights and shapes;
- all applicable vessels will broadcast their status on AIS at all times; and
- all vessels will follow Port bylaws and General Directions, including Vessel Traffic Service (VTS) communications from ports.

1.10.35 Guard vessels will use RADAR with Automatic RADAR Plotting Aid (ARPA) and Automatic Identification System (AIS) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during installation and maintenance work.

1.10.36 Rolling 500 m radius Recommended Restricted Zones will be in place around construction vessels, to protect both construction vessels (restricted in their ability to manoeuvre) and passing vessels from collision, as is standard practise. Recommended Restricted Zones would be established with communication to stakeholders and advanced notice to all and in liaison with Harwich and Sunk VTS.

1.10.37 Limits to wave height/wind speed conditions for operations / activities will be followed by all vessels.

1.10.38 Lighting on-board the vessels will be kept to the optimum level required to ensure safety of operatives onboard the vessel and safety of operations. This will minimise disturbance to seabirds and marine mammals.

Other Sea Users

1.10.39 It is recognised that the Proposed Project represents a major infrastructure construction project in the waters of the Southern North Sea that are also used by a variety of other sea users including other commercial shipping, the commercial fishing industry, and recreational sailors.

1.10.40 The primary method of cable installation across the Offshore Scheme is burial. The minimum depth of lowering (DOL) to the top of the cable will be 0.5 m (in areas of bedrock), with a target DOL for the Proposed Project approximately 1 m–2.5 m, to be achieved where possible dependent on the seabed geology (to be confirmed prior to Final Offshore CEMP).

1.10.41 Relevant information will be communicated to other sea users via Notices to Mariners (NtM), Radio Navigation Warnings Navigational Telex (NAVTEX) and/or broadcast warnings.

1.10.42 Timings of any temporary areas of exclusion from fishing grounds will be clearly communicated via a notice to mariners and via the FLO. Rock protection will be installed where cable protection is necessary. These will be designed with a 1:3 profile and flat crests, intended to prevent the risk of fishing gears snagging.

1.10.43 Guard vessel(s), using RADAR with Automatic RADAR Plotting Aid (ARPA) and Automatic Identification System (AIS) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during cable installation works. All guard vessels would also use AIS to monitor vessel activity and predict possible interactions, as well as engaging with vessels in the area and/or in conjunction with the SUNK vessel traffic system, in the most trafficked area of the route.

1.10.44 A FLO and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the

commercial fishing industry and access to home ports is maintained during the main fishing season.

1.10.45 Crossing and/or proximity agreements will be agreed with aggregate extraction, cable and pipeline owners. The crossing agreement describes the rights and responsibilities of the parties and also the design of the crossing. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable and pipeline owners as required.

1.10.46 As-built locations of cable and external protection will be supplied to the UK Hydrographic Office (UKHO) (Admiralty), The Crown Estate and Kingfisher (KIS-ORCA).

1.10.47 A compass deviation report will be produced prior to installation. A deviation of three degrees will be accepted for 95% of the whole cable route (between the UK and France) and a 5 degree deviation accepted for the remaining 5% of the whole cable route. If compass deviation is predicted to exceed 5 degrees, further consultation with the MCA will be undertaken prior to construction. This includes the areas where 2.5% of the cable exceeds MMO's 5 degree requirement at the Richborough end of the cable where it the water is particularly shallow over several km.

Cable Crossings

1.10.48 Each cable crossing will be designed in detail in accordance with the International Cable Protection Committee recommendations. Proximity and Crossing Agreements will be agreed with third-party infrastructure owners.

1.10.49 The Crossing Agreement describes the rights and responsibilities of the parties and also the design of the crossing. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable and pipeline owners.

1.10.50 Proximity agreements describe the approach to works close to, but not crossing third party assets, to ensure safety and manage interactions between the two projects. With regard to water depth and obstructions to passage - 5% reduction in depth is the maximum acceptable, unless agreed by consultation with UKHO and local ports where installations may restrict passage along shipping channels.

1.11 Landfall Installation – Environmental Commitments and Mitigation

1.11.1 This section sets out the commitments and measures to be adopted at the Suffolk and Kent landfalls to mitigate potential impacts across a range of intertidal (Mean Low Water Spring (MLWS) and Mean High Water Spring (MHWS) receptors associated with the Kent Landfall and subtidal (relevant to the Suffolk Landfall) associated with the Proposed Project.

1.11.2 Detail on the works involved at each landfall are provided in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**. Further detail on the works at the Kent Landfall in Pegwell Bay is provided in **Application Document 9.13 Pegwell Bay Construction Method Technical Note**.

1.11.3 The three key documents for landfall activities which would be developed post-consent and submitted to the MMO for approval are:

- **Landfall Method Statement (Trenchless Techniques):** This document describes how the contractor manages and carries out the trenchless activities associated with the installation of the landfall ducts. The document will typically be titled Landfall Risk Assessment & Method Statement (RAMS) as it includes a risk assessment of key construction, health and safety, and environmental risks. In summary, the document provides an outline method statement for the trenchless works from initial setup of the HDD (or similar) rig through to the as-left condition of the duct, with detailed content on the pilot drilling, reaming, and duct installation. Discrete operations such as, rig anchorage, casing installation, and marine works, while included in the RAMS, are typically covered in greater detail in their own separate RAMS.
- **Drilling Fluid Management Plan:** This plan outlines the methodology and equipment used for the circulating drilling fluids used during the trenchless process and contingency plans for mitigating drilling fluid losses into the ground and unplanned breakout ('frac-out') of drilling fluid at surface. Some contractors prefer to separate out unplanned breakout/frac out mitigations into a separate Frac Out Plan or similar; if so, it will be included in the documents provided to the relevant stakeholders identified in Measure B59 of the REAC.
- **Pegwell Bay Landfall Construction Method Statement:** This will set out final design details and installation methods for the cofferdams, trenchless exits (informed by the Landfall Method Statement), marine cable pull-in and burial. It will also include detail on the working area around the cofferdams, construction access routes (all phases) including detail on use of bog matting etc. at cable crossings, site clearance (following HDD (or similar) installation and subsequent marine cable pull-in and burial) and will detail all construction plant and equipment that will used during installation. This method statement will also include details of all environmental mitigation measures that will be implemented during landfall construction and marine cable pull in and burial and all environmental management procedures.

1.11.4 Key commitments and mitigation measures are set out in Table 1.9 below.

Table 1.9 Landfall Commitments and Mitigation Measures

Commitment	REAC Number	Relevant Plan(s)
Where HVDC cables cross saltmarsh habitat associated with the Thanet Coast & Sandwich Bay SPA / Ramsar and Sandwich Bay SAC, they would be installed using a trenchless technique at the landfall to avoid direct impacts on the saltmarsh habitat.	B42	9.84 Register of Environmental Commitments (REAC) – embedded measure 7.5.3 Outline Onshore Construction Environmental Management Plan (CEMP) 7.5.2 Outline Offshore CEMP
Measures will be adopted to avoid the trenchless drilling equipment getting stuck at the Kent landfall. No excavation will be undertaken to remove stuck	B43	9.84 Register of Environmental

Commitment	REAC Number	Relevant Plan(s)
drilling equipment except within 40m of the entry or exit point, where the drill is at shallow depth (<5m), and outside any areas of saltmarsh.		Commitments (REAC) – embedded measure 7.5.3 Outline Onshore Construction Environmental Management Plan (CEMP) 7.5.2 Outline Offshore CEMP
In relation to trenchless landfall works at both Suffolk and Kent, the contractor(s) will prepare the following suite of plans: Kent Landfall: • Landfall Method Statement (Trenchless Techniques) and Drilling Fluid Management Plan, in consultation with NE, Kent Wildlife Trust (KWT), Royal Society for the Protection of Birds (RSPB), National Trust, and Thanet District Council, and submit the same for approval by the Marine Management Organisation (MMO) in accordance with the Cable Specification and Installation Plan prior to the commencement of any trenchless activities. • The Landfall Method Statement (Trenchless Techniques) and Pegwell Bay Landfall Construction Method Statement must ensure that works below Mean High Water Springs in Pegwell Bay are programmed to avoid the wintering period (November to February). • Undertake landfall hydrofracture modelling which is to be shared for information only with NE, KWT, RSPB and National Trust when completed. Suffolk Landfall: • Landfall Method Statement (Trenchless Techniques) and Drilling Fluid Management Plan, in consultation with NE, Royal Society for the Protection of Birds (RSPB) and East Suffolk Council (ESC) and submit the same for approval by the Marine Management Organisation (MMO) in accordance with the Cable Specification and Installation Plan prior to the commencement of any trenchless activities. • Undertake landfall hydrofracture modelling which is to be shared for information only with NE, RSPB and ESC when completed.	B59	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
At each landfall location (Suffolk and Kent) Natural England, ESC, RSPB and KWT (respectively) will be notified of changes to landfall depth or changes to the location of the landfall exit pits.		
For the Suffolk Landfall, National Grid will notify and consult ESC, Natural England (NE) and RSPB of methods, locations, and routes for spotters and, in the unlikely event of a frac out, vehicles, personnel and equipment for remediation; and will take into consideration any comments received in relation to them. Spotters will be on foot except where using existing vehicle access tracks. There will be no vehicle access to shingle habitats. Tracks within the RSPB reserve will only be used by tractor and bowser and 4WD in the emergency case of responding to a frac out - routine access by spotters will be on foot. The existing tracks are sufficient for purposes without any changes. Use of the tracks would be cognisant of the ground conditions and will be discussed and agreed with RSPB at the time of the event.	B60	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP
If pumps are used to flush saltmarsh vegetation in the event of a frac-out they will be hand held only and operated at low pressure.	B61	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP
Prior to trenchless landfall techniques commencing, the undertaker will carry out phase 2 botanical surveys and water vole surveys within the area of the proposed cable route to support monitoring and mitigation of any impact of the trenchless technique.	B62	7.5.3 Outline Onshore CEMP
To ensure there will be no vehicular or pedestrian access across the saltmarsh, access and egress of vehicles to the mudflats will be via the former hoverport with a buffer between the defined access route and the seaward (distal) limit of the saltmarsh. The locations and widths of access routes across the mudflats will be defined post consent in consultation with Natural England, Kent Wildlife Trust and the National Trust, and will be informed by a pre-construction saltmarsh habitat survey which will include the access and egress routes and will also cover the final trenchless crossing alignment. All vehicles accessing the intertidal mudflats will be low pressure bearing.	B67	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
The Undertaker will prepare a Pegwell Bay Landfall Construction Method Statement as part of the Cable Specification and Installation Plan (CSIP) prior to	B68	7.5.3 Outline Onshore CEMP

Commitment	REAC Number	Relevant Plan(s)
commencement of the landfall works in Kent, in consultation with Natural England, Kent Wildlife Trust and the National Trust covering marine cable pull-in and cable burial (including excavations) between Mean Low Water Springs (MLWS) and the Trenchless crossing exit pits.		7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
Trenchless crossing exit pits in Pegwell Bay will be at least 105 m seaward from the edge of the saltmarsh. The temporary working area and access routes will be located at a minimum distance of 50 m from the edge of the saltmarsh.	B69	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
The Applicant will prepare a hoverport condition monitoring plan post consent to monitor the condition of the hoverport during construction. This will include measures for identifying and managing any potential contamination risk and will be prepared in consultation with the EA, NE, KWT and TDC for approval by TDC.	W37	7.5.3 Outline Onshore CEMP
Trenchless landfall techniques at Suffolk will exit within the Order Limits, a minimum of 45 m East of the continual Coralline Crag outcrop boundary from where the HDD crosses, as identified within the CEFAS defined dataset presented within Plate 2.3 of **Application Document 9.113 The Coralline Crag Technical Note**.	GH14	7.5.2 Outline Offshore CEMP
The provision of a drilling fluid management plan, that includes drilling fluid breakout mitigation measures, where horizontal directional drilling is proposed. This plan will include consideration of potential impacts on nearby archaeological remains (both direct and indirect) as a result of drilling fluid breakout. The plan will be developed by the contractor and included within the Offshore and Onshore CEMPs. All relevant permits will be obtained or exemption/exclusions registered by the Main Works Contractor(s) for the use of drilling fluids / additives, as applicable.	GH10	7.5.2 Outline Offshore CEMP
Drilling fluids required for trenchless operations will be carefully managed to minimise the risk of breakouts into the marine environment. Specific avoidance measures would include:	LVS05	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and

Commitment	REAC Number	Relevant Plan(s)
• the use of biodegradable drilling fluids (pose little or no risk (PLONOR) substances) where practicable; • drilling fluids will be tested for contamination to determine possible reuse or disposal; and • If disposal is required drilling fluids would be transported by a licensed courier to a licensed waste disposal site.		Installation Plan (Outline CSIP)
A suitably experienced Environmental Manager will be appointed for the duration of the construction phase who can cover both onshore and intertidal requirements. In addition, a qualified and experienced Environmental Clerk of Works (EnvCoW) will be assigned to Pegwell Bay during the construction phase to advise, supervise and report on the delivery of the mitigation methods and controls outlined in the Offshore CEMP. The EnvCoW will monitor that the works proceed in accordance with relevant environmental DML requirements and adhere to the required good practice and mitigation measures.	GM06	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
Hovercraft at Pegwell Bay will be on standby and used for emergencies only. It will not be used at any other time during any stage of the Project's construction, operation, maintenance or decommissioning. The Applicant will report all instances of emergency hovercraft use to Natural England and Thanet District Council TDC within 24 hours. The definition for 'emergency' in relation to the use of hovercraft is: '*a time-critical intervention in a serious and unexpected accident, event or situation which threatens damage sufficient to cause danger to persons or property*.'	GG45	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP
The depth of the trenchless crossing at the Suffolk landfall will be limited to within the Crag, Coralline Crag and London Clay strata. The trenchless landfall crossing in Suffolk will not penetrate the underlying chalk aquifer.	GH15	7.5.3 Outline Onshore CEMP 7.5.2 Outline Offshore CEMP

1.12 Offshore - Environmental Commitments and Mitigation

General Marine Environment

1.12.1 This section provides an overview of the measures to be adopted to mitigate potential impacts across a range of marine receptors associated with the Proposed Project.

Table 1.10 General Marine Commitments and Mitigation

Commitment	REAC Number	Relevant Plan
Designated (and as minimal as possible) anchoring areas and protocols shall be employed during marine operations to minimise physical disturbance of the seabed.	GM01	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
As-built locations of cable and external protection will be supplied to UK Hydrographic Office (UKHO) (Admiralty), The Crown Estate and Kingfisher (KIS-ORCA) and Port Authorities.	GM02	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP 9.85 Outline Fisheries Liaison and Coexistence Plan (Outline FLCP)
Sensitive routeing and siting of infrastructure and temporary works.	GM04	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP 9.140 Outline In Principle Monitoring Plan
The Undertaker will ensure that early and continued stakeholder consultations take place.	GM05	7.5.2 Outline Offshore CEMP All plans
The Applicant will ensure that the contractor considers measures to avoid use of microplastics where possible.	GM07	7.5.2 Outline Offshore CEMP All plans
The Applicant will factor in the removability of cable protection when identifying the external cable protection for the Proposed Project. The Applicant will ensure it uses all available best practice guidance for cable decommissioning in its decision making.	GM08	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
Trial trenching if required, would not be undertaken within the three Areas of Safeguarded Water Depth or within any designated sites for the protection of benthic habitats.	GM10	9.92 Outline Cable Specification and Installation Plan (Outline CSIP)

Commitment	REAC Number	Relevant Plan
		7.5.2 Outline Offshore CEMP
During the course of cable route clearance, specific activities will be completed to remove items from the seabed. Out of Service cables will be removed as per industry guidelines, larger debris including lost fishing gear will be removed prior to cable installation and a pre-lay grapnel run will be completed to ensure smaller debris is removed. In the event that abandoned, lost or discarded fishing gear ('ALDFG') is encountered, it may be necessary in certain circumstances to bring ALDFG onto the vessel deck. In these instances, marked ALDFG will be returned to the Marine Management Organisation (MMO) / local Inshore Fisheries and Conservation Authority (IFCA) for onward retrieval by the owner of the marked gear, in line with existing best practice. Not all gear (particularly 'active' gear) is marked; if necessary to bring onto the vessel deck, unmarked gear will be disposed of via conventional onshore waste channels. Recovered objects identified as 'wreck' must be reported to the Receiver of Wreck within 28 days under the obligations of the Merchant Shipping Act 1995 and must be stored and maintained at the finder's expense until a decision is made on ownership. It is recommended that advice is sought from the marine archaeological consultant with regards survey campaigns and data assessments, to ensure, where possible, 'wreck' of possible or known archaeological interest can be avoided and left in situ.	MPE01	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
For subtidal sections of the cable route, the minimum depth of lowering (DOL) to the top of the cable is 0.5 m (in areas of bedrock), with a target DOL for the Proposed Project approximately 1 m to 2.5 m, to be achieved where possible dependant on the seabed geology. At both the Kent and Suffolk landfalls, seaward of the marine trenchless exit, a target DOL of 1.5 m will apply.	MPE02	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
Cable protection features (e.g. rock placement, mattresses and grout bags) will be installed only where considered necessary for the safe operation of the Proposed Project. This includes the repair of cables due to accidental damage.	MPE03	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
Where rock placement is required to protect an exposed or shallow buried cable, the height and width	MPE04	9.92 Outline Cable Specification and

Commitment	REAC Number	Relevant Plan
of these berms will be kept to a practical and safe minimum.		Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
As outlined within the Cable Specification and Installation Plan secured under Condition 4 of the dML, during the lifetime of the project, scheduled monitoring of the system would be undertaken via a preliminary inspection, maintenance and repair (IMR) programme as the basis for preventative maintenance may comprise of the following: • Base-line as-built depth of lowering (DOL) survey (ideally a continuous survey after installation and protection completed). • Initial DOL monitoring survey 12 months after commissioning and handover to operations. Monitoring surveys (either using DTAS or vessels) to establish any areas where any DOL or cable system anomalies may develop and inform the maintenance programme.	MPE05	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP

Marine Physical Environment

1.12.2 This section provides an overview of the measures to be adopted to mitigate potential impacts to the Marine Physical Environment associated with the Proposed Project.

Table 1.11 Marine Physical Environment Commitments and Mitigation

Commitment	REAC Number	Relevant Plan
Over the operational lifetime of the Proposed Project, monitoring of the beach profile and erosion rates will be carried out at both the Suffolk and Kent landfall sites in relation to the trenchless technique construction areas associated with the exit pits. The frequency and scope of monitoring would be dependent on the outcomes of the pre-construction surveys and ‘as-built’ status of the Offshore Scheme. The Applicant will produce a monitoring plan, in substantial accordance with the outline In-Principle Monitoring Plan to be submitted to the MMO to cover works below Mean High Water Springs within three months of the 'as-built survey' unless otherwise agreed in writing by the MMO.	MPE06	7.5.2 Outline Offshore CEMP
Installation of cables should not create pre-cut trenches at the Coralline Crags outcrop (as defined	MPE07	7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan
within **Application Document 9.113 (A) The Coralline Crag Technical Note [REP4-102]**), due to the sensitivity of the system.		
Further analysis will be undertaken to consider the potential for coastal erosion over the lifetime of the project in line with the Final Offshore Construction and Environmental Management Plan (CEMP). This information will be used to inform the detailed design of the Proposed Project, to ensure that the risk of future exposure of the intertidal and offshore buried cables is as reduced as far as practicable.	MPE08	7.5.2 Outline Offshore CEMP
The River Stour Channel will be monitored throughout the operational life of the asset in line with a monitoring and contingency plan in Requirement 18 of the DCO. The plan will set out the frequency and methods for monitoring the location of the channel, contingency actions to be undertaken should the River Stour migrate to a location close to the cable and a 'trigger' point for when actions would be taken.	MPE09	7.5.2 Outline Offshore CEMP
At the Kent landfall, reinstatement of the excavation pits through both natural and, if required, mechanical backfill within the intertidal mudflats will be completed following removal of the cofferdams. This measure will be included in the Pegwell Bay Landfall Construction Method Statement which is already secured within the Offshore CEMP.	MPE10	7.5.2 Outline Offshore CEMP
Cofferdams at the Suffolk Landfall are not included within the Proposed Project. The Landfall trenchless exit pits at the Suffolk Landfall are in c. 7.5m (LAT) of water, therefore cofferdams are not required.	MPE11	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
Boulders would be relocated locally in similar habitats and placed to be reflective of the surrounding habitats and not in linear berms which have the potential to disrupt sediment transport.	MPE12	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
The Applicant does not anticipate the need for continuous external cable protection adjacent to the Goodwin Sands MCZ, on the basis of confidence in achieving the required depth of cable lowering. However, if external cable protection is required locally, the Applicant commits to limiting its use to no more than 500 metres in total, whether continuous or	MPE13	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan
cumulative, within sections of the offshore cable corridor adjacent to the Goodwin Sands MCZ (unless otherwise agreed with the MMO, in consultation with Natural England and the MCA). In such circumstances, the installed height of any external cable protection will be limited to a maximum of 1 metre above the surrounding seabed. Furthermore, where reasonably practicable, and in line with the Applicant's commitment to sensitive routing, the offshore cable corridor will be micro routed to maintain a separation distance of at least 100 metres from the boundary of the Goodwin Sands MCZ.		
At the Suffolk landfall, where a trenchless landfall construction technique is employed, the Applicant commits to ensuring that the drilled alignment achieves a minimum depth defined as follows: • For the length of landfall installed between the western boundary of the RSPB North Warren Reserve and the western boundary of The Haven Local Nature Reserve, the minimum depth of the trenchless landfall shall be 12 metres below existing ground level • For the length of landfall installed beneath The Haven Local Nature Reserve, the trenchless landfall shall be below elevation -10.5m OD. The specification of these minimum depths is such that the trenchless works remain at sufficient depth beneath sensitive designated land and the dynamic coastal zone to provide a conservative margin against reasonable worst case future coastal change and erosion over the lifetime of the Proposed Project.	MPE14	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP

Benthic Ecology

1.12.3 This section provides an overview of the measures to be adopted to mitigate potential impacts to Benthic Ecology associated with the Proposed Project.

1.12.4 Full details and assessment of benthic ecology receptors is presented in **Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology**.

1.12.5 The Applicant confirms that in accordance with **Application Document 9.140 Outline In-Principle Monitoring Plan** (IPMP) if it is deemed necessary that a Benthic Mitigation Plan (BMP) is required following pre-construction surveys this would be subject to approval from the MMO.

Table 1.12 Benthic Ecology Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
A biosecurity plan will be produced for the project, following the latest guidance on invasive non-native species (INNS) from the Great Britain (GB) non-native species secretariat.	BE01	7.7 Outline Marine Biosecurity Plan 7.5.12 Outline Offshore Invasive Non-Native Species Management Plan.
All project vessels shall adhere to the International Maritime Organisation (IMO) Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines 2011).	BE02	7.7 Outline Marine Biosecurity Plan 7.5.12 Outline Offshore Invasive Non-Native Species Management Plan.
Any material introduced into the marine environment, such as rock protection material, will be from a suitable source or cleaned to ensure no invasive non-native species (INNS) can be introduced.	BE03	7.7 Outline Marine Biosecurity Plan 7.5.12 Outline Offshore Invasive Non-Native Species Management Plan.
Where possible, cable protection materials will use locally sourced materials or environmentally benign sources.	BE04	7.7 Outline Marine Biosecurity Plan 7.5.12 Outline Offshore Invasive Non-Native Species Management Plan.
In accordance with the Environmental Principles set out in the Outline Cable Specification and Installation Plan, where benthic habitats of principal importance (qualifying as Habitats Regulations Annex I habitats; Natural Environment and Rural Communities or (NERC) Section 41 habitats and species) are identified during pre-construction surveys and additional mitigation is required to avoid or reduce impacts on these habitats, National Grid must prepare a Benthic Mitigation Plan. Any necessary Benthic Mitigation Plan(s) must be submitted to and approved in writing by the MMO prior to Work 6 in the dML commencing and should include a timetable for implementation of the mitigation and details of any necessary monitoring. Any agreed mitigation and/or monitoring must be implemented in accordance with the agreed timetable. A monitoring plan, in substantial accordance with the outline In-Principle Monitoring Plan will be submitted to the MMO (unless	BE05	7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
otherwise agreed in writing by the MMO) within three months of the 'as-built survey'		
All phases of the cable routing and design will seek to minimise impacts on habitats of principal importance (qualifying as Habitats Regulations Annex I habitats; Natural Environment and Rural Communities (NERC) Section 41 habitats and species), including micrositing and consideration of the use, type and location of cable protection.	BE06	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
The Applicant will avoid relocating any sediment to with 50m of any Annex II *Sabellaria spinulosa* reef identified during pre-construction surveys and/or adjacent to and updrift of sandwaves.	BE07	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP

Fish and Shellfish

1.12.6 This section provides an overview of the measures to be adopted to mitigate potential impacts to Fish and Shellfish Ecology associated with the Proposed Project.

1.12.7 Full details and assessment of fish and shellfish receptors is presented in **Application Document 6.2.4.3 Part 4 Marine Chapter 3 Fish and Shellfish Ecology**.

Table 1.13 Fish and Shellfish Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
The target Depth of Lowering (DOL) will be between 1 m to 2.5 m (subject to local geology and obstructions).	FSF01	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)

Marine Mammals

1.12.8 A This section provides an overview of the measures to be adopted to mitigate potential impacts to Marine Mammals associated with the Proposed Project.

1.12.9 Full details and assessment of marine mammal receptors is presented in **Application Document 6.2.4.4 Part 4 Marine Chapter 4 Marine Mammals**.

Table 1.14 Marine Mammals Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
Preparation of an outline Marine Mammal Mitigation Plan (MMMP).	N/A	7.5.11 Outline Marine Mammal Mitigation Plan
Adherence to Joint Nature Conservation Committee (JNCC) (JNCC, 2025) guidelines, where appropriate, regarding the minimisation of impacts from underwater sound generated from known project activities including geophysical surveys.	MM01	7.5.11 Outline Marine Mammal Mitigation Plan 7.5.2 Outline Offshore CEMP
Adherence to Joint Nature Conservation Committee (JNCC) (JNCC, 2020) guidance for assessing the significance of noise disturbance against conservation objectives of the Southern North Sea Special Area of Conservation (SAC).	MM02	7.5.11 Outline Marine Mammal Mitigation Plan 7.5.2 Outline Offshore CEMP
No offshore construction or UXO removal may commence until the undertaker has provided confirmation to the MMO that they have begun participation in the Development Coordination forum. This participation must continue until agreed with the MMO in consultation with the relevant Statutory Nature Conservation Bodies.	MM03	7.5.11 Outline Marine Mammal Mitigation Plan 7.5.2 Outline Offshore CEMP
The Applicant will seek to carry out survey activities, where practicable, during summer months to maximise suitable survey weather windows.	MM04	7.5.11 Outline Marine Mammal Mitigation Plan 7.5.2 Outline Offshore CEMP

Marine Ornithology

1.12.10 This section provides an overview of the measures to be adopted to mitigate potential impacts to Marine Ornithology associated with the Proposed Project.

1.12.11 Full details and assessment of ornithological receptors is presented in **Application Document 6.2.4.5 Part 4 Marine Chapter 5 Marine Ornithology**.

Table 1.15 Marine Ornithology Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
Preparation of a Red Throated Diver Protocol to be complied with throughout the lifetime of the Authorised Development.	N/A	7.8 Red Throated Diver Protocol
The Offshore CEMP will outline the best practice mitigation measures required to be implemented	O01	7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
during construction. This would include measures to prevent accidental spillages from occurring and to minimise disturbance of sediments.		7.8 Red Throated Diver Protocol
There will be Health, Safety and Environment (HSE) procedures implemented, with strict limits on weather conditions, equipment maintenance and personnel to further reduce the risk of any accidental spills / releases. Furthermore, in the event of a spill, a response will be made swiftly.	O02	7.5.2 Outline Offshore CEMP 7.8 Red Throated Diver Protocol
For red-throated diver, a full seasonal restriction (1st November – 31st March) for offshore cable burial activities (including pre-lay grapnel run activities) in the Outer Thames Estuary SPA and a 2 km buffer and a reduced seasonal restriction (1st January – 31st March) for landfall cable installation activities at the Suffolk landfall in Aldeburgh.	O03	7.5.2 Outline Offshore CEMP 7.8 Red Throated Diver Protocol
Existing shipping lanes will be utilised for vessel transiting routes to avoid additional disturbance, where practicable.	O04	7.5.2 Outline Offshore CEMP 7.8 Red Throated Diver Protocol
Vessel operators will be made aware of the importance and sensitivity of the species to disturbance. Vessels will avoid rafting birds and areas with high densities of birds, where practicable.	O05	7.5.2 Outline Offshore CEMP 7.8 Red Throated Diver Protocol
Artificial lighting on vessels will be directional and only used when necessary, noting that health and safety requirements will need to be met for safe working practices.	O06	7.5.2 Outline Offshore CEMP 7.8 Red Throated Diver Protocol
Cold Weather Protocol. To minimise additional stress to waterbirds, in the intertidal zone of Pegwell Bay, during periods of severe weather the following restriction will be applied, where practicable. If freezing conditions persist for five consecutive days, work should cease until there has been three consecutive days of thaw.	O07	7.5.2 Outline Offshore CEMP

Marine Archaeology

1.12.12 Where sensitive routeing and siting of infrastructure and temporary works around marine heritage assets is not possible, anomaly investigation will be undertaken to confirm the nature and value of the seabed anomaly. Methods of ground truthing assessment could include ROV or diver survey and could be undertaken in conjunction and in coordination with other surveys associated with the Offshore Scheme, for example UXO or obstruction surveys. All relevant information and data derived from

such surveys should be assessed by a suitably qualified, experienced and accredited marine archaeological consultant, and in accordance with the associated Written Scheme of Investigation (WSI).

1.12.13 Any further marine geophysical or geotechnical surveys undertaken, for instance post-consent or post-construction, will be archaeologically assessed and interpreted by a suitably qualified, experienced and accredited marine archaeological geophysicist or geoarchaeologist. Work will be undertaken in accordance with the associated WSI (**Application Document 7.5.5 Outline Offshore Overarching Written Scheme of Investigation (OWSI)**) and accompanying Method Statements. The results of such surveys will be integrated with previous interpretations and reported on accordingly to inform the EIA process. It is also recommended that archaeological specialists are included in the design of any geophysical and geotechnical surveys to ensure that opportunities are maximised where possible.

1.12.14 Watching briefs will be utilised in the intertidal, coastal or marine areas where any intrusive works are planned. These could include pre-lay grapnel runs or intertidal cable-laying in an excavated trench. The proposed methodology will be presented in a Method Statement and agreed through consultation with the Regulator, the MMO, and the Archaeological Curator, Historic England, for marine works and the respective local authority curatorial bodies that serve Suffolk and Kent for works in the intertidal and coastal zone.

1.12.15 Once the design of the Offshore Scheme has been confirmed, it may be possible to ascertain measures to protect heritage assets that could be indirectly impacted, for instance by scouring, exposure or erosion, caused by direct impacts to the seabed. For instance, ‘physical buffers’ may be placed around a heritage asset to protect it from scour. The proposed methodology for such works will be outlined in a Method Statement and approved by the Archaeological Curator, Historic England and the Regulator, the MMO.

1.12.16 The Offshore WSI contains details of the mitigation measures to prevent and reduce impact to marine archaeological features and material. The offshore WSI and any associated Archaeological Method Statements must be complied with throughout the project. Contractors should be provided with GIS files containing up to date details of the location of all marine archaeological anomalies, which should all be avoided where possible. Locations and extents of all Archaeological Exclusion Zones (AEZs) should also be provided, whereby impact to the seabed is prohibited inside these areas. Where accidental impact inside an AEZ does occur, contractors should be aware of the process for reporting it to the MMO, with advice from Historic England. Work within the AEZ should immediately cease if impact is known to have occurred. If any archaeological material is discovered, contractors must ensure that the bespoke Protocol for Archaeological Discoveries for the Proposed Project is followed and reporting of material occurs accordingly. Prior to works, contractors must provide contact details as required for the purposes of the Protocol.

1.12.17 Prior to works commencing, contractors should have familiarised themselves with the Protocol for Archaeological Discoveries and undertake awareness training. Contractors should provide relevant contact details to the Archaeological Contractor to ensure the lines of communication are clear for the Protocol to run smoothly. If archaeological material is discovered, contractors must ensure that the Protocol is followed and reporting of material occurs accordingly. The obligations of the Merchant Shipping Act 1995 and Protection of Military Remains Act 1986 will be complied with.

1.12.18 Contractors should be provided with GIS files containing information showing areas of archaeological potential with regards to palaeolandscapes. Contractors should be made aware of the interests of the archaeological contractor with regards surveys.

1.12.19 Key commitments and measures identified for Marine Archaeology are provided below.

1.12.20 Full details and assessment of marine archaeological receptors is presented in **Application Document 6.2.4.6 Part 4 Marine Chapter 6 Marine Archaeology**.

Table 1.16 Marine Archaeology Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
A Written Scheme of Investigation (WSI) including a Protocol for Archaeological Discoveries will be agreed with the Archaeological Curator via the Regulator and implemented (Application Document 7.5.5 Outline Offshore Written Scheme of Investigation (WSI)) prior to works commencing. Unavoidable impacts to potential archaeological receptors would be addressed through a series of agreed control and management measures to deal with the discoveries once impacts have occurred. These measures would be outlined in a WSI and would be in place throughout the construction, operation, maintenance and decommissioning phases. The WSI would address unavoidable impacts that may occur anywhere in the Offshore Scheme and particularly where the nature of the Proposed Project means that some details have not been confirmed when an application is submitted, allowing flexibility within clearly defined parameters (Rochdale Envelope or Design Envelope) in accordance with archaeological best practice. A project-specific Protocol for Archaeological Discoveries will be established to support the reporting of unexpected archaeological material during the lifetime of the Project. Impact to unexpected archaeological material is reduced by promptly receiving archaeological advice and undertaking recording and/or conserving any objects that have been disturbed. Additional offshore investigation of features with an uncertain identity or archaeological value can often mean their true nature and value can be better understood. A Protocol for Archaeological Discoveries reduces the impact on the marine historic environment by enabling Project staff to report their finds in a manner that is convenient and effective. Any	MA01	7.5.5 Outline Offshore Overarching Written Scheme of Investigation.

Commitment	REAC Number	Relevant Plan(s)
additional marine geophysical survey, diver or remotely operated vehicle (ROV) survey footage that takes place within the area will be assessed by a suitably qualified marine geophysicist or marine archaeologist, as appropriate. If an archaeologically important site is subsequently discovered during Project works, a temporary exclusion zone (TEZ) will be established to allow for further investigation to take place. The TEZ would then be re-evaluated, removed or expanded, based on the results of further investigations		
A WSI will also include offsetting of archaeological impact where necessary through the completion of a Stage 3 palaeo-environmental assessment (including scientific dating and updated deposit modelling, if required) of deposits of high geoarchaeological potential which may be disturbed.	MA02	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
The project will be run in compliance with all relevant legislation, consents and permits, for example the Marine and Coastal Access Act 2009, Protection of Military Remains 1986, Merchant Shipping Act 1995, Protection of Wrecks Act 1973 and Ancient Monuments and Archaeological Areas Act 1979.	MA03	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
Locations of known marine archaeological interest/value within the marine environment will be avoided by all marine vessels by the implementation of appropriately sized Archaeological Exclusions Zones (AEZs). No works that could impact the seabed will be undertaken within the extent of an AEZ during the construction, operation and maintenance, or decommissioning phases of the Offshore Scheme. AEZs may be amended (enlarged, reduced, moved or removed) because of further data assessment or archaeological field evaluation and must be undertaken in consultation with the Archaeological Curator, Historic England.	MA04	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
Where a previously unknown heritage asset is discovered, or a known heritage asset proves to be more significant than foreseen at the time of application, the project would inform the MMO, as advised by Historic England. All works that led to the discovery would stop until a solution is agreed that protects the significance of the new discovery,	MA05	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
so far as is practicable, within the project parameters.		
Archaeological features of lower archaeological value will be avoided where practicable within the marine and coastal/intertidal areas. Micro-siting of the cable route and siting of infrastructure and temporary works will help to avoid seabed features, such as geophysical anomalies of archaeological potential. It is recommended that consultation with the archaeological consultant is undertaken with regards to routing around such anomalies of archaeological potential.	MA06	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
Archaeological input at the planning stages of any further survey work should be undertaken. Archaeological Method Statements will be prepared for the following additional works: ground truthing of anomalies (e.g. ROV), diver survey or coordination with UXO campaigns); marine geophysical or geotechnical surveys; intertidal, coastal or marine watching briefs and/ or excavation (where deemed necessary and in agreement with the Archaeological Curator); measures to protect marine heritage assets from indirect impacts (e.g. physical buffers); and post-construction monitoring works. Method Statements will be prepared by a suitably qualified, experienced and accredited marine archaeological consultant and will require approval by the Regulator (the MMO), and the Archaeological Curator (Historic England for marine works and the respective local authority curatorial bodies that serve Suffolk and Kent for works in the intertidal zone).	MA07	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
Where sensitive routeing and siting of infrastructure and temporary works around marine heritage assets is not possible, anomaly investigation will be undertaken to confirm the nature and value of the seabed anomaly. Methods of ground truthing assessment could include ROV or diver survey offshore and watching briefs onshore, and could be undertaken in conjunction and in coordination with other surveys associated with the Offshore Scheme, for example unexploded ordnance (UXO) or obstruction surveys. All relevant information and data derived from such surveys should be assessed by a suitably qualified, experienced and accredited marine archaeological consultant, and in accordance with the associated WSI.	MA08	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
Any further marine geophysical or geotechnical surveys undertaken, for instance post-consent or post-construction, will be archaeologically assessed and interpreted by a suitably qualified, experienced and accredited marine archaeological geophysicist or geoarchaeologist. Work will be undertaken in accordance with the associated WSI (Application Document 7.5.5 Outline Offshore Written Scheme of Investigation (WSI)) and accompanying Method Statements. The results of such surveys will be integrated with previous interpretations and reported on accordingly to inform archaeological mitigation and consent compliance. It is also recommended that archaeological specialists are included in the design of any geophysical and geotechnical surveys to ensure that opportunities are maximised where possible.	MA09	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
Watching briefs will be utilised in the intertidal, coastal or marine areas where any intrusive works are planned. These could include pre-lay grapnel runs or intertidal cable-laying in an excavated trench. The proposed methodology will be presented in a Method Statement and agreed through consultation with the Regulator, the MMO, and the Archaeological Curator, Historic England, for marine works and the respective local authority curatorial bodies that serve Suffolk and Kent for works in the intertidal and coastal zone.	MA10	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
Once the design of the Offshore Scheme has been confirmed, it may be possible to ascertain measures to protect heritage assets that could be indirectly impacted, for instance by scouring, exposure or erosion, caused by direct impacts to the seabed. For instance, ‘physical buffers’ may be placed around a heritage asset to protect it from scour. The proposed methodology for such works will be outlined in a Method Statement and approved by the Archaeological Curator, Historic England and the Regulator, the MMO.	MA11	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
The Marine WSI contains details of the mitigation measures to prevent and reduce impact to marine archaeological features and material. The Marine Written Scheme of Investigation (WSI) and any associated Archaeological Method Statements must be complied with throughout the project. Contractors should be provided with GIS files containing up to date details of the location of all	MA12	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
marine archaeological anomalies, which should all be avoided where possible. Locations and extents of all AEZs should also be provided, whereby impact to the seabed is prohibited inside these areas. Where accidental impact inside an AEZ does occur, contractors should be aware of the process for reporting it to the MMO, with advice from Historic England. Work within the AEZ should immediately cease if impact is known to have occurred. If any archaeological material is discovered, contractors must ensure that the bespoke Protocol for Archaeological Discoveries for the Proposed Project is followed and reporting of material occurs accordingly. Prior to works, contractors must provide contact details as required for the purposes of the Protocol		
Prior to works commencing, contractors should have familiarised themselves with the Protocol for Archaeological Discoveries and undertake awareness training. Contractors should provide relevant contact details to the Archaeological Contractor to ensure the lines of communication are clear for the Protocol to run smoothly. If archaeological material is discovered, contractors must ensure that the Protocol is followed and reporting of material occurs accordingly. The obligations of the Merchant Shipping Act 1995 and Protection of Military Remains Act 1986 will be complied with.	MA13	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
Contractors should be provided with GIS files containing information showing areas of archaeological potential with regards to palaeolandscapes. Contractors should be made aware of the interests of the archaeological contractor with regards surveys.	MA14	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP
As a designated area, the Goodwin Sands Marine Conservation Zone (MCZ), off the Kent coast will not have aggregate collected from within the MCZ for the purposes of this scheme.	MA15	7.5.5 Outline Offshore Overarching Written Scheme of Investigation. 7.5.2 Outline Offshore CEMP

Shipping and Navigation

1.12.21 Key commitments and measures identified for Shipping and Navigation are provided below.

1.12.22 Full details and assessment of marine archaeological receptors is presented in **Application Document 6.2.4.7 Part 4 Marine Chapter 7 Shipping and Navigation**.

Table 1.17 Shipping and Navigation Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
A risk based burial approach will be used where cables will be buried to a minimum DOL to the top of the cable of 0.5 m (in areas of bedrock), with a target DOL for the Proposed Project of approximately 1 m to 2.5 m, assessing cable protection risk factors such as sediment type, shallow geology, sediment mobility, fishing activity, shipping movements and anchor deployment along the route. If burial is unsuccessful in the Areas of Safeguarded Depth (as defined by 9.104 Areas of Safeguarded Water Depth Plan) such that the depth protection specified in DCO Schedule 3 Requirement 17 is not met, then the Remedial Clause in the Outline Cable Specification and Installation Plan (CSIP) will be activated, subject always to any statutory enforcement action.	SN01	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
Relevant information will be communicated to other sea users via Notices to Mariners (NtM), Radio Navigation Warnings Navigational Telex (NAVTEX) and/or broadcast warnings.	SN02	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
All Project vessels will display appropriate marks and lights and will always broadcast their status on AIS.	SN03	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Temporary aids to navigation will be used as required to guide vessels around areas of installation activity.	SN04	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
A compass deviation report will be produced prior to installation.	SN05	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)

Commitment	REAC Number	Relevant Plan(s)
Guard vessel(s), using RADAR with Automatic RADAR Plotting Aid (ARPA) and Automatic Identification System (AIS) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during cable installation works.	SN06	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
The Undertaker will notify regular runners (regular vessel operators) including ferry operators of construction activities that may affect their movements. Engagement with regular runners and specifically ferry operators ensures awareness of the installation details which minimises disruption.	SN07	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
A Navigation and Installation Plan (NIP) will be established with clear protocols to ensure effective communication and coordination between all relevant shipping and navigation stakeholders, including SHAs (Statutory Harbour Authorities), Competent Harbour Authorities (CHAs, Vessel Traffic Services (VTS), and Traffic Separation Scheme (TSS) operators. This will maintain ongoing awareness and coordination of Offshore Scheme installation fleet activities and awareness of their locations during construction, among all relevant parties. Special attention will be given to the routeing of the installation operation through the Sunk TSS and when in proximity to the Sunk Deep Water anchorage area and the Sunk pilot station, as well as when routeing in proximity to the Tongue anchorages and pilot station, and in particular within the three Areas of Safeguarded Depth as defined in **Application Document 9.104 Areas of Safeguarded Water Depth Plan**. Communication plans will include key stakeholders such as Harwich Haven, Port of London Authority, London Gateway Port and Sandwich Port and Haven authorities, in particular on the topic of under-keel clearance.	SN08	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Where necessary the Undertaker will identify areas of high potential magnetic compass deviations to relevant stakeholders.	SN09	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
A Navigation and Installation Plan (NIP) will pay particular focus to operations within Pegwell Bay as this is a region of very shallow water and challenging navigation for vessels entering and exiting the River Stour and may also have a high	SN10	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)

Commitment	REAC Number	Relevant Plan(s)
presence of amateur or inexperienced recreational boaters.		
The Undertaker will coordinate planned operations with other projects, in particular North Falls and Five Estuaries Wind Farm projects within the Concurrent RAM Activity Areas outlined in Plate 3.1 of the Outline Navigation and Installation Plan (NIP) and as described within Section 3.3 of the oNIP, secured within the Deemed Marine Licence, to avoid concurrent Restricted Ability to Manoeuvre (RAM) operations.	SN11	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
The Applicants shall adhere to the approach to Restricted Ability to Manoeuvre operations in visibilities of below 2 nautical miles is outlined in the Outline Navigation and Installation Plan (NIP) secured within the Deemed Marine Licence.	SN12	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Construction planning for the landfall activities will take into account availability of small craft channels such that disruption to this vessel class is minimised as far as possible.	SN13	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
UKHO Temporary/Preliminary Notices to be issued to ports, harbours and pilots, and any other appropriate parties prior to post-lay/as-built survey such that the basic positions of the cable are established and awareness among mariners can be raised immediately.	SN14	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
The use of temporary Aids to Navigation for exposed cable sections will be considered to reduce the risk of interactions with fishing gear and vessel anchors particularly near designated anchorages only if absolutely necessary. Details, extent and requirements of the markers will be discussed with Trinity House before being confirmed/established.	SN15	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
The Undertaker will complete a risk assessment of maintenance activities (excluding inspections) to determine the collision risk level and suitable controls on a case-by-case basis such that both collision risk and disruption to maintenance activities are minimised.	SN16	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Cable protection measures will take due consideration of key areas of fishing activity identified in the baseline data, such that those sections of the cable identified as being buried or	SN17	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and

Commitment	REAC Number	Relevant Plan(s)
protected within such areas will minimise risk to gear snagging.		Installation Plan (Outline CSIP)
The undertaker will minimise the amount of time the cable stays unprotected and exposed to potential interactions with anchoring vessels or fishing gear (anchor drag or gear snagging).	SN18	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
The undertaker will minimise disruption to anchorage areas and pilot boarding areas by minimising time spent near these features during all phases, by considering appropriate cable burial depth and protection measures, and aiming for minimal reduction in under keel clearance as well as carefully considering the location of cable joints.	SN19	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
No planned cable joints are permitted in the three Areas of Safeguarded Depth as defined in **Application Document 9.104 Areas of Safeguarded Water Depth Plan**.	SN20	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) DML
Any seabed hazard introduced by the Proposed Project at the Sandwich Flats will be appropriately marked, included in the appropriate navigational charts and managed by Sandwich Port and Haven authorities and their procedures.	SN21	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
Anticipated reductions in water depth greater than 5% will be discussed with the MCA and other relevant stakeholders such as Statutory Harbour Authorities (SHA) and Competent Harbour Authorities (CHA) noting that this 5% requirement does not conflict with areas where additional water depth requirements are in place (for instance within the Areas of Safeguarded Depth as specified in DCO Schedule 3 Requirement 17).	SN22	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
The Undertaker has refined the route design to run north of the W1 buoy.	SN23	7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
		9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
Presence of Vessel Traffic Service (VTS) in region – Existing shore-side systems which range from the provision of simple information messages to ships, such as position of other traffic or meteorological hazard warnings, to extensive management of traffic within a port or waterway	SN24	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Establishment of operations weather envelope limits for the construction operations. Installation operations should monitor weather conditions and evaluate critical minimum operational envelope for relevant activities.	SN25	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Issuance of Adverse Weather Guidelines as required - Issued by ports in response to forecast bad weather. Potentially limits collisions, disruption and sub-surface interactions by deterring vessels from navigating anchoring fishing etc near hazards in bad weather.	SN26	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Compliance with MGN661 Navigation - Safe and responsible anchoring and fishing practices - In line with guidance provided by the UKHO and International Convention for the Safety of Life at Sea (SOLAS) it is recommended that fishing vessels should avoid trawling over installed subsea infrastructure.	SN27	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
The Undertaker will design rock berms to reduce snagging risk.	SN28	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
Rolling 500 m radius Recommended Restricted Zones will be in place around construction vessels. Prior to construction, the Proposed Project will	SN29	7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
liaise with the Interested Parties to establish communication protocols regarding these RRZs.		9.12 Outline Navigation and Installation Plan (Outline NIP)
Cable burial depth and protection is of particular concern in Pegwell Bay with regards to reduction in under-keel clearance and subsequent effect on navigation, as this is a region of shallow water depths, a changing approach channel and challenging navigation. This therefore needs to be taken into account in design and construction, to ensure the project is minimising the risk of introducing seabed hazards in this region.	SN30	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
The Proposed Project cable will not be routed any closer to the Sunk W1 buoy than the 151 m distance that is currently planned, in order to protect both the buoy and the cable, as agreed with Trinity House.	SN31	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
As per the 'Relevant Representation of NGET in respect of the North Falls Offshore Windfarm DCO', the Proposed Project agrees that the parties will continue to engage during pre-construction and construction with other cable installation projects in the vicinity of the Sunk pilot boarding station. The purpose of this engagement will be to coordinate as far as practicable marine activities which may overlap in time, in order to minimise the impact on shipping and the North Falls construction programme and the construction programme for Five Estuaries Offshore Wind Farm and Sea Link. This will also include, where appropriate, joint engagement with relevant stakeholders (HHA, PLA, Sunk VTS) to help inform and plan construction activities. The Project will establish and agree Concurrent RAM Activity Areas where simultaneous Restricted in Ability to Manoeuvre (RAM) project vessels activities are not permitted, and present this in the final Sea Link Navigation and Installation Plan (NIP).	SN32	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
If a cable repair joint is required during the operational lifetime of the cable, as far as practicable this will be avoided within the Sunk area, but if such a scenario is unavoidable, the Project shall consider potential collision risk and	SN33	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and

Commitment	REAC Number	Relevant Plan(s)
minimize time spent during maintenance in this region as much as possible.		Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
Outside of the "Concurrent RAM Activity Areas" established in the Sea Link NIP, simultaneous operations within proximity to other offshore projects will still be avoided where possible. Where simultaneous operations do occur, the Project will have project vessel management procedures and planned protocols to minimize disruption and potential risks.	SN34	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
The Proposed Project will not put in place any permanent Exclusion Zones	SN35	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 9.12 Outline Navigation and Installation Plan (Outline NIP)
Where practicable, a 200 m closest point of approach to Aids to Navigation along the cable route would be maintained. Where this is not possible, discussions with Trinity House will take place to reach an agreed acceptable distance. In the event that subsequent re-routeing during the detailed engineering phase would bring the proposed route closer to buoyage, this will be addressed with Trinity House on a case-by-case basis.	SN36	9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
The location of planned wet storage areas if required will not occur within the three Areas of Safeguarded Water Depth identified by the Port Authorities in **Application Document 9.104 Areas of Safeguarded Water Depth Plan**.	SN37	9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
Unless agreed with MMO and relevant Statutory Bodies, no boulders would be relocated by the Proposed Project to or within the three Areas of Safeguarded Water Depth which would impede water depths in accordance with Requirement 17 of the DCO (Application Document 9.104 Areas of Safeguarded Water Depth Plan)	SN38	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
Any archaeology finds found either outside or within the three Areas of Safeguarded Depth (Application Document 9.104 Areas of Safeguarded Water Depth Plan) would not be relocated within the three Areas of Safeguarded Depth.	SN39	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP
In relation to Sea Link marine cable works (Work No 6, including marine cable protection), the Applicant commits to use reasonable endeavours (such as are within the Applicant's control i.e. cable routing and cable protection or crossing design) to ensure that the depth protection required by both projects (Sea Link and Five Estuaries), such that navigable water depth is not reduced by greater than 5%, and will be preserved following the crossing of Sea Link with the Five Estuaries Project cable(s). Where Sea link is installed first, this will be achieved by installing Sea Link at a location and water depth that provides sufficient vertical clearance to enable the Five Estuaries Project cable(s) to be laid over it without resulting in a reduction in navigable water depth of greater than 5%. This commitment is secured in the Sea Link Register of Environmental Actions and Commitments (REAC) and the Outline Cable Specification and Installation Plan (oCSIP) and will be given effect through the crossing agreement to be entered into between the Applicant and Five Estuaries Project.	SN40	9.92 Outline Cable Specification and Installation Plan (Outline CSIP) 7.5.2 Outline Offshore CEMP

Commercial Fisheries

1.12.23 This section provides an overview of the measures to be adopted to mitigate potential impacts to Commercial Fisheries associated with the Proposed Project.

1.12.24 Full details and assessment of commercial fisheries receptors is presented in **Application Document 6.2.4.8 Part 4 Marine Chapter 8 Commercial Fisheries**.

Table 1.18 Commercial Fisheries Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
Preparation of an Outline Fisheries Liaison and Coexistence Plan (FLCP)	N/A	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP

Commitment	REAC Number	Relevant Plan(s)
A Fisheries Liaison Officer (FLO) and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated, dialogue is maintained with the commercial fishing industry and access to home ports is maintained during the main fishing season.	CF01	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP
Timings of any temporary areas of exclusion from fishing grounds will be clearly communicated via a notice to mariners.	CF02	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP
Berms will be installed where cable protection is necessary. These will be designed with a 1:3 profile and flat crests, intended to prevent the risk of fishing gears snagging.	CF03	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
A procedure for the claim of loss, damage, relocation or removal of fishing gear will be included in the Fisheries Liaison and Co-Existence Plan (FLCP).	CF04	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP
Post installation surveys of the Offshore Scheme for depth of lowering and surveys of rock protection to check for snagging risk.	CF05	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
Procedures and process for ongoing consultation with fishers regarding cable protection design will be set out in the FLCP.	CF06	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP
National Grid will maintain communications with other developments in the region with regard to respective installation timings and location. These	CF07	9.85 Outline Fisheries Liaison and Coexistence Plan

Commitment	REAC Number	Relevant Plan(s)
communications will be communicated to fisheries through the FLCP.		7.5.2 Outline Offshore CEMP
Minimising the amount of time the cable stays unprotected and exposed to potential interactions with anchoring vessels or fishing gear (anchor drag or gear snagging), during construction.	CF08	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)

Other Sea Users

1.12.25 This section provides an overview of the measures to be adopted to mitigate potential impacts to Other Sea Users associated with the Proposed Project.

1.12.26 Full details and assessment of commercial fisheries receptors is presented in **Application Document 6.2.4.9 Part 4 Marine Chapter 9 Other Sea Users**.

Table 1.19 Other Sea Users Commitments and Mitigation

Commitment	REAC Number	Relevant Plan(s)
Crossing and/or proximity agreements will be agreed with aggregate extraction, cable and pipeline owners. The crossing agreement describes the rights and responsibilities of the parties and also the design of the crossing. Crossing design will be in line with industry standards, using procedures and techniques agreed with the cable and pipeline owners.	OS01	7.5.2 Outline Offshore CEMP 9.92 Outline Cable Specification and Installation Plan (Outline CSIP)
Timely and efficient communication will be given to sea users in the area via Notices to Mariners, Kingfisher Bulletins, NAVTEX and NAVAREA warnings.	OSU02	7.5.2 Outline Offshore CEMP 9.12 Outline Navigation and Installation Plan (Outline NIP)
Preparation and implementation of a Fisheries Liaison and Co-Existence (FLCP) which will set out measures to mitigate impacts on fisheries including coordinated communication and scheduling between developers of adjacent projects, early, consistent and ongoing engagement with the fisheries sector, and clear compensation agreements for gear loss, damage, relocation or removal.	OSU03	9.85 Outline Fisheries Liaison and Coexistence Plan 7.5.2 Outline Offshore CEMP

1.13 Maintenance Measures

1.13.1 The cable system installation is designed such that a regular maintenance regime is not required to maintain the integrity of the link. However, monitoring surveys and the land based DTAS (Digital Temperature and Acoustic Sensing) monitoring may indicate that localised lengths along the cable link may require maintenance. This would normally be in areas of mobile sediment, such as scour or mobile bedforms migrating over the route, which alters the DOL of the cable. Maintenance may be the addition of mattresses, rock or grout bags, installation of remedial rock berms, additional trenching (where appropriate), or the removal of excess sand depth, as mobile bedforms migrate, resulting in excessive DOL. The latter would be undertaken using a Controlled Flow Excavator), or partial deburial methods (eductor).

1.13.2 With regard to cable repairs or remediation works, as set out in the Deemed Marine Licence – Part 2 Conditions "*No cable protection granted by the licence may be deployed within the Sandwich Bay Special Area of Conservation (SAC) after the construction period has ended. Any cable protection to be installed outside of the Sandwich Bay SAC following completion of construction in locations where cable protection was not installed during construction must be deployed within 10 years of completion of construction, unless otherwise agreed by the MMO in writing*"

1.13.3 Cable repairs may be required at any time, however good design and installation would mitigate this. A repair preparedness plan (RPP) would be prepared post – consent and prior to any repair works taking place by the main contractor which details the actions to be taken, from detecting a fault to re-commissioning.

1.13.4 Where possible a repair agreement would be in place with a marine contractor with provision for a minimum of 5 repair joints and sufficient spare cable to undertake a repair to both HVDC and fibre optic cables in the deepest part of the route.

1.13.5 Prior to any repair scenario, the location of the fault would need to be identified and confirmed from TDR (time domain reflectometry), and OTDR (Optical time domain reflectometry) where the fibre optic cable may be damaged and visual survey of the seabed (where external damage is thought to be the cause of the fault) which may lead to a delay prior to commencing the cable reburial and repair activities.

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