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LIVERPOOL BAY CCS PROJECT

POINT OF AYR GAS PLANT Point of Ayr Terminal

PoA Cable Route and Foreshore Works CEMP

	00	08/08/2025	FINAL	A. Billington	L. Gherbi			c
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REVISION LIST

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1.0 INTRODUCTION

1.1 Scope of Document

This Construction Environmental Management Plan (CEMP) has been prepared in relation to the Point of Ayr (PoA) Cable Route Foreshore Works Proposed Development (“the Proposed Development”).

The Proposed Development comprises a realignment of the cable route consented PoA Terminal and Foreshore Works (“the Consented Development”) that was granted planning permission in May 2024 [FUL/000246/23] by Flintshire County Council (FCC). The Consented Development comprises new infrastructure and modifications to existing facilities at the PoA Terminal in Flintshire to operate with carbon dioxide (CO₂).

This CEMP sets out the site-specific control measures for the HDD and the cable lay activities associated with the Proposed Development for which planning permission is sought. These works comprise installation of a combined fibre optic and electrical cable from Warren Farm, under Gronant and Talacre Dunes, and across the intertidal area of Talacre Beach to the mean low water springs (MLWS) line. The cable will be installed under the dunes via a conduit that will be constructed using a trenchless method of horizontal directional drilling (HDD). Across Talacre Beach, the cable will be pulled ashore before being buried by means of cable trencher, plough or with excavators.

A separate CEMP has been prepared in support of the Consented Development [FUL/000246/23]. All REAC References are complied with in full for the different control and management that will be implemented during the execution of the Proposed Development in relation to the scope of the document at the valve location (the HDD Entry Pit).

1.2 Aim and Objectives

The aim of this CEMP is to ensure that the works outlined in this document do not result in unacceptable environmental effects. It will set out how the works will be managed to reduce, avoid and mitigate adverse effects. In particular, the CEMP shall:

- Provide a mechanism for ensuring that measures to mitigate potentially adverse environmental effects are implemented;
- Provide assurance to third parties that their requirements with respect to environmental performance will be met; and
- Provide a framework for compliance auditing and inspection to enable the Project to be assured that its aims with respect to environmental performance are being met.

1.3 Statutory Guidance and Best Practice

A copy of this CEMP will be provided to each person working on behalf of the Principal Contractor. The Principal Contractor is required to maintain a copy of the CEMP at all work site offices for reference by the entire workforce. It must be accessible to all site personnel and representatives of the relevant enforcement Authority, and all Subcontractors. All site works shall be undertaken in compliance with this CEMP and with all applicable legal and regulatory requirements. It is the full responsibility of all Principal Contractors to ensure that their works do not contravene legal requirements, and adherence to this CEMP alone cannot be a full defence regarding legal action against the Principal Contractor.

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The Principal Contractor shall comply as necessary with the Construction (Design and Management) Regulations 2015 (CDM) and shall comply with all the applicable pollution control regulations in which case the Principal Contractor shall obtain and keep current any necessary consent, authorisation, approval or permission.

The Principal Contractor shall, where relevant, undertake all site works in accordance with current guidance and best practice.

1.4 Environmental Management System

This document has been produced in accordance with principals outlined in BS EN ISO14001:2015. The Principal Contractor is expected to mirror the Company environmental values and standards including the promotion of these values and standards among their staff, Subcontractors and suppliers engaged on the works. The Principal Contractor appointed to the works can demonstrate to the principles of BS EN ISO 14001:2015 and has an Environmental Management System (EMS) certified to the standard.

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2.0 DEFINITIONS AND ABBREVIATIONS

2.1 Definitions

Term	Definition
Company	The party that initiates the project and ultimately pays for its design and construction i.e. ENI UK Ltd will generally specify technical requirements. The term "COMPANY" also includes agents or consultants authorized to act for, and on behalf of, COMPANY.
Contract	An acceptance of legal relations between two or more parties for the transfer of goods or services for value.
Contractor	A person or organization that undertakes responsibility for the execution of a contract.
Subcontractor	Any person to whom performance of any part of the Works, including engineering works or supply of any Equipment, is subcontracted directly or indirectly by the Contractor and including Approved Subcontractors and legal successors or permitted assigns.
Supplier	The party (Manufacturer or Vendor) that manufactures or supplies equipment or services to perform the duties specified by the Company or Contractor
Shall	A mandatory provision
Should	An advisory provision

2.2 Abbreviations

CCS	Carbon Capture Storage
CDM	Construction (Design and Management) Regulations 2015
CEMP	Construction Environmental Management Plan
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CoPA	Control of Pollution Act 1974
COSHH	Control of Substances Hazardous to Health
DAM	Development Advice Map
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
DoWCoP	Development Industry Code of Practice
ECOW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EMS	Environmental Management System
ES	Environmental Statement
FAP	Flood Action Plan
GCN	Great Crested Newt
HSE	Health, Safety and Environment
HSEQ	Health, Safety, Environment and Quality
KPI	Key Performance Indicator
LBA	Liverpool Bay

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LDP	Local Development Plan
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
MSA	Material Safeguarding Area
MMP	Materials Management Plan
NRW	Natural Resources Wales
NOx	Nitrogen Oxides
NVMP	Noise and Vibration Management Plan
OTMP	Outline Traffic Management Plan
PPW	Planning Policy Wales
PRoW	Public Rights of Way
PM	Particulate Matter
PWMS	Precautionary Working Method Statement
RAMS	Risk Assessment and Method Statement
REAC	Register of Environmental Actions and Commitments
PoA	Point of Ayr
PPE	Personal Protective Equipment
RLB	Red Line Boundary
TCPA	Town and Country Planning Act
TCF	Temporary Construction Facilities
TOF	Temporary Operational Facilities
T&S	Transport and Storage
SAC	Special Area of Conservation
SeMP	Sediment Management Plan
SMP	Soil Management Plan
SOW	Scope of Works
SPA	Special Protection Area
SWMP	Surface Water Management Plan
SSSI	Site of Special Scientific Interest
VOC	Volatile Organic Compounds
WS	Wildlife Sites
WTP	Worker Travel Plan
WP	Work Package

3.0 REFERENCES

This CEMP makes reference to, and should be read in conjunction with the following documents:

3.1 International Codes and Standards

[Ref 1]	ISO 45001	Occupational health and safety management systems, Requirements with Guidance for Use
[Ref 2]	ISO 14001	Environmental Management Systems - Requirements with Guidance for Use

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3.2 Project Documents

[Ref 3] TCPA [Ref. FUL/000246/23] – March 2023 T.4 Environmental Statement

[Ref 4] TCPA [Ref. FUL/000246/23] – March 2023 T.5.3 Register of Environmental Actions and Commitments

3.3 Legislation references

- Clean Neighbourhoods and Environment Act 2005
- Conservation of Habitats and Species Regulations 2017
- Construction (Design and Management) Regulations 2015
- Control of Asbestos Regulations 2012
- Control of Noise at Work Regulations 2005
- Control of Pollution (Oil Storage) (England) Regulations 2001
- Control of Pollution Act 1974
- Control of Substances Hazardous to Health (COSHH) Regulations 2002
- Control of Vibration at Work Regulations 2005
- Countryside and Rights of Way Act 2000
- Countryside and Rights of Way Act 2000
- Environment Act 1995
- Environmental Damage (Prevention and Remediation) Regulations 2015
- Environmental Permitting (England and Wales) Regulations 2016
- Environmental Protection Act 1990
- Floods and Water (Amendment, etc.) (EU Exit) Regulations 2019
- Hazardous Waste (England and Wales) Regulations 2005
- Local Biodiversity Action Plans (LBAPs)
- Noise and Statutory Nuisance Act 1993
- Noise Emission in the Environment by Equipment for Use Outdoors Regulations 2001 and (as amended) 2005.
- Personal Protective Equipment at Work Regulations 1992
- Planning (Listed Buildings and Conservation Areas) Act 1990
- The Town and Country Planning (Environmental Impact Assessment) Regulations 2017
- Town and Country Planning Act 1990
- Town and Country Planning Act 1990
- Waste (Circular Economy) (Amendment) Regulations 2020
- Waste (England and Wales) Regulations 2011
- Waste Batteries and Accumulators Regulations 2009
- Water Act 2014
- Water Industries Act 1991
- Water Resources Act 1991
- Weeds Act 1959
- Wildlife and Countryside Act 1981
- Wildlife and Countryside Act 1981 (Prohibition on Sale etc of Invasive Non-native Plants) (England) Order 2014

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4.0 CONSTRUCTION ACTIVITIES AND PROGRAMME

4.1 Project Location and Description

The works subject to the new TCPA application submitted in August 2025 comprise the installation of an underground section of Horizontal Directional Drilling (HDD) conduit under Gronant Dunes originating from the HDD Entry Pit (consented under **FUL/000246/23**), to a buried HDD Exit Pit near the Mean High Water Spring (MHWS) line, and burial of a combined electrical and fibre optic cable across Talacre Beach to the Mean Low Water Spring (MLWS) line.

The new underground cables will be installed broadly in a north-northwest direction from the HDD Entry Site to the MLWS. The cables will be buried on Talacre Beach from the HDD Exit Pit to the MLWS and onwards to a new offshore platform in Liverpool Bay.

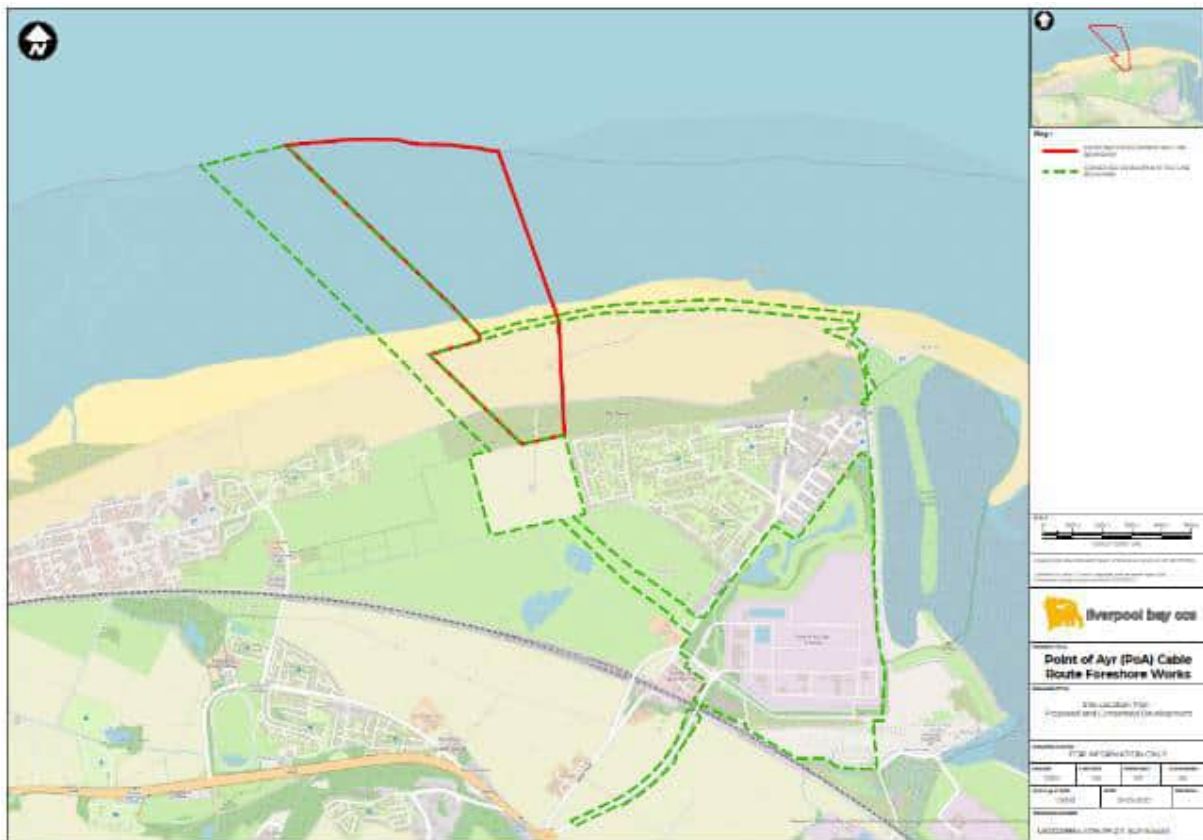


Figure 4.1: Site Location and Red Line Boundaries

4.2 General Site Arrangements

4.2.1 Temporary Construction Compound

Temporary Construction Compounds are planned at:

- Main site: Warren Farm: Main compound - HDD entry and cable installation works.
- Beach: Satellite compound – HDD exit and cable installation works.
- Talacre Car Park: (un)loading of larger equipment and crew parking.

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Access to the Foreshore works will be from the Talacre Beach car park and along the base of the dunes via the route identified and consented under **FUL/000246/23**.

4.2.2 Site Set Up and Compound

The site set up works shall include the establishment of secure site access, works signage, dedicated laydown area(s) and construction compound. The compound shall be set up in accordance with the Client's Health Safety and Environment (HSE) policy and procedures if available. Full details can be obtained by reference to this CEMP, however, as a minimum, this will include the display of:

- Site Information / Services Plan.
- Traffic Management Plan.

4.2.3 Fencing and Site Security

All work sites will be securely fenced or otherwise demarcated from public access. All fencing and hoarding will be suitable, taking into considerations, typically 'post-and-rope' fencing for arable land or appropriate stockproof fencing for grazed land. Urban sections or areas with increased levels of public interaction may use HERAS or similar. All temporary fencing will be removed upon completion of the works.

At the beach demarcation from public access is not practical due to the intertidal environment. Barriers placed within the intertidal area may come loose due to tide and become pollutant and risk for shipping. Site marshalls will keep an eye out on public and divert them and/or stop the works when too close in vicinity.

Physical screening of the working areas would only be employed where necessary in order to minimise disturbance to wintering birds.

4.2.4 Welfare Facilities

Welfare facilities will be made available at the Construction Compounds. Welfare facilities may be shared between work sites where there is more than one compound in close proximity to minimise the construction footprint. The following welfare facilities will be provided on site:

- Toilets and Washing Facilities - hand wash basins are provided
- Drinking Water – To be provided during execution at suitable locations (considered bottled drinking water or a water-maker to be supplied by catering Subcontractor)
- Changing rooms and Lockers – Provided for Contractor and Company personnel only within the office buildings.
- Rest Facilities: A dedicated room for resting is provided in the Contractor office. Additionally, in the Company office and TOF building, extra seating arrangements have been included in the pantry room.

For Subcontractor personnel, only mess hall seating facilities have been considered. All other facilities related to Subcontractor personnel should be managed independently by the Subcontractor.

4.3 Working Hours

Where practicable, all works will be undertaken during daytime hours from Monday to Friday (08:00 to 18:00) and on Saturdays (08:00 to 13:00). A shoulder hour on either side of these times will be proposed for start-up and close-down activities such as but not limited, to arrival and departure of workforce, site briefings, inspections and safety checks, clean-up, maintenance (non-noisy) and refuelling.

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However, once the working areas have been setup, then the working hours for when the actual drilling of the HDD conduit, and cable installation on Talacre Beach, will have to be carried out 24-hours per day. This is because once drilling commences it needs to be completed in one continuous activity. This is because stopping can cause the drilling head to become stuck, and tunnel collapse, which would result in abortive work, and having to start a new conduit offline from the original. This would extend the duration, and hence impact of the HDD drilling. For the cable installation on the beach, this also needs to be carried out 24-hours per day. This is due to the tidal environment by which progress is limited per shift. A typical shift time for 24 hour working is from 07:00 to 19:00, and 19:00 to 07:00. Therefore, during these periods of the works, 24-hour access, and egress, is required.

It is anticipated that HDD conduit construction, and cable installation, will commence in February to April 2026. The revised timing of the HDD Exit Pit works has been scheduled for February 2026, which is outside of the Little Tern breeding season. The cable shore pull, and simultaneous lay and burial, by the cable laying vessel, are scheduled for July 2026 at the end of the Little Tern breeding season, close to their migratory departure. LBCCS will continue to work with its cable installation contractor to, as far as is reasonably practicable, sequence these works to occur either later in, or after, the breeding season.

4.4 Consents and Permits

Table 4.1 shows the licenses, consents, planning and permits applicable for this project. Copies of these will be retained on site.

Table 4.1 Consents and Permits

Licenses / Consents / Permits	Authority	Reference Number	Relevant Section (for conditions)	Responsibility
Town and Country Planning Permission	Flintshire County Council	[FUL/000000/25] & FUL/000246/23	CTMP- Condition 5	LB CCS
Marine Licence	Natural Resources Wales	CML2365	Notifications as per 3.1. and 3.2	LB CCS
Written notification of the date of commencement of any works on the site	Flintshire County Council Natural Resources Wales	[FUL/000000/25] & FUL/000246/23 CML2365	Condition 2 Notifications as per 3.1. and 3.2	LB CCS
Written notification of the date of the material start of each phase of development	Flintshire County Council Natural Resources Wales.	TBC	Condition 2 Notifications as per 3.1. and 3.2	LB CCS
CEMP approval	Flintshire County Council Natural Resources Wales	[FUL/000000/25] & FUL/000246/23 CML2365	Condition 8 Condition 3.25	Principal Contractor / LB CCS
Biosecurity Risk Assessment and Method Statement	Flintshire County Council Natural Resources Wales	[FUL/000000/25] & FUL/000246/23 CML2365	Condition 17 Condition 3.25	Principal Contractor

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Figure 4.3: Talacre; indicative locations of the HDD sites, Entrances and Car Park

4.5.2 HDD Entry Pit Establishment

The entry site is the main works area for HDD. A temporary road way, with e.g. road plates, will be required to provide safe access from the farmers yard at Station Road to the valve field where the existing pipeline is located. This entrance is visualised at **Figure 4.3** as 'Warren Farm Entrance'. At Warren farm entry is made towards the HDD entry site. Temporary matting is planned across the fields for the transports. Some levelling may be required by excavator or dozer.



Figure 4.4: Typical temporary matting

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At the Entry Site, a working plateau will be installed, this will be approximately 50m x 50m, as shown in **Figure 4.5**. Hard standing may be required on which to place the equipment and facilities.

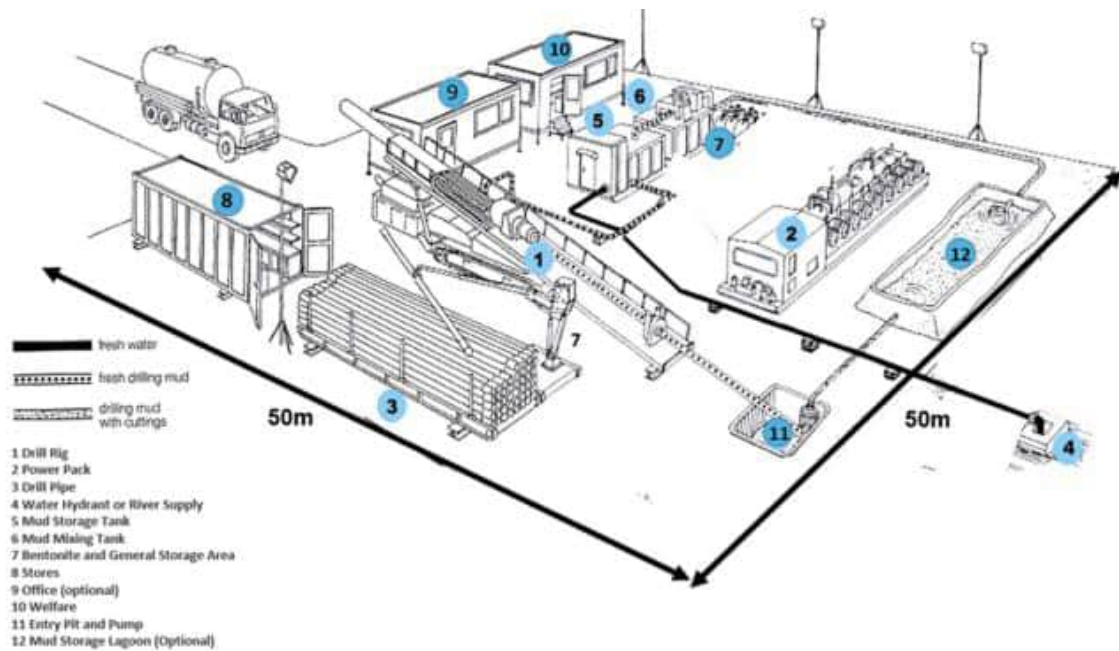


Figure 4.5: Typical Entry Site Set-up for HDD works



Figure 4.6: Indicative Location in Warren Farm of Site Set-up for HDD works showing access road, parking, welfare and storage area.

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At the working plateau the site offices as well as the main welfare for the site team will be located. The welfare will consist of modular temporary buildings including offices, canteen, changing rooms and toilet facilities. More information regarding the welfare facilities can be found at **Section 4.2.4- Welfare Facilities**.

Once site establishment is completed the drilling equipment will be mobilised to site, equipment will be delivered by trucks in accordance with the traffic management measures described in **Section 6.4**. Equipment is unloaded and positioned as required by means of all terrain crane or hiab trucks.

The HDD entry pit is excavated, as well as a lagoon for the storage of drilling fluids. More on the use of drilling fluids can be found at **Section 4.5.8 - Drilling Fluid Management**. The excavated soil from the entry pit and the lagoon for the drilling fluid will be stored close to their original location whenever possible, so that arable soils are returned to arable fields and grassland soils used to restore grassland fields, and sand to sand. The soil will be reinstated after completion of construction phase.

To secure the drill rig in place, a sheet piled wall will be constructed onto which the expected thrust and pullbacks loads during the drilling works are transferred to.

Once equipment is placed at the site, the drilling crew will connect all hydraulic hoses, electrical cables etc. to make the HDD equipment operational. All equipment is then function tested to ensure it is properly working before the drilling will commence. An indicative list of the main plant and equipment required at the HDD Exit Pit is resented in **Table 4.2**.

Table 4.2 Indicative list of main equipment at Warren Farm HDD Entry Pit site for the cable conduit installation under dunes.

Equipment	Quantity*	Power generated by	External Generator supply quantity	Indication size of external generator
Welfare / office facilities	-*	Diesel generator	1-2x	30-50 kVA
Workshop /storage / control containers	-*	Same generator of welfare containers	-	-
Directional Drill Rig	1	Internal diesel generator	2x (of which 1 spare)	500 kVA
Drilling fluid shale shaker	1	Internal diesel generator		
Concrete mixer truck	3	Internal diesel generator	Internal	-
Truck mounted concrete pump	1	Internal diesel generator	Internal	-
Vibratory roller	2	Internal diesel generator	Internal	-
Excavator	1-3	Internal diesel generator	Internal	-
Dozer	1	Internal diesel generator	Internal	-
Tractor / trailer	1-2	Internal diesel generator	Internal	-
Cranage	1	Internal diesel generator	Internal	-
Towerlights	4-6	Diesel generator	Internal / external	5-15 kVA each
Dewatering	0-1	Diesel generator	1x	50 kVA*

4.5.3 HDD Exit Pit Establishment

Concurrently to mobilise the drilling equipment at the main site the secondary HDD exit site is prepared, the exit location is considered a satellite site, smaller in scale. As with the Entry Site, this will be appropriately

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signed, fenced, and house welfare equipment. Afterwards, construction equipment such as excavators, piling rig, sheet piles, pumps and generators will be transported.

Some of the equipment will be delivered to the Entry Site where it is loaded onto an agricultural tractor and trailer before being driven to the beach for installation. Larger equipment such as excavators or the piling rig will be delivered directly to the Talacre beach car park.

Due to the ramp that crosses the sea wall at the car park entrance HGV's are unlikely to be able to cross the ramp, a detailed plan of how to manage this will be developed in time, at this stage it is likely that HGV's will have to reverse down the narrow section of road approaching the car park, equipment shall be unloaded at the bottom of the ramp and then will be driven over the ramp into the car park.

To minimize risk and inconvenience to the public this could be undertaken during early mornings when the area is quieter, a means of protection for the road surface such as car tires or rubber matting will be deployed. This way of working would also be used for the cable installation works and will be detailed in a traffic management plan at a later stage.

To securely contain drill fluid throughout the operation, and prevent fluid loss to the marine environment, an exit pit is built. The exit pit for the Gronant dune system HDD on the intertidal side will be excavated between 2-3m below ground level, due to the depth and the risk of the excavation collapsing it may be necessary to support the excavation with trench boxes and sheet piles. Groundwater from the excavation will be emptied by means of one or more temporary pumps where necessary, water from the excavation will be returned to the sea. Based on the predicted tidal heights and location of this pit, the pile height above the beach will be chosen such that the ingress of seawater and subsequent washout of drilling fluid during high tide is prevented. Sandbags are placed around the sheet piles to limit the scour effect of tide.

During the drilling process, any drilling fluid will be contained within the HDD Exit pit and will be either pumped back to the HDD Entry site or transferred by means of an agricultural tractor and tanker that will exit the beach from Talacre beach car park. It may be necessary to partially clean the drilling fluids at the exit point to prevent the suspended arising from blocking the fluid transport equipment. If required, this shall be done with a shaker system, arisings separated from the drill fluid will be contained before they are returned to the HDD Entry site for proper disposal.

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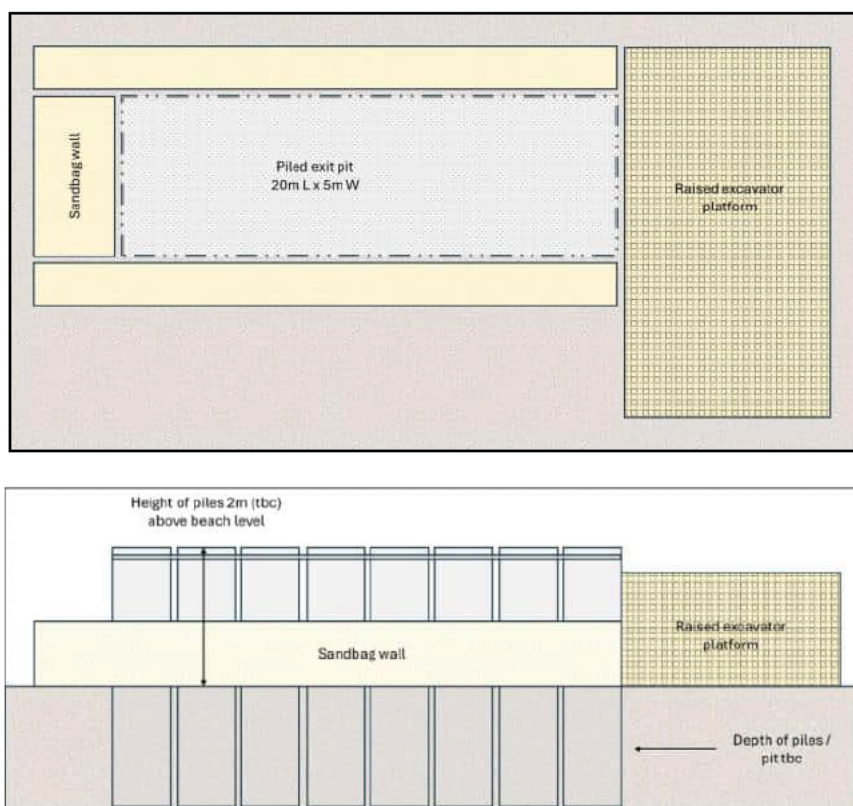


Figure 4.7: Typical Sheet Piled Exit Pit (top and side view) Raised Working Platform

A raised working platform may be required, as shown in **Figure 4.7**, to ensure equipment and storage containers are dry at high tides. An indicative list of the main plant and equipment required at the HDD Exit Pit is resented in **Table 4.3**.

Table 4.3 Indicative list of main equipment at Talacre Beach HDD Exit Pit site for the cable conduit installation under dunes.

Equipment	Quantity*	Power generated by	External Generator supply quantity	Indication size of external generator
Welfare / office facilities	-*	Diesel generator	1-2x	30-50 kVa
Workshop /storage / control containers	-*	Same generator of welfare containers	-	-
Excavator	1-3	Internal diesel generator	Internal	-
Dozer	1	Internal diesel generator	Internal	-
Tractor / trailer	1-2	Internal diesel generator	Internal	-
Cranage	1	Internal diesel generator	Internal	-
Towerlights	4-6	Diesel generator	Internal / external	5-15 kVA each
Dewatering	0-1	Diesel generator	1x	50 kVA*

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4.5.4 Pipe welding (heat bonding)

Figure 4.8 shows that the area for the HDD conduit pipe assembly will be established besides the HDD Exit Pit. To store the machinery during high water, the pipe welding area will be set up to the east of the HDD Exit Pit. From the pipe welding area, rollers will be temporarily installed over a length of 500m to create a solid structure onto which the pipe can be assembled, and secured during highwater.

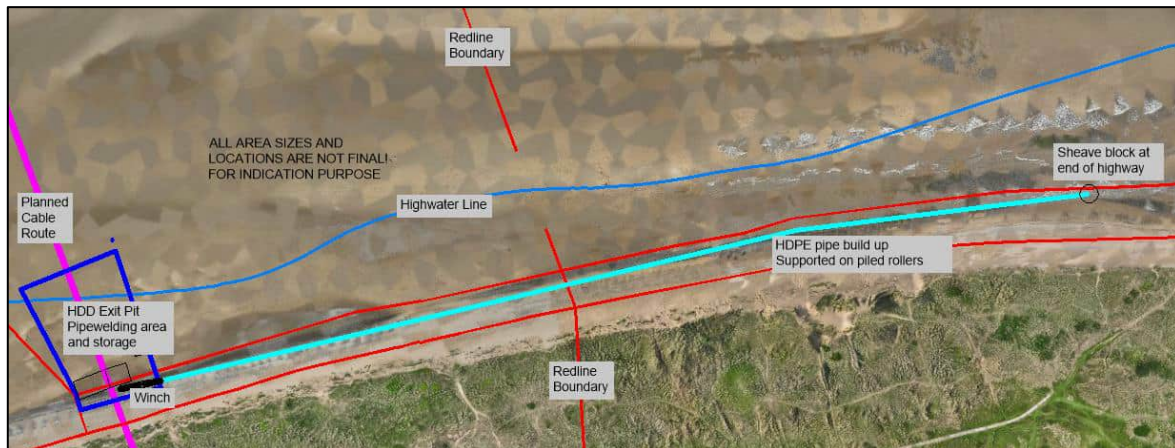


Figure 4.8: Pipe Assembly at beach proposal. HDD exit pit and location size for visual reference only - not indicative

The equipment and materials required for welding the HDPE ducting will be transported first to Warren Farm. At Warren Farm, the equipment will be loaded on a tractor and trailer to transport it to the beach area, which is done via Talacre car park beach entry. This minimises the access road disruption at Talacre car park from the offloading and movement of equipment.

Larger sized equipment like excavators that cannot be transported by tractor and trailer, remain planned to be (off)loaded at Talacre car park and/or at down the ramp of the sea defence. Trucks need to reverse down the narrow section of Station Road approaching the car park, and equipment shall be (un)loaded at the bottom of the ramp and then will be driven over the ramp into the car park. To minimise risk and inconvenience to the public, and local businesses, this would be undertaken outside of busy periods when the area is quieter. A means of protection for the road surface such as car tires or rubber matting will be deployed. Plastic road plates may also be used where necessary to minimise ground disturbance and to preserve the condition of the car park entrance route.

The following equipment would be required for the pipe welding area.

- 6-7x HDPE pipe stacks to store 550m of 355mm pipe incl spares. Footprint of each stack 12m x 1m.
- Pipe welding equipment
- Welfare facility incl. generator
- Rollers incl. piles
- Mobile winch incl. generator
- Crane mats
- Concrete ballast blocks Approx 1t.
- Excavator
- Fencing and signage

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Figure 4.9: Indicative Example piled roller highway (left), typical mobile winch



Figure 4.10: Typical pipe welding equipment, storage of pipes and welfare not shown

A mobile winch (see **Figure 4.9**) will be mobilised to the beach and set up near the pipewelding area. The winch wire is routed below the roller highway and redirected at the end of the highway by a sheave block back to the HDPE pipe resting on the rollers. By paying in on the winch, the HDPE pipe can be moved over the roller highway for the crew to weld the next pipe section onto this. This would remove the need for multiple excavators during the pipewelding process and, therefore, limit the noise emitted during the pipe welding process. Please see **Figure 4.11** for a sketch of this setup.

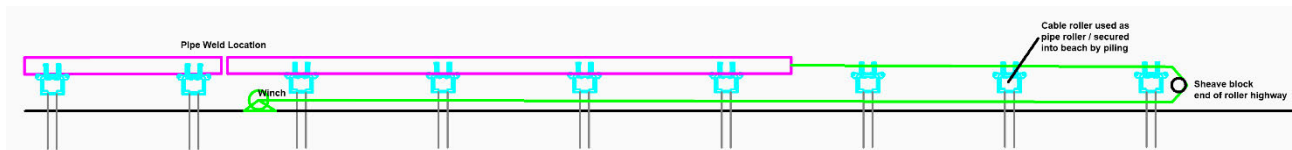


Figure 4.11: Sketch pulling HDPE pipe over roller highway by winch instead of moving it by excavators

The assembly operations can continue throughout the tidal cycle on the beach, as the machinery, equipment and the roller highway are raised above the beach surface and high water line, where possible the welding will be planned to avoid high spring tides. The piled rollers also provide the opportunity to secure the HDPE pipe in place during (spring) high water. It is noted however that due to overwintering birds, this operation may need to be halted 3 hours either side of high tide.

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The distance between Talacre car park beach entry and the most eastern location on the beach site compound (i.e. sheave block at the end of the roller highway), is more than 700m. As the final HDD exit location is not yet defined and could be more to the eastern edge of the red line boundary, a minimum distance of 500m would still be in place.

4.5.5 Pilot hole

When all site establishment activities are completed and the pipe is ready the drilling process can commence, the following key activities describe the process

The first stage of the process is to drill a pilot hole from HDD entry point to HDD exit point, a drill bit with a bent section (see **Figure 4.12**) is used to make the pilot hole, directional control is achieved by orientating the bent section in the direction of desired drill path.



Figure 4.12: Typical drilling rig and pilot drilling assembly

A steering tool will be located inside the drill bit to provide the driller with the real time information required. Sections of drill pipe are added to the rig each time drill pipe is installed; this process continues until the drill bit arrives at the exit pit. Drilling fluids are pumped down the drill string to jet the strata, cool the bit and flush out cuttings from the bore hole, the drilling fluids also maintain the integrity of the bore to prevent collapse and seal the bore from water ingress. This fluid is cleaned of the cuttings at the mud plant located in the entry site and is circulated through the system continuously.

4.5.6 Reaming phases

When the pilot is completed, the pilot drilling assembly is removed at the HDD exit point and replaced with a back reaming assembly. This back reaming assembly is drilled from the exit to the entry site again in sections of drill pipe which are removed one by one at the entry site, behind the reaming assembly extra drill pipes are added so that upon completion of the reaming phase a drill string remains inside the bore hole to ensure the drill path is not lost.

This process can be repeated several times to enlarge or clean the bore hole until the drilling team are satisfied that the bore hole is ready for pipe installation. Drilling fluids are also pumped constantly during this process to clean the hole of the cuttings and stabilise the bore hole.

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Figure 4.13: Rear reaming assembly

4.5.7 Pull back

When the reaming phase is complete the pipe pull back will commence, the pipe string in one continuous length is delivered the exit point of the HDD from the storage location on the foreshore, the pipe is pulled by one or more excavators until the 1st end arrives near to the exit point, then the pipe is aligned with the direction of the drilled hole. Rock bags or other may be used to keep the pipe in the required position and bend, prior entry at the exit point.

During this operation, all unauthorised personnel and public would be excluded from the work area. However, as working is planned around high tide, passage near the dunes and near the waterline remains possible for the public to pass this area. **Figure 4.14** shows a box of no access but allowing passage around it.

The pipe shall be connected to the drill string in the bore hole and then the pull back operation will be executed continuously until the pipe is fully installed. As with pilot drilling and reaming the drilling fluids are continuously pumped down the hole to lubricate the pipe and remove cuttings from the bore hole.



Figure 4.14: Pipe repositioned for pull back

4.5.8 Drilling Fluid Management

Please see the details at **Section 6.7.2 - Waste Management Plan - Drilling fluid management.**

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4.5.9 Pipe finalisation

On successful installation of the duct from exit to launch pit, a gauging swab will be used to prove the internal integrity ahead of cable pulling works, as shown in **Figure 4.15**.

The gauging swab is pushed through the installed duct using clean water pumped under pressure from the high-pressure mud delivery pump in the drill compound. The gauge (aluminium disk) will be sized at 90% of the inside duct diameter. Once the gauging swab has been pushed the duct any damage or deformation of the duct ID would in turn deform the gauge disk. No deformation of the gauge plate confirms the duct is installed with little or no internal defect.

Following successful passing of the gauging swab assembly, a second pass using a solid foam swab will be completed in the same manner. During this pass a messenger rope will also be installed and secured via the blanking pat each end of the duct ready for use during the cable installation operation.

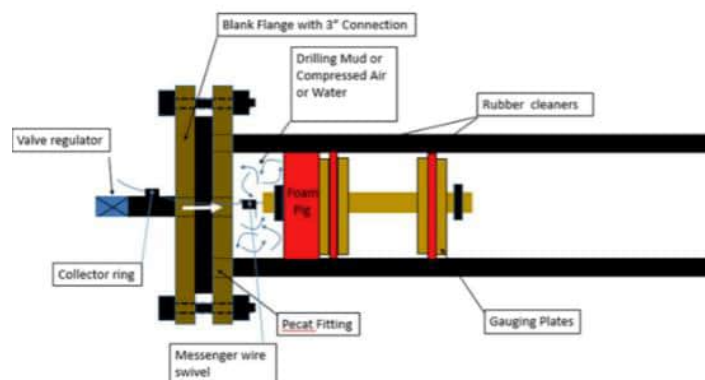


Figure 4.15: Schematic of gauging swab assembly

Duct end sealing and capping will be completed using an end restraint flange adaptor and cover plate, as shown in **Figure 4.16**.



Figure 4.16: Flange adaptor + cover plate duct seal

4.5.10 Programme HDD works

Figure 4.17 summarises the activities for the installation of the HDD Exit Pit on Talacre Beach, and shows that the indicative programme is aiming to avoid the little tern breeding season by carrying out the HDD Conduit, and Exit Pit works during February and March 2026.

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Figure 4.17 also shows the assumptions, and environmental considerations factored into the planning of the works. The anticipated duration of each activity required for the installation of the HDD Exit Pit is shown. Detailed design and engineering may require minor modifications to the exact timing of the works.

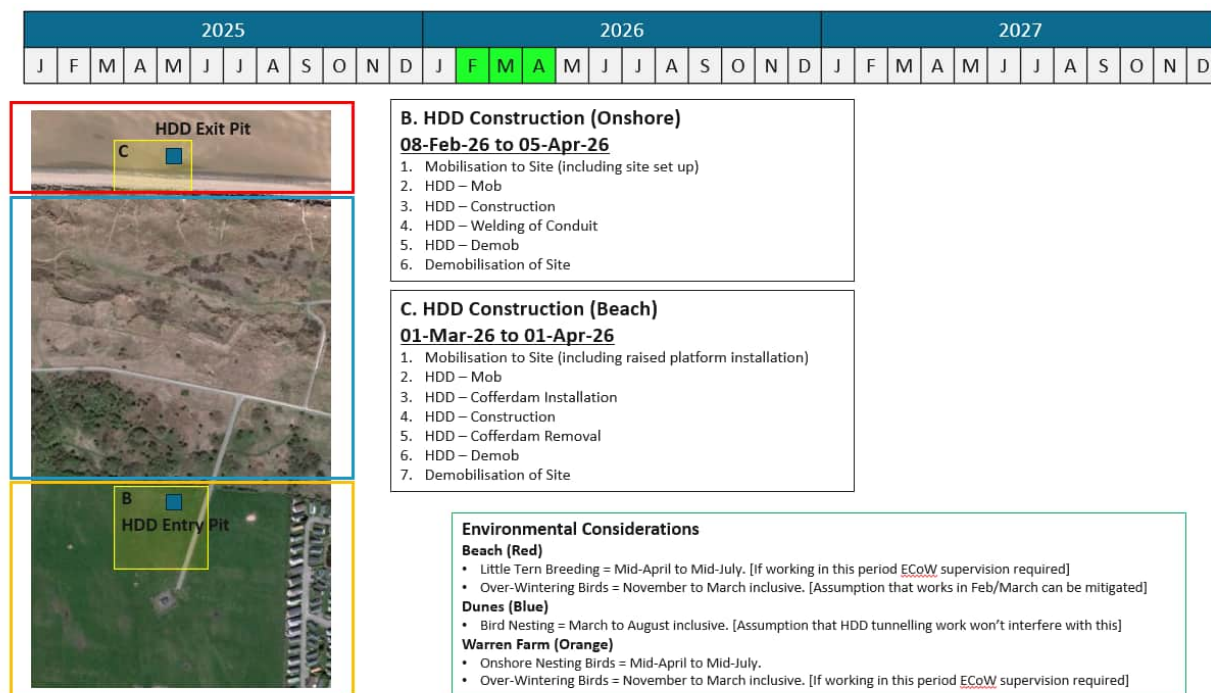


Figure 4.17: Indicative summary activities and programme for installation of HDD Entry Pit recognising environmental sensitivities

4.6 Intertidal Cable Installation

Cable installation in the intertidal area consists of four main activities, (1) installation of the cable highway and pulling equipment, (2) the cable onshore landing operations, (3) cable burial operations, and (4) equipment demobilization and site reinstatement.

To execute the shore pull the CLV will be positioned as close to Mean Low Waterline (MLW) as possible, it is anticipated that the CLV will beach during the shore landing. Once the CLV has stabilised in position the pulling wire from the beach winch will be connected to the cable. The cable will then be pulled across the cable highway on the beach until arriving at the exit point of the HDD, here the cable will enter the conduit and be pulled until the pulling head of the cable arrives at the beach winch that shall be in the HDD entry site,

The offshore cable lay and burial operations will commence as soon as possible after the completion of the shore pull. The CLV with the support of various tugboats will manoeuvre along the cable route towing a plough that will simultaneously bury the cable as the CLV moves ahead.

4.6.1 Site Establishment

Contractor will setup all equipment required for the preparatory works, the pull-in and the post pull-in works. This is done both at the onshore site (earlier HDD entry site) and beach site (HDD exit site). Access to the beach will be from the Talacre beach car park. The use of temporary matting is not foreseen but may be

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deployed should the need arise; the use of such equipment is considered as a risk due to the tidal environment and the trip hazard they present to the public. Regular maintenance of the access route shall be undertaken to remove ruts that can be a risk for the public or workforce.

A temporary fence may be erected to safeguard both the public and workforce and provide security of the works, this will be in certain areas deemed necessary, it is not practical to fence off the entire working area due to the tidal environment.

Signage will be installed at the beach and in the local notice boards to advise the public of where to safely pass the works. The operational crew will also maintain watch for any persons who may be approaching the works to close, operational crew will advise.

An indicative list of the main plant and equipment for the cable pull and installation required at the HDD Entry Pit is resented in **Table 4.4**.

Table 4.4 Indicative list of main equipment to be mobilised to Warren Farm, HDD Entry Pit site, for the cable pull and installation.

Equipment	Quantity*	Power generated by	External Generator supply quantity	Indication size of external generator
Welfare / office facilities	-*	Diesel generator	1-2x	30-50 kVa
Workshop /storage / control containers	-*	Same generator of welfare containers	-	-
Cable pull-in winch	1x*	Diesel generator	2x (of which 1 spare)	500 kVA
Excavator	1-3x*	Internal diesel generator	Internal	-
Tractor / trailer	1-2x*	Internal diesel generator	Internal	-
Cranage	1x*	Internal diesel generator	Internal	-
Towerlights	4-6x*	Diesel generator	Internal / external	5-15 kVA each
Dewatering	0-1x*	Diesel generator	1x	50 kVA*
Cable rollers	10-15x*	N/A	-	-
Road plates	-*	N/A	-	-
Bog mats	-*	N/A	-	-
Concrete blocks	-*	N/A	-	-
Fencing	-*	N/A	-	-
Crowd barriers	-*	N/A	-	-
Rigging	-*	N/A	-	-

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Figure 4.18: Example of typical cable pull winch

Table 4.5 Indicative list of main equipment to be mobilised to Talacre Beach, HDD Exit Pit site, for the cable pull and installation.

Equipment	Quantity	Power generated by	External Generator quantity	Indication size of external generator
Welfare / office facilities	2-3x*	Diesel generator	1x	30-50 kVa
Workshop /storage / control containers	-*	Same generator of welfare containers	-	-
Winch	1x*	Diesel generator	1x	75 kVA*
Excavator	1-3x*	Internal diesel generator	Internal	-
Tractor / trailer (same as Warren Farm)	1-2x	Internal diesel generator	Internal	-
Cranage	0-1x*	Internal diesel generator	Internal	-
Raised excavator	0-1x	Internal diesel generator	Internal	-
Post lay burial machine	0-1x	Internal diesel generator	Internal	-
Towerlights	6-8x*	Diesel generator	Internal / external	5-15 kVA each
Tracked Cable Tensioner	0-2x*	Diesel generator	1x / 1x spare	300 kVA
Dewatering	0-1x*	Diesel generator	1x	50 kVA*
Cable rollers incl steel poles	>150*	N/A	-	-
Beach anchor(s)	2-4x*	N/A	-	-
Road plates	-*	N/A	-	-
Bog mats	-*	N/A	-	-
Concrete blocks	-*	N/A	-	-
Link floats	-*	N/A	-	-
Fencing	-*	N/A	-	-
Crowd barriers	-*	N/A	-	-
Chutes / mid support platoon	-*	N/A	-	-
Rigging	-*	N/A	-	-

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The method for the installation of the cables across the intertidal area, given the known geological conditions, is to pull the cable across a roller highway using a winch, once the cable is pulled ashore it will be buried by means of excavators, a plough or a trencher typical cable installation equipment is shown in **Figure 4.19**.



Figure 4.19: Typical plant and equipment for cable installation across inter-tidal like the offshore wind farm cables historically installed between Prestatyn and Rhyl.

The cable highway will be installed on the beach shortly before the cable pulling activities take place, rollers will be installed (likely on piles driven by excavator/vibration) every 3-5m depending on the type of cable to be installed, it may also be necessary to construct a mid support pontoon where a cable engine is located, this will be to support the winch and avoid over-tensioning the cable during the pulling operations.



Figure 4.20: Raised shoreline cable engine

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Near the low water line a beach chute may be positioned on a working platform, similar to the platform supporting the cable engine. This chute is used to guide the cable coming from the sea into the cable rollers behind it.



Figure 4.21: Shoreline beach chute as operated on previous projects

The mid support pontoon is a working platform created to keep critical equipment above the water line during high tide periods, the pontoon can be created from scaffolding, or modular pontoon sections, the cable engine would be secured to a sheet piled wall known as a dead man anchor. Concrete blocks, wooden crane mats, and one tonne sacks filled with locally sourced material may be used to protect the structure from the effects of tidal scour. Electrical and hydraulic powered equipment will be installed on the pontoon, all tanks shall be bunded, refueling will be mitigated wherever possible and when undertaken best practice shall be followed with appropriate spill kits at the point of use. Welfare and lighting shall be installed to ensure the safety of the workforce.

All the equipment required for the cable pulling will be delivered to the beach by means of agricultural tractor and trailer, assessment of the beach shall be undertaken in advance to ensure vehicles do not become stuck in soft areas, A stranded equipment rescue procedure shall be in place for the operations, and the procedure shall be trialed by means of regular drills to ensure effectiveness.

4.6.2 Cable onshore landing operations

When the cable highway is prepared the winch wire shall be pulled across the cable highway by means of a secondary winch located near the low water line, this winch will be temporarily secured to a tracked excavator.

At the arrival of the CLV, beach anchors may be required to position the vessel at the shallow waters near the shore. These anchors are transported by tractor and trailer towards the beach and are dug in by excavator. A forerunner is then placed on the beach for a vessel to collect at highwater and transfer to the cable lay vessel (CLV).

When the CLV has been positioned (on anchors) and is ready for the cable pull-in, the beach winch pull in wire will be recovered by the CLV team. Once connected to the cable the pull in operations will commence, the cable is pulled over the chute of the CLV, it may be partially floated for a section of the pull in until it reaches the cable highway, once on the roller highway installed on the beach, the cable is pulled over the beach, through the HDD until it arrives at the HDD Entry site.

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Once the pull is complete, the cable laying vessel will use the plough to simultaneously lay and bury the cable out towards the offshore platform. **Figure 4.19** illustrates the typical plant and equipment for cable installation across inter-tidal similar to cables historically installed between Prestatyn and Rhyl.

4.6.3 Cable burial operations

Contractor proposes to utilize a tracked cutter trencher to carry out onshore post-lay burial of the cable in the intertidal area to HDD exit. The tool is an effective tool that minimizes environmental impact. The cable will be buried during a single low tide from the low water line towards the duct.

When required, a safe haven near the HDD exit will be built for the trencher to shelter with high water (pending beach profile at time of project).

Alternatively, a trench with the excavators can be dug and the cable lowered inside. This operation would require more time, then the tracked cutter trencher would require to bury the cable. Access of the tracked cutter trencher towards the beach remains to be checked whether feasible.



Figure 4.22: Tracked cutter trencher for onshore and intertidal burial

A small cable bight may remain between the plough grade-in (that was lowered overboard by the CLV before) and onshore burial tool grade-ins. This bight will be buried by (raised) excavators or a land-based post lay burial-jetting device, pending the actual length expected.

The HDD exit point will also be lowered below the beach level to the required depth of burial. This is achieved by side digging with excavator and lowering the duct to the required depth. This trench is backfilled afterwards.

4.6.4 Equipment demobilisation and site reinstatement

All equipment, including temporary fencing and signage will be removed upon completion of the works. Traffic and access management including an Outline Construction Traffic Management Plan (CTMP) has been consented under **FUL/000246/23** and will be implemented for the execution of the HDD and cable installation works.

At the HDD entry site, the cable will be handed over back to the Employer, which will start jointing of the offshore cables onto the onshore cables. This scope is not part of the offshore contractor pulling-in the offshore cables at POA. On the beach, both the cable and HDD has been brought to the required depth of burial and therefore will be covered by sand. Remaining equipment on the beach will be demobilised.

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4.6.5 Programme intertidal work

Figure 4.23 summarises the activities for the installation of the electrical cable on Talacre Beach and show that the indicative programme is seeking to carry out the activities towards the end of the little tern breeding season from early July 2026. **Figure 4.23** also showing the assumptions, and environmental considerations factored into the planning of the works.

The Realigned Route makes for a simpler cable installation to that which would have been required for the original Preferred Route. This is because the cable shore pull and subsequent lay and burial of the cable, would be along a straight, rather than sinuous alignment, which can be carried out over a shorter timeframe. For the installation of the Realigned Route, the types and numbers of plant and equipment required to carry out the works would remain as reported in the consented ES by NRW-ML (CML2365). Detail engineering must be completed before the duration of the works or the calendar period of execution can be verified.

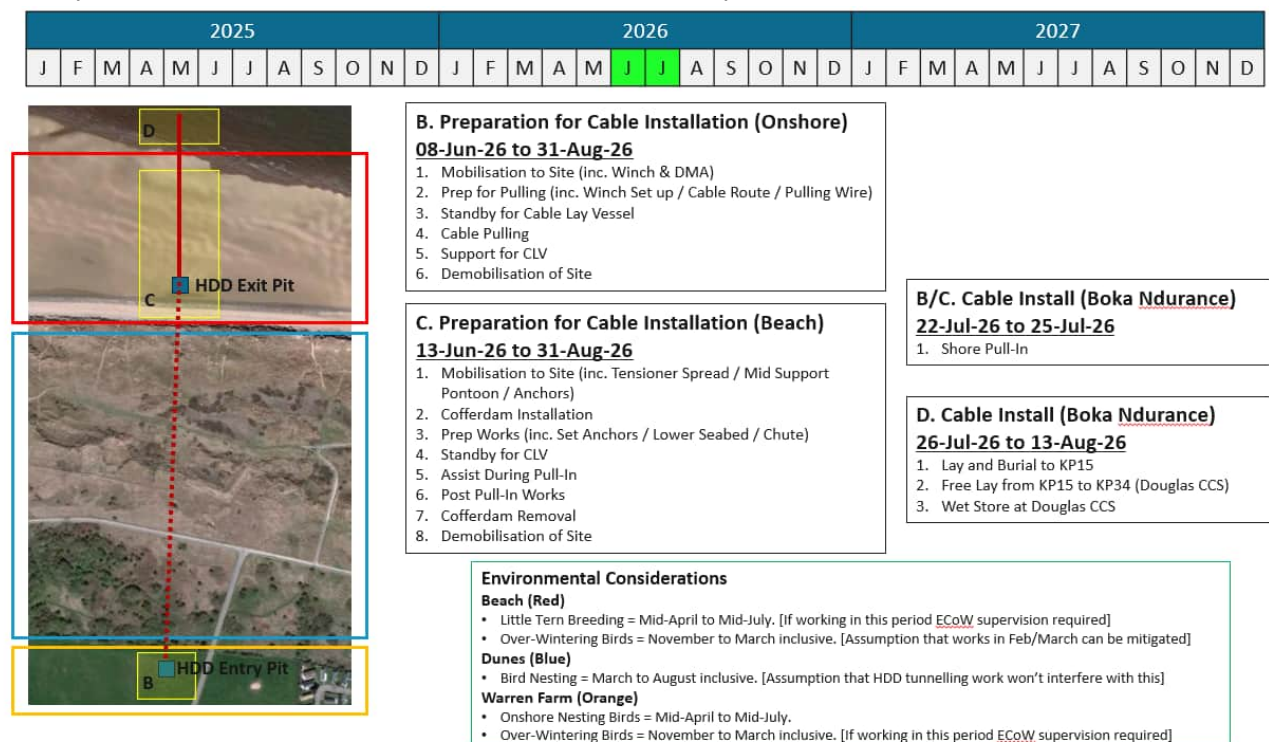


Figure 4.23: Indicative summary programme showing timing and duration of activities for installation of HDD Exit Pit on Talacre Beach

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5.0 ENVIRONMENTAL ASPECTS

The key environmental sensitivities are summarised in this section, with consideration as to how this may be affected by the Proposed Development.

5.1 Archaeological features

There are two Second World War aircraft crash sites in the vicinity of the Proposed Development. There are two Spitfire wrecks that are recorded as being near the Proposed Development. The Joint Casualty and Compassionate Centre of the Ministry of Defence confirmed that the aircraft crash locations are approximate, and that any aircraft remains would need to be excavated under licence and should be recorded and handled in line with legislation and all professional guidance. A further license is not required from Flintshire Council for aircraft crash site excavation.

The Archaeological Fieldwork Contractor will be appointed and inform the Archaeological Consultant immediately, who will then consult with the LPA Archaeological Advisor.

The area of potential archaeological impact will be within the footprint of the HDD exit pit at the MHWS and its temporary access. Shallow archaeological remains may be affected by movement of vehicles and plant involved in construction activities, for example through rutting and compaction.

Due to the method through which the trench between the exit pit and the MLWS will be excavated and filled in, these works are excluded from this PD and will be monitored through the implementation of the Protocol for Archaeological Discoveries submitted with the Marine Licence Application (Licence number: CML2365) for the marine elements of the works (Environmental Statement Report Volume 4, Appendix U).

In the unlikely event that remains of very high significance are identified, the Archaeological Fieldwork Contractor will inform the Archaeological Consultant immediately, who will then consult with the LPA Archaeological Advisor.

5.2 Ecology

Ecological surveys were conducted as part of the TCPA application FUL/000246/23 during 2022. New and additional surveys for several notable species and habitats have been undertaken in 2024 and 2025, and the updated findings are summarised in **Table 5.2**, and **Table 5.3**.

5.2.1 Designated Sites

The desk study identified eleven statutory nature conservation sites of international importance within 10km of the RLB for the PoA Terminal, as shown in **Table 5.1**.

Table 5.1 Statutory and Non-Statutory Designated Sites

Site	Designation	Distance from Site
Statutory Designated Sites		
Dee Estuary/Aber Afon Dyfrdwy	Site of Special Scientific Interest (SSSI)	Within RLB
The Dee Estuary	Special Protection Area (SPA) & Ramsar	Within RLB

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Site	Designation	Distance from Site
Dee Estuary/Aber Dyfrdwy	Special Area of Conservation (SAC)	Within RLB
Dee Estuary/Aber Afon Dyfrdwy	Ramsar	Within RLB
Gronant Dunes and Talacre Warren	SSSI	447m
Liverpool Bay/Bae Lepwl	SPA	0m
Mersey Narrows and North Wirral Foreshore	SPA	7km
Mersey Narrows and North Wirral Foreshore	Ramsar	7km
Halkyn Mountain/Mynydd Helygain	SAC	9.5km
Dee West	Shelfish Protected Area	500m
NVZ ID: 135 (Groundwater)	NVZ	1,600m southwest
Non-Statutory Designated Sites		
Dee Estuary	RSBP Reserve	270m east
Gronant Dunes	Local Nature Reserve (LNR)	1.4km
Talacre Abbey and Woods	WSF	500m
Tanlan Banks and Ffynngroyw Woods	WSF	1km
Big Pool Wood	North Wales Wildlife Trust Reserve	1km

5.2.2 Other Habitats of Conservation Importance

A UK habitat classification survey identified the following habitats:

- Modified grassland
- Dense scrub and introduced shrub
- Mobile Dunes
- Dune grassland
- Dune slacks
- Intertidal habitat
- Ponds

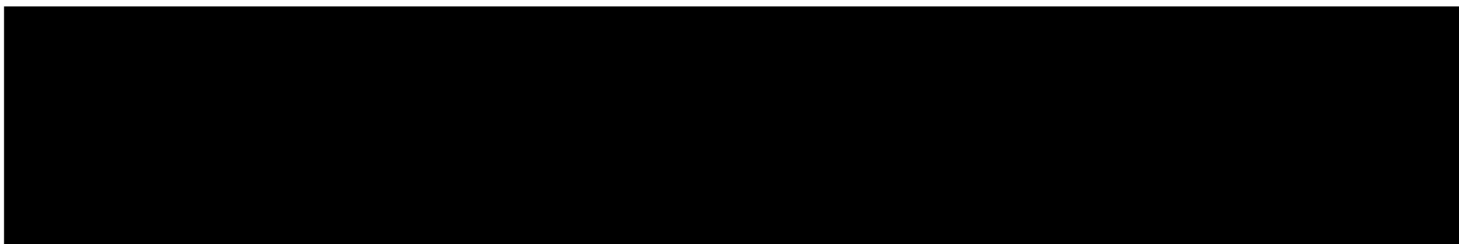
Table 5.2 Summary of Habitats Present

Feature	Summary
Dense scrub and introduced shrub	To the south of the access track, the habitat consisted predominantly of dense scrub classified as h3h mixed scrub in UKHab and A2.1 dense/continuous scrub in Phase 1. There were also some more open patches, dominated by false oat-grass <i>Arrhenatherum elatius</i> between less dense scrub patches and towards the north-east of the mapped dense scrub area. The scrub consisted mostly of bramble <i>Rubus fruticosus</i> , with frequent sycamore <i>Acer pseudoplatanus</i> , hawthorn <i>Crataegus monogyna</i> and grey willow <i>Salix cinerea</i> . Some individual larger trees or small tree groups were also present and were recorded and condition assessed separately for use during NBB assessment. The habitat in this area comprises a

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Feature	Summary
	mosaic of MG1 Arrhenatherum elatius grassland, W24 Rubus-Holcus undershrub, W2 Salix-Betula-Phragmites woodland and W6 Alnus-Urtica woodland.
Modified grassland	To the south of the dense scrub, there was a large, pasture field at Warren Farm, classified as g4 modified grassland in UKHab and B4 improved grassland in Phase 1. It is not within the Site but is within the Survey Area. The field was species-poor and dominated by perennial rye-grass Lolium perenne and white clover Trifolium repens, giving a close match to the NVC community MG7 Lolium perenne leys.
Dunes	The foredunes habitat type equates to UKHab s3a5 embryonic shifting dunes, Annex I embryonic shifting dunes (H2110) and NVC communities SD4 Elymus farctus ssp. boreali-atlanticus foredune community and SD5 Leymus arenarius mobile dune community. There is no separate classification to separate this habitat type from open dunes in Phase 1 methodology. Embryonic shifting dunes were recorded along the seaward edge of the dunes in 2021/22 (with small amounts of the NVC SD4 Elymus farctus ssp. boreali-atlanticus foredune community being present) but were absent in 2025 during the walkover. Kim Norman of ENI informed the surveyors that large sections of foredunes had collapsed during storms over the winter of 2024/25, which accounted for the absence of embryonic shifting dunes. The majority of habitat within the Survey Area was classified as s3a6 shifting dunes with marram (UKHab). This equates to H6.8 open dune in Phase 1 and constitutes the Annex I habitat; shifting dunes with marram (H2120). Within the shifting dunes with marram/open dunes there were three well-defined dune slacks in the eastern half of the Survey Area. These were classified as humid dune slacks s3a3 within UKHab and dune slack H6.4 in Phase 1. This habitat constitutes the Annex I habitat, humid dune slacks (H2190). The middle slack was partially enclosed by a post and wire fence around its northern section, whilst the southern section was un-fenced. Consequently, the vegetation coverage was far thicker in the fenced section, at the time of the walkover, with a thick carpet of pointed spear-moss Calliergonella cuspidata present within the fenced area. SD14 Salix repens-Campylopusium stellatum dune slack community and the SD16 Salix repens-Holcus lanatus dune slack community were recorded within the dune slacks. Areas dominated by pointed spear-moss would also seem to indicate an affinity with the SD15 Salix repens-Calliergon cuspidatum dune-slack community. A long, narrow strip of short grassland, which ran east to west across the middle of the shifting dunes with marram/open dunes and between two of the dune slacks was recorded during the walkover. This shorter grassland was dominated by red fescue Festuca rubra and was classified as s3a7 dune grassland in UKHab, which equates to H6.5 dune grassland in Phase 1 and comprises the Annex I habitat, dune grassland (H2130).
Species-poor intact hedge	There are several hedgerows around and on the Site. Most are along the boundaries or only just within the Site, though there is one just to the west of Station Road which cuts across the route. This hedge and others in that area are mostly heavily managed and species-poor with Hawthorn and Blackthorn being the most abundant species. There are also some non-native or only partly native hedgerows, most notably surrounding an abandoned car parking area to the south-east of the Site. Only two of the hedges on or very close to the Site were species-rich, both being short but relatively tall and wide, and both located just to the south-west of the terminal.
Intertidal habitat	Immediately to the north of the open dune/shifting dunes with marram, the Survey Area encompassed a strip of beach. This strip would be classified as t2d5 intertidal mudflats and sandflats in UKHab and as H1.1 intertidal mud/sand in Phase 1. This habitat constitutes Annex I intertidal mudflats and sandflats (H1140). The mud and sand habitat extends northwards towards the sea covering most of the intertidal area.

5.2.3 Protected and Notable Species



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5.2.3.2 Bats

Surveys carried out in the vicinity of the proposed HDD Entry Pit, and HDD Exit Pit have found no bat activity within 1.5km of the works areas. Bat foraging was observed around 1.9km to the south west of the HDD, potentially associated with confirmed bat roosts in farm buildings on Station Road.

Notwithstanding, the Applicant confirms that lighting mitigation measures, to address ecological sensitivities, are presented in **Section 6.3.2** in **Figure 6.1**, **Figure 6.2**, and **Figure 6.3**.

The construction lighting has accounted for the guidance for permanent lighting schemes provided in the Institution of Lighting Guidance Note 08/23: Bats and Artificial Lighting at Night. The figures show that lighting is directed towards the tasks being carried out to avoid unnecessary light spill.

5.2.3.3 Summary of Baseline Species and Habitats

Table 5.3 Summary of Baseline Species and Habitats

Species, Species Group or Habitat	Baseline Summary
Breeding and wintering birds	Habitats present such as the scattered trees, dense and scattered scrub, and plantation woodland, provide nesting and foraging opportunities for a variety of bird species. Ponds and wet ditches can also act as foraging/roosting and nesting places for waterfowl. Warren Farm remains a working farm with a tenant farmer. Generally, the farm holds grazing cattle during the summer months and sheep during the winter, when the cattle are kept inside various sheds. The fields are designed to be seasonally flooded from September to March via an irrigation system installed when the gas pipeline was laid. The irrigation system was constructed as part of the mitigation works for the PoA gas terminal. As a result, new habitats have been created which, when flooded, are ideal for feeding and roosting waders and wildfowl. The two large, lined ponds are provided for waders and wildfowl throughout the winter period. Wildfowl species usually present include teal, wigeon, mallard, tufted duck, shoveler and pintail. Wader species include curlew, oystercatcher, redshank, lapwing and black-tailed godwit. The hedgerows surrounding the farm support foraging migratory thrush and passerine species such as redwing and fieldfare. The seven key species at Warren Farm are teal, mallard, oystercatcher, golden plover, curlew, lapwing and redshank. A further two species of increasing significance, black-tailed godwit and wigeon have also been included as key species in more recent years.
Otter and water vole	There are no watercourses present within the Proposed Development Survey Area. However, the scrub and dune habitat provide suitable foraging and commuting habitat for otters. The presence of otters cannot be discounted due to the suitable watercourses in proximity of the Survey Area. There was no suitable habitat for water voles within the Proposed Development Survey Area.

5.2.4 Invasive Non-Native Species

A Biosecurity Risk Assessment and Method Statement is being prepared to satisfy a condition of Marine licence CML2365 and will be submitted to Flintshire County Council, and Natural Resources Wales, related to the cable Lay Vessel (CLV). Adherence to the MARPOL regulations (inspection history), anti-fouling coating

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and management of ballast water are taken into account to limit introduction or spread of INNS (see **Appendix A**).

5.3 Nuisance

5.3.1 Residents and Local Community

Given the location and nature of the project activities they may affect residential properties. The sensitivity of each receptor will depend on their location and proximity to the site and identified transport routes. Potential issues include:

- Mud on roads spread by construction traffic.
- Excessive or poorly directed light.
- Litter.
- Dust and fumes from vehicles and plant.
- Noise and vibration from vehicles and plant.
- Traffic disruption.
- Disruption to business.
- Reduction of access to amenity space.

Given the existing use of the PoA terminal, the project is not expected to cause a permanent nuisance. However, temporary nuisances during construction could occur to the following:

- Talacre Beach Resort and holiday homes.
- Silver Birch Caravan Park.
- Presthaven Beach Resort.
- Residents in Gwespyr Village, Flintshire.

Measures and mitigation for managing nuisances are detailed in **Section 6.3**.

5.3.2 Air Quality

Atmospheric emissions will depend on both the potential for emissions (the type of activity and prevailing conditions) and the effectiveness of control measures. Generally, two sources of emissions need to be controlled to minimise the potential for adverse environmental effects:

- Exhaust emissions from site plans, equipment and vehicles.
- Fugitive dust emissions from site activities.

5.3.2.1 Exhaust emissions from site plans, equipment and vehicles

The operation of vehicles and equipment powered by internal combustion engines results in the emission of exhaust gases, including nitrogen oxide (NO_x), particulate matters (PM₁₀), volatile organic compounds (VOC), and carbon monoxide (CO). Emission levels depend on factors like engine type, service history, pattern of usage and fuel composition. While exhaust emissions will occur from site activities, they are not expected to be significant compared to emissions from vehicle movements on surrounding roads. Decommissioning phase traffic will include haulage and construction vehicles, as well as vehicles for workers' commutes.

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5.3.2.2 Fugitive dust emissions from site activities

Fugitive dust emissions depend on the type and extent of activities, soil type, moisture levels, road surface conditions and weather. Dry weather combined with high winds can increase dust generation. Key activities that may produce dust on site include:

- Earth moving, due to the handling and storage of soil and subsoil materials.
- Movement of heavy site vehicles on dry surfaces.
- Movement of vehicles over surfaces where muddy materials have been transferred off-site (for example, onto public highways).

Measures and mitigation for managing air quality during construction are detailed in **Section 6.3.1**.

5.3.3 Lighting

During construction, task orientated lighting will be used in shifts at the lowest luminosity necessary for safe delivery of each task i.e. it will not be continuous. It will be designed, positioned, and directed to reduce the intrusion into adjacent properties and habitats. The exception to this will be at trenchless crossings where 24-hour working will be required for the actual drilling activity. The overall duration of works at each site will be an approximate 4-weeks at each location. It is therefore considered temporary in nature and unlikely to result in significant effects. Control measures and mitigation for managing lighting during the cable laying activities are detailed in **Section 6.3.2**.

5.3.4 Noise and Vibration

Noise and vibration from the HDD, and cable laying activities, including equipment and vehicular movements, have the potential for short-term impacts. To manage these, standard construction methodologies are to be employed to control noise and vibration in accordance with current legislation and standards including British Standard 5228-1:2009+A1:2014: 'Code of Practice for noise and vibration control on construction and open sites – Noise'.

The Control of Pollution Act 1974 (COPA 74) gives local authorities power for controlling noise and vibration from worksites. If deemed necessary by the Local Planning Authority a Section 61 consent may be used to agree on methods, times, durations and noise levels with the client. A Section 61 prior consent would need to be used prior to work starting. The lead period for this to be determined is 28 days, meaning that any application to work outside of the permitted hours, shall be required giving at least 28 days' notice.

Control measures and mitigation for managing noise and vibration during construction are detailed in **Section 6.3.3**.

5.3.5 Traffic, Transport and Public Rights of Way

Public Rights of Way (PRoW) include footpaths, bridleways, restricted byways, and byways open to all traffic that are expected to interact with the Proposed Development. The PRoW at the top of Talacre Beach along the base of the dunes will be impacted by cable laying the works on the beach. This PRoW will be signposted to identify a temporary diversion through Talacre Dunes for the periods when access would be restricted during cable laying activities.

Measures and mitigation for managing traffic, transport and public rights of way are detailed in **Section 6.4**.

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5.4 Water Resources and Flood Risk

The Proposed Development is essential utility infrastructure for electricity supply from the onshore grid to offshore infrastructure. The Proposed Development will be fully buried and has to be in a flood risk area for operational reasons. The Proposed Development cannot avoid crossing the linear coastal designation Flood Zone 3 designation, as shown in **Figure 5.1**.

The Proposed Development would introduce no significant changes to the known level of flood risk to the site, now or in the future.



Figure 5.1: Location of Proposed Development in relation to Flood Zone 3

5.4.1 Flooding from groundwater sources

During the consultation process, the Local Lead Flood Authority (LLFA) advised that the groundwater table is likely to be high. The superficial deposits are composed of tidal and glacial deposits, consisting of a poorly sorted mixture of sandy silt, gravel, clays that coarsen with depth. These deposits are believed to be connected to the wider groundwater table. Groundwater levels at the site are likely influenced by variations in sea levels, though the surrounding landscape may limit the depth of the groundwater table.

5.4.2 Interaction with groundwater

The HDD method is a closed, pressurised system designed to avoid surface disturbance, with drilling fluid (water, and bentonite clay) contained and recovered via a sump at the Exit Pit.

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The cable works will be situated within the superficial deposits and will not be situated within the underlying impermeable coal measures bedrock (Pennine Lower and Middle Coal Measures Formations). The dune slack system is underlain by two distinct superficial deposits: the Blown Sand Formation (STOB) and the Beach and Tidal Flat Deposits (BSA). The STOB unit comprises well-sorted, highly permeable aeolian sands that support perched water tables, fed by rainfall and local runoff.

Geotechnical boreholes drilled at the Entry Pit, in the dunes, and at the Exit Pit, encountered groundwater between 0.5-1.2m depth. The main contributors to the water level in the dunes and slacks are pluvial and inlands sources, although some tidal influence can be expected.

During construction, one of the key principles to the installation of a successful HDD conduit is the careful management of drilling fluid pressures to prevent water ingress. Furthermore, once the conduit is drilled, the HDD conduit is sleeved by either watertight high-density polyethylene (HDPE), or glass reinforced plastic (GRP) pipework, to prevent further water ingress, and maintain the integrity of the conduit and electrical cable.

The relatively narrow diameter (around 450mm) HDD conduit, while beneath the water table, is considered unlikely to:

- create a barrier to groundwater flow;
- create a preferential flow pathway for groundwater; or
- affect groundwater levels.

Groundwater is expected to flow around the conduit. Therefore, considering the above, no significant effect is anticipated on the hydrology of the dune slacks from the presence of the HDD conduit.

The monitoring of the water levels in nearby wells and surface waters will be undertaken to ensure that no changes in water levels occur, requiring further mitigation.

It is unlikely that temporary dewatering is required, however, should extensive dewatering be necessary, the requirement for an abstraction licence will be confirmed following further ground investigation. Any abstraction will be managed in accordance with relevant NRW guidance and permitting requirements.

5.5 Land and Soil

5.5.1 Coal Mining

There are no coal mining deposits, or any contaminants associated with coal mining within the area of the HDD activity and the lay of the cable in the intertidal area.

5.5.2 Hydrogeology

The superficial tidal flat deposits are classified as Unproductive Strata of low permeability that have negligible significance for water supply or river base flow. Superficial blown sand deposits are classified as a Secondary A Aquifer, formed of permeable layers capable of supporting water supplies at local scale, and in some cases forming an important source of base flow to local watercourses. The underlying bedrock of the Lower and Middle Pennine Coal Measures are classified as Secondary A Aquifers (aquifer properties defined above). The area of works does not lie inside, or within 500m, of source protection zones (SPZs). The River Dee Estuary

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lies to the, and the Welsh Channel area of the Irish Sea to the north. Measures and mitigation for managing land and soils are detailed in **Section 6.5**.

5.5.3 Unexploded ordnance (UXO)

A magnetometer run will be performed via a drone survey farm field, dunes, and the intertidal area. Any targets that are classified as potential UXO (pUXO) and interfering with the work area are removed by Company prior work execution. This would require digging and investigation of the found target by a specialised 3rd party company.

It is expected that due to most of the works pUXOs are to be expected located in the beach area, uncovering can be done by e.g. excavator and manually by e.g. shovels. After target investigation, the created hole can be backfilled with the same material (i.e. sand). The target itself will be contained and transported off site or requires measures on site. A specialised company will be engaged to remove the UXO.

Explosive Ordnance Clearance (EOC) Engineer support is required for ground investigation works in the area with potential UXO hazards. All staff involved with excavation on site are given a formal UXO awareness briefing.

6.0 ENVIRONMENTAL MANAGEMENT PROCEDURES

This section of the CEMP outlines the site-specific control measures identified. These measures will be implemented by the Principal Contractor, and where relevant, by its Subcontractors. Most of mitigation measures comes from national laws and Register of Environmental Actions and Commitments (REAC) associated with the consented planning permission for works at Point of Ayr (**FUL/000246/23**).

Environmental management measures have been developed to prevent, or where that is not possible, minimise the environmental impacts associated with the works. These measures shall be incorporated into the Risk Assessment and Method Statement (RAMS) prepared by the Principal Contractor, and all RAMS shall be communicated to the workforce.

6.1 Archaeology

A draft Written Scheme of Investigation (WSI) was shared with Heneb in July for consultation prior to submitting the planning application. Following feedback received from Heneb, a final WSI has been submitted with the planning application.

A fully illustrated archaeological watching brief report will be made available to LBCCS and the LPA Archaeological Advisor within six weeks of the completion of fieldwork, in accordance with the ClfA standards and guidance (2023a-b) as stated in the WSI developed for this for the HDD and lay of the cable activities.

6.2 Ecology

6.2.1 Birds

In accordance with REAC measure T-BD-037 (**FUL/000246/23**), if avoiding works completely during the overwintering period is not feasible, works would be avoided within a three-hour period either side of high tide each day to minimise the likelihood of disturbing any overwintering birds present nearby where practicable. The Contractor keeps a record of tide times as part of ongoing management and monitoring and this would be

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employed to help plan the works. Notwithstanding, physical screening of the HDD Entry Pit will be employed by a close boarded fence to provide noise and visual screening.

Where practicable, vegetation and site clearance works will be undertaken outside the bird nesting period, recognised as March to August inclusive, to avoid damage or destruction of nests. Where this is not possible, site clearance will be preceded by an inspection from an experienced ECoW within 24 hours of clearance works commencing to confirm the absence of active nests or nesting activity. If an active nest or activity is recorded, a minimum exclusion buffer of 5m within which no works can take place will be implemented and remain in place until the nest is confirmed inactive or the nest fails. Should suitable breeding habitat within 25m of the RLB be disturbed during Cetti's warbler's nesting season, pre-construction checks for the presence of Cetti's warbler should be completed. If an active nest or activity is recorded, a minimum exclusion buffer of 25m within which no works can take place will be implemented and remain in place until the nest is confirmed inactive or the nest fails.

The installation of the HDD Exit Pit on Talacre Beach are currently programmed to avoid most of the little tern breeding season by carrying out the HDD Conduit, and Exit Pit works during February and March 2026; The activities for the installation of the electrical cable on Talacre Beach will carry out the activities towards the end of the little tern breeding season from early July 2026. The installation works will also be carried out away from the main areas of foraging for the Little Tern (See REAC Measures in **Table 6.1**).

Should construction works take place between April and July inclusive, the ECoW will identify any habitat with the potential to be used for little tern nesting within 300m of the development and check for little tern breeding activity before any works are undertaken.

6.2.3 Amphibians and Reptiles

No Amphibians were identified in the area of the HDD Entry Pit, and Exit Pit locations, although natterjack toad, and sand lizard inhabit the sand dunes. However, the installation of the cable conduit under the dunes using the trenchless HDD method will avoid direct impacts on the amphibians and reptiles, and their habitats. The depth of the HDD conduit means impacts on protected species within the dunes are not anticipated. This

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is because, as Natterjack toads typically burrow to depths of less than 50cm (although can be deeper in winter) and sand lizard burrow to up to 1m deep.

Furthermore, to ensure that significant indirect impacts to breeding Natterjack Toads are avoided, the HDD works, likely to cause significant disturbance around Talacre dune system, will be undertaken in February and March, thereby avoiding the Natterjack Toad breeding period (approximately April – July).

6.2.4 Habitats

Control measures to protect habitats include (See REAC Measures in **Table 6.1**):

- Care should be afforded to dense stands of bramble or similar vegetation, which may be used by sheltering hedgehog or other wildlife, particularly during the winter months.
- Where woody vegetation is to be cleared, the material will, where practicable, be used to create hibernacula within appropriate retained habitats rather than being chipped. Locations will be identified by the appointed ECoW during the execution phase.

6.2.5 Invasive Non-Native Species

Invasive Non-Native Species (INNS) are present within the sand dunes, and wider PoA area, although have not been identified within the areas where physical HDD and cable installations works will take place. Notwithstanding, biosecurity prevention and control measures will be implemented throughout (see *Invasive Non-Native Species Management Plan included as **Appendix A***).

The onshore plant and equipment, and the offshore vessels are highly unlikely to be a source of the amphibian fungus Chytrid. Notwithstanding, the applicant recognises the importance of preventing the introduction and spread of this amphibian fungus. Especially given that the native UK populations of Natterjack toad that have been tested, have returned positive for the fungi *Batrachochytrium dendrobatidis* ("Bd"), albeit apparently unaffected.

All plant and equipment, and vessels will be thoroughly cleaned, in accordance with national and international protocols, prior their mobilisation to site, in accordance with the Invasive Non-Native Species Management Plan included as **Appendix A**.

Biosecurity measures include mapping the locations and extent of any INNS identified, alongside appropriate measures to control and prevent spread or propagation of INNS, which include the following:

- Any invasive plant species recorded within the working areas will be demarcated and avoided during the works as far as feasible.
- Any plant, equipment or PPE that comes into contact with invasive plant material will be thoroughly cleaned before being removed from the working area.
- A toolbox talk will be provided to site contractors by a suitably qualified individual on the potential presence of these species and appropriate actions to be taken.
- Vessels will be required to have an anti-fouling coating, inspection history complying with relevant regulations (MARPOL Regulations) and to manage ballast water.
- Vessels will have anti-fouling coating and adhere to the MARPOL regulations and ballast standards to reduce the risk of INNS being present on the hulls of vessels.

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- Compliance of cable lay vessel (CLV) with international marine regulations as adopted by the Flag State, notably the International Regulations for Preventing Collisions at Sea (COLREGs) (IMO, 1972/78) and the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).

On completion of construction, the Applicant will continue with its long-term habitat management, and the achievement of net benefits for biodiversity, as outlined in the 'Net Benefit for Biodiversity and Green Infrastructure Statement'. The Applicant has included specific habitat and species work programmes that are in addition to the continuing current management practices. These measures involve control of the invasive elm scrub, and skylark breeding population surveys.

Table 6.1 presents the ecological mitigation and monitoring commitments from the REAC in Planning Permission **FUL/000246/23** that will be implemented during the execution of the Proposed Development.

Table 6.1 Ecological mitigation and monitoring commitments

REAC Ref	Mitigation and monitoring commitment
T-BD-004	The use of horizontal directional drilling (HDD) will ensure that there are no direct impacts to Talacre Brook, the Talacre dune system, and an area of grassland that forms part of the Dee Estuary Ramsar/SPA and the Gronant Dunes and Talacre Warren SSSI.
T-BD-005	Temporary mats will be laid down, where necessary, across the beach between Talacre beach car park and the HDD exit pit. This will be implemented to facilitate access across areas of soft sand, but it will also minimise damage or destruction of the existing habitats along the route. No access will be taken across the dunes. Access to the beach will be through an existing gap in the dunes at Talacre beach car park.
T-BD-006	Some Atlantic salt meadow habitat has colonised the Talacre beach car park. This habitat is a qualifying feature of the adjacent Dee Estuary SAC. The car park is proposed to be used as a compound area during the construction stage of the TCPA Proposed Development, for parking only. Micro-siting is to be employed to avoid impacts to the salt meadow habitat.
T-BD-008	Prior to construction, a team of suitably qualified and experienced Ecological Clerks of Works (ECoWs), will be appointed to support, oversee and monitor the Construction Contractor with the implementation of measures defined within the OCEMP. Multiple ECoWs may be required during construction to ensure appropriate oversight of multiple active works locations. Broadly, the ECoW will: • Provide ecological advice to the Construction Contractor over the entire construction programme, at all times as required. • Undertake or oversee pre-construction surveys for protected species in the areas affected by the TCPA Proposed Development. • Monitor ecological conditions during the Construction Stage to identify additional constraints that may arise as a result of natural changes to ecological baseline over time, e.g., the monitoring of badger activity within and in close proximity to construction works. • Provide ecological toolbox talks to site personnel to make them aware of ecological constraints and information; highlight mitigation to minimise impacts; and make site personnel aware of their responsibility with regards to wildlife and sensitive habitats in the context of legislation and policy. Toolbox talks will include, as required, all ecological receptors considered within the ES as a minimum. • Monitor the implementation of mitigation measures during the Construction Stage to ensure compliance with protected species legislation, licensing, and commitments within the ES. The ECoW will have previous experience in similar ECoW roles and be approved by the Applicant. The ECoW will be appointed in advance of the main construction programme commencing to ensure pre-construction surveys are undertaken and any advance mitigation measures required are implemented.
T-BD-010	Micro siting of Localised Compounds, the Equipment Yard and the Centralised Compound will be employed to minimise habitat loss and disturbance.
T-BD-017	In relation to accidental pollution events resulting from spills, pollution prevention measures are provided within the OCEMP and REAC and will be used by the Construction Contractor to prepare a detailed CEMP

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REAC Ref	Mitigation and monitoring commitment
	to be implemented during the works to ensure that pollution events do not occur. Further pollution prevention measures are referred to within the separate marine licence application.
T-BD-018	Localised Compounds and storage areas to facilitate construction of the TCPA Proposed Development have been sited on the flat areas of bare earth, which will be subject to a pre-construction ecological walkover, owing to the ecological sensitivities of this area.



T-BD-023	To prevent entrapment of wildlife, where trenches or voids are to be left overnight, a suitable means of escape will be provided (such as a ramp at no greater than a 45° angle) at regular intervals along the excavated trench channel/excavations. Any void/trench channel should be visually inspected prior to re-starting works each morning to confirm the absence of entrapped wildlife. All escape measures will be discussed and agreed with the ECoW to ensure they are suitable for the size of void and wildlife that may become trapped.
T-BD-032	Invasive Non-Native Species (INNS) are present within the Red Line Boundary, including Crangonyx pseudogracilis/floridanua, Physella sp., signal crayfish or New Zealand mud snails . A Biosecurity Method Statement will be implemented throughout the construction of the TCPA Proposed Development. The Biosecurity Method Statement will detail the locations and extent of any INNS identified, alongside appropriate measures to control and prevent spread or propagation of INNS. High-level recommendations for the treatment and removal of INNS will be identified, and will include the following: • Prior to the start of works, an updated survey of all terrestrial working areas will be undertaken by a suitably qualified person to map the current extent of INNS. This must be carried out during the main vegetative growing season (April –September) to allow for maximum visibility of any plants present and ensure that their extents are fully captured. • Any invasive plant species recorded within the working areas will be demarcated and avoided during the works as far as feasible. • The non-native invasive entire-leaved cotoneaster will be removed from the Point of Ayr colliery site • Where complete avoidance of invasive species (INNS) within working areas may not be feasible, an appropriate treatment and removal programme (appropriate to the specific species in question) will be agreed and implemented and an INNS management plan will be produced, prior to any construction works being carried out. • A separate INNS management plan will be produced for the intertidal works and will include the methods to avoid the spread of INNS via marine vessels used during the construction phase.

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REAC Ref	Mitigation and monitoring commitment
	Any plant, equipment or PPE that comes into contact with invasive plant material will be thoroughly cleaned before being removed from the working area.
T-BD-034	Works within the intertidal area and around waterbodies and watercourses will follow best practice pollution prevention measures, as detailed in the CEMP, to avoid significant impacts on notable aquatic macroinvertebrates that may be using these habitats. Vibration reduction measures on plant and equipment, as detailed in the CEMP, will be implemented at all times and works kept to as short a duration as possible in order to minimise indirect disturbance.
T-BD-035	Where practicable vegetation and site clearance works will be undertaken outside the bird nesting period, recognised as March to August inclusive, to avoid damage or destruction of nests. Where this is not possible, site clearance will be preceded by an inspection from an experienced ECoW within 24 hours of clearance works commencing to confirm the absence of active nests or nesting activity. If an active nest or activity is recorded, a minimum exclusion buffer of 5 m within which no works can take place will be implemented (exclusion buffer size will be at the discretion of the ECoW and in response to the species of bird encountered) and remain in place until the nest is confirmed inactive (either eggs hatch and chicks have fledged, or the nest attempt fails). All cleared vegetation will be rendered unsuitable for nesting birds, for example, by covering or chipping depending on the purpose of the vegetation or will be removed from the works area.
T-BD-036	To avoid disturbance to flocks of non SPA-qualifying species at Warren Farm, including the Birds of Conservation Concern (BoCC) red-listed lapwing and amber-listed wigeon, works within Warren Farm will be carried out outside of the typical wildfowl wintering period, as far as practicable.
T-BD-037	To minimise the likelihood of pollution events affecting GCN terrestrial habitat, best practice measures will be followed during construction, as detailed in the CEMP. With regard to vibrational disturbance, any groundworks (including the HDD) will avoid the GCN hibernation season (typically October/November – March, depending on weather and temperature), as far as practicable, to avoid significant disturbance of any hibernating newts. Where any suitable GCN habitat will not be directly affected but may still incur vibrational impacts, appropriate vibration reduction measures will be employed to the extent possible. In the event that GCN presence is confirmed at any stage, works must cease and the ECoW must be contacted for advice on how to proceed.
T-BD-038	To minimise the likelihood of pollution events affecting GCN terrestrial habitat, best practice measures will be followed during construction, as detailed in the CEMP. With regard to vibrational disturbance, any groundworks (including the HDD) will avoid the GCN hibernation season (typically October/November – March, depending on weather and temperature), as far as practicable, to avoid significant disturbance of any hibernating newts. Where any suitable GCN habitat will not be directly affected but may still incur vibrational impacts, appropriate vibration reduction measures will be employed to the extent possible. In the event that GCN presence is confirmed at any stage, works must cease and the ECoW must be contacted for advice on how to proceed.
T-BD-040	To minimise the likelihood of significant impacts on terrestrial invertebrate species of conservation concern, details of dust mitigation and pollution prevention in the CEMP will be followed at all times during works around the Talacre dune system.
T-BD-041	To ensure killing or injury of species such as common toad, common reptile and other mammals, is avoided during site clearance, a PWMS will be produced prior to the works, detailing how clearance works will be undertaken to minimise impacts. Clearance works will be directly supervised by an ECoW, who will provide a toolbox talk to site contractors prior to any works being carried out. If any common toads, common reptiles and other mammals are found during clearance, the ECoW will carefully move them to a safe location outside of the areas of works, or they will be allowed to move off of their own accord. All works will be carried out in accordance with measures detailed in the CEMP, with appropriate vibrational controls on machinery and best practice followed in relation to pollution prevention.
T-BD-042	Details of proposed mitigation measures to protect the Natterjack Toad include: - HDD beneath the Talacre dune system to avoid direct loss of breeding ponds and suitable terrestrial habitat, as well as minimising disturbance and the potential for habitat fragmentation and hydrological effects; - where practicable avoidance of works causing significant disturbance during the natterjack toad breeding period (approximately April – July);

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REAC Ref	Mitigation and monitoring commitment
	• application to NRW for an EPSL to legally permit works likely to disturb natterjack toads if significant disturbance cannot be avoided during the breeding season, alongside appropriate mitigation measures to limit disturbance; • best practice measures for pollution and dust controls to minimise the likelihood of habitat degradation during construction; • precautionary hand searches of any areas of the PoA Terminal that natterjack toads could feasibly access but are unlikely to be present; and • any further measures required to mitigate against the heat effects of the pipeline during the operational stage. These will be determined during further studies being commissioned by the Applicant, the results of which will be finalised during the determination stage of the Planning Application.
T-BD-043	In addition to implementing the above during construction and operation, the Construction Contractor will also continue to monitor the PoA terminal for calling natterjack toad as part of their on-going surveys. This will be carried out in accordance with the Management Plan for Talacre Dunes and The Warren, in which natterjack toad are mentioned as a specific feature for monitoring.
T-BD-047	The HDD exit pit falls within the intertidal working area, directly adjacent to the embryonic shifting dune habitat. At the exit pit, a 10m3 containment sump will be present to contain any spillage of any drilling fluid. To further avoid potential contamination by drilling fluid, minimal use of a plant-friendly alternative to bentonite, which will be contained within the working area, will be used during HDD. Drilling mud will be cleaned up by hand using hand shovels, buckets, and soft-bristled brooms, minimising damage to existing vegetation. This will form part of wider pollution prevention measures, which will be detailed in the CEMP.
T-BD-048	The HDD exit pit falls within the intertidal working area, directly adjacent to the embryonic shifting dune habitat. At the exit pit, a 10m3 containment sump will be present to contain any spillage of any drilling fluid. To further avoid potential contamination by drilling fluid, minimal use of a plant-friendly alternative to bentonite, which will be contained within the working area, will be used during HDD. Drilling mud will be cleaned up by hand using hand shovels, buckets, and soft-bristled brooms, minimising damage to existing vegetation. This will form part of wider pollution prevention measures, which will be detailed in the CEMP.
T-BD-049	In order to reduce impacts on bird species (Little Tern, Redshank, Teal, Pintail, Oystercatcher, Dunlin, Black-tailed Godwit and Curlew) in the DEE Estuary SPA/Ramsar and Mersey Narrows and North Wirral Foreshore Ramsar: Mitigation will involve avoidance of construction works during periods of significant numbers or levels of activity of these species within the potential disturbance distance buffer of 300m from works. The requirement for this mitigation will be informed by an ECoW, who will monitor the bird activity within this buffer in relation to time of year and state of tide. Where practicable, avoidance of sensitive periods of the year will be implemented when birds from European sites are likely to be present in significant numbers, and the construction period will be limited to the minimum practicable time for completing the works in order to minimise the duration of any significant impacts. Any risk of disturbance would be monitored and works will cease completely until such time that the bird species are no longer within the Zone of Influence, if such a threat exists. Temporal restrictions outlined here will broadly cover the period of September to March, inclusive. To avoid potential disturbance of bird species associated with the European sites, works should take place between April and August, where practicable. However, if this is not feasible and works must be carried out between September and March, this can only be carried out under supervision of the ECoW. As a general rule, no ECoW supervision would be required between April and August; however, a watching brief would be undertaken by the ECoW in relation to the established Little Tern colony if any construction works are to be undertaken around the PoA Terminal between April and July, inclusive. If any birds are showing disturbance behaviour within the 300m buffer zone during any stage of the works, the ECoW would stop work until it can be determined that disturbance has subsided. Full details of the mitigation will be written into the CEMP.

6.3 Nuisance

Mud, dust, noise, light, litter and water pollution must be minimised to prevent complaints or environmental degradation of the surrounding area. The following processes and procedures shall be implemented to manage potential nuisance issues.

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6.3.1 Air Quality

The following best practice measures for controlling dust and mud on worksites represent the dust management plan for the works and will include:

- Follow Control of Dust from Construction Sites (BRE DTi Feb 2003).
- Use dust barriers/fencing for significant dust-generating activities.
- Plan earthworks to minimize handling and traffic movements.
- Limit soil stripping and stockpiling; keep site roads clear of debris.
- Park all vehicles in designated areas.
- Reduce or postpone work if dust levels remain high despite controls.
- Use water to dampen dusty materials and maintain vehicles to prevent mud build-up.
- Manage washdown facilities to control contaminants.
- Locate machinery away from sensitive receptors when possible.
- Enclose operations likely to produce high dust levels.
- Use hoarding to contain dust and consider green/vegetated hoarding.
- Use hard-surfaced or damped-down haul routes, cover stockpiles, and reduce drop heights.
- Cover loads entering/leaving the site and use mechanical sweepers as needed.

6.3.2 Light pollution

Once construction of the Proposed Development is complete, there will be no permanent lighting, as there is no above ground infrastructure. The construction lighting has accounted for the guidance for permanent lighting schemes provided in the *Institution of Lighting Guidance Note 08/23: Bats and Artificial Lighting at Night*. Temporary construction lighting will be required for the HDD Entry Pit at Warren Farm; for the HDD Exit Pit on Talacre Beach; and for the cable installation on Talacre Beach. **Figure 6.1**, **Figure 6.2**, and **Figure 6.3** show the proposed arrangement of the construction lighting. These figures show that lighting is directed towards the tasks being carried out to avoid unnecessary light spill and incorporate the best practices as follows:

- Follow BS EN 12464-2:2014 for lighting of outdoor workplaces.
- Turn off lighting when not in use, unless needed for safety or security.
- Use inward-directed, horizontally-mounted lights to reduce glare.
- Install temporary lights with full cut-off or shielding to contain illumination.
- Adjust lighting after installation to minimise light spill and avoid shadows on footpaths.
- Direct lighting below the horizontal plane to reduce spillage.

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Figure 6.1: Indicative proposed lighting scheme during construction at HDD Entry Pit



Figure 6.2: Indicative proposed lighting scheme during construction at HDD Exit Pit

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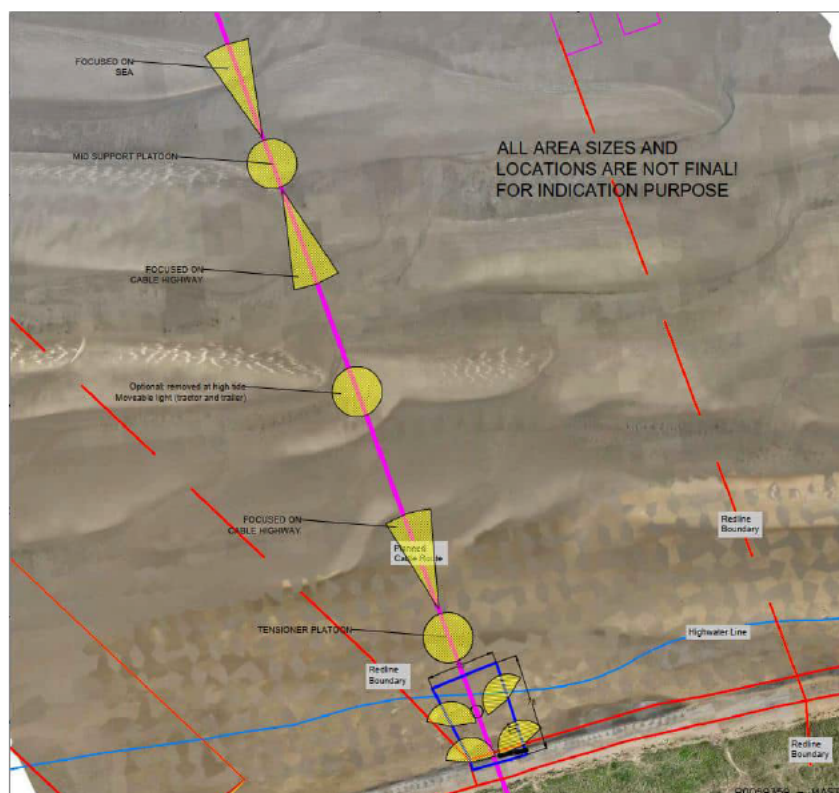


Figure 6.3: Indicative proposed lighting scheme during cable installation

6.3.3 Noise and Vibration

6.3.3.1 Best Practicable Means

This section represents the noise and vibration management plan for the works. It presents the Best Practicable Means (BPM) that will be implemented for the construction activities proposed. The proposed control measures are in line with the REAC. All REAC References are complied with in full. **Table 6.2** presents the mitigation and monitoring commitments from the REAC in Planning Permission **FUL/000246/23** relevant to the control and management of noise and vibration that will be implemented during the execution of the Proposed Development.

Table 6.2 Noise and vibration mitigation and monitoring commitments

Ref	Mitigation and monitoring commitment
T-NV-003	After current design, and before the commencement of the construction period, a Noise and Vibration Management Plan will be produced and agreed with the Local Authority setting out the requirements for noise and vibration mitigation measures
T-NV-004	The Construction Contractor will nominate a Community Liaison Representative (or equivalent title) who will be a nominated competent site contact for whom the contact details will be shared with local residents and other third parties within close proximity to the construction works, and will be displayed clearly within the site compounds.
T-NV-005	Construction works will utilise low noise generating plant and equipment and will adopt methods which minimise noise and vibration, wherever practicable.
T-NV-006	Where required, temporary acoustic barriers will be considered around significant noise producing plant that are in close proximity to sensitive receptors. The locations of these screens will be optimised for acoustic mitigation whilst considering other potential impacts.

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Ref	Mitigation and monitoring commitment
T-NV-007	Optimal location(s) of all equipment with the potential to cause a significant effect on noise on site will be agreed with the Local Authorities as part of the Noise and Vibration Management Plan prior to construction to minimise noise disturbance to local sensitive receptors.
T-NV-008	During construction, the Construction Contractor will ensure that the provision of acoustic enclosures around static plant, where practicable, is in place to reduce noise disturbance.
T-NV-009	Construction vehicles will, wherever practicable, be fitted with less intrusive warning alarms, such as broadband vehicle reversing warnings.

Best Practicable Means as defined in Section 72 of the Control of Pollution Act 1974 and BS 5228-1: 2009+A1: 2014 shall be employed at all times to reduce noise to a minimum.

The Contractor shall ensure that the following guidelines will be applied where applicable:

- The HDD Entry Pit will be hoarded by a close boarded fence to provide noise and visual screening;
- Whenever possible, noisy plant will be situated away from sensitive receptors;
- Although not included in the current programme of works, if any tasks are proposed for night-time or weekend periods (previously agreed with the EHO), noisy activities will take place during the daytime periods as far as is possible;
- Whenever possible fabrication will be undertaken off site;
- Where reasonably practicable, fixed items of construction plant will be electrically powered in preference to diesel or petrol driven;
- As far as reasonably practicable, the noise from reversing alarms will be controlled or limited. This will be undertaken through following a hierarchy of techniques:
 - The site layout will be designed to minimise reversing;
 - Banksman will be utilised to avoid so far as reasonably practicable the use of reversing alarms;
 - Reversing alarms will incorporate where reasonably practicable features such as broadband signals or 'smart alarms' to reduce the level of noise.
- Where an enclosure is available it should be used;
- Where reasonably practicable, vehicles and mechanical plant associated with the construction works will be fitted with effective exhaust silencers and shall be maintained in good working order;
- Machines and vehicles in intermittent use will be shut down or throttled down to a minimum during periods between works;
- Screens such as reflective acoustic cladding and louvered screens are recommended to be placed around power units such as compressors, lighting rigs and generators;
- Mobile screens will be placed around noisy hand-held equipment i.e. breakers, Stihl saws etc.
- Letter drops will be undertaken prior to any noisy works commencing that could affect local residents, this will be undertaken a minimum of two weeks in advance of the works;
- Where possible, all deliveries to support non-core works will be completed within core working hours;
- The movement of delivery materials outside of normal working hours shall be kept to a minimum and handled in a manner that minimises noise (i.e. manual handling rather than mechanical);
- All plant, equipment and noise control measures applied to plant and equipment shall be maintained in good working order and operated such that noise emissions are minimised as far as reasonably practicable;
- Where breaking out activities are necessary the continuous use of percussive or impact breaking equipment/ methods should be minimised;

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- All employees shall be provided with an appropriate induction and ongoing briefings regarding the management of environmental issues. This will involve emphasising the need for employees to show consideration to the sensitive receptors, including residential neighbours. They will be briefed on not generating unnecessary noise when on site or when leaving and arriving;
- Two-way radios to be used on site to avoid shouting; and
- All works will comply with all plant/equipment to be used listed within this application.

The above Best Practice will be briefed to all parties via:

- Site Induction;
- Toolbox talks;
- Start of Shift briefings; and
- Respite periods are provided for intensive works. This should take account of the temporal thresholds for noise insulation and temporary re-housing eligibility (i.e. 10 exceedances in 15 days, 40 exceedances in 6 months).

Additional BPM measures are also to be implemented. BPM measures are only displayed below when not mentioned in the BPM above.

- All compressors and generators shall be 'sound reduced' models fitted with properly lined and sealed acoustic covers which shall be kept closed whenever the machines are in use, and all pneumatic percussive tools shall be fitted with mufflers or silencers of the type recommended by the manufacturers. (if possible).
- Noise emitting equipment which is required to run continuously shall be housed in a suitable acoustic enclosure.
- Temporary noise barriers shall be used to reduce noise levels where appropriate and practicable. Barriers shall be located as close to the plant as possible and shall have a mass per unit area of at least 7kg/m².
- No deliveries shall arrive at the site before 0700 hours unless agreed with the local authority under exceptional circumstances.
- The engines of all parked vehicles or vehicles waiting to enter any work area shall be switched off within two minutes of arrival.
- Work compounds shall be laid out so that accesses and loading areas are located as far away from sensitive neighbours as practicably possible and so that temporary structures screen noisy areas where practicable.
- Stationary plant such as pumps, compressors and generators shall be situated as far as possible from residential property and acoustic screens erected if required. Other plant and machinery shall be screened if necessary.
- Plant known to emit noise strongly in one direction shall be, where practicable, orientated so that noise is directed away from noise-sensitive areas.
- A speed limit of 10mph shall be set and enforced on all site traffic.
- Haul routes shall be maintained in good condition to minimise 'body slap' of vehicles.

Vibration specific measures are recommended to be implemented:

- Reducing the use of percussive or impact-based demolition equipment (e.g., jackhammers, breakers) wherever possible.

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- Exploring alternative demolition techniques, such as cutting, crushing, or dismantling, which generate less vibration than impact methods.
- Using vibration-reducing demolition equipment or attachments, such as hydraulic crushers or shears, to minimise vibration transmission.
- Employing modern equipment with built-in vibration-damping features.
- Establishing vibration monitoring systems at sensitive receptors (e.g., residential areas or heritage buildings) during demolition activities to ensure levels remain within acceptable thresholds.
- Planning the sequence of demolition to minimise cumulative vibration. For example, starting with structures or elements that are less prone to transmitting vibrations to nearby receptors or phasing demolition activities to reduce simultaneous vibration sources.
- Positioning demolition equipment and plant as far as possible from sensitive receptors to reduce transmitted vibrations.
- Preparing haul routes and access roads to ensure vehicles moving demolition debris do not generate excessive ground vibrations due to uneven surfaces or "body slap."
- Taking additional precautions, such as increased monitoring, for such structures.

6.3.3.2 Construction noise predictions

The potential impacts on sensitive receptors from construction noise during the execution of the HDD and foreshore works are set out below. The main noise generating activities would be the HDD under the dunes, installation of sheet piles to create a cofferdam, and burial of the electrical cables on Talacre Beach using a cable trencher.

The likely number of properties subject to each magnitude of noise level has been determined based on noise modelling. The results of the noise survey show that, based on the existing ambient noise levels presented in **Table 6.3**, receptors fall within BS 5228-2 Assessment Category A.

Table 6.3 Ambient noise levels at noise monitoring locations

ID	Day		Evening		Night	
	Average L _{Aeq}	Range L _{Aeq}	Average L _{Aeq}	Range L _{Aeq}	Average L _{Aeq}	Range L _{Aeq}
LT17 Warren Farm	53	38-68	42	33-50	45	29-65
LT18 Station Road	54	48-61	47	42-55	49	40-58

Table 6.4 presents the likely number of receptors subject to an adverse noise impact. Particularly, impacts of medium and high magnitude have the potential for significant effects depending on the duration of the specific activity at that specific location.

Table 6.4 Numbers of receptors affected by construction noise

Activity	Magnitude	Day	Evening	Night
HDD under dunes	Negligible	184	116	114
	Low	14	76	71
	Medium	2	6	7
	High	3	5	11
Cable burial in Intertidal area	Negligible	200	N/A	N/A
	Low	3	N/A	N/A
	Medium	0	N/A	N/A
	High	0	N/A	N/A

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It can be seen from **Table 6.4** that, in the absence of mitigation, there will be medium and high magnitude noise impacts during HDD for the Foreshore Cables. During all other construction activities, only negligible and low magnitude noise impacts are predicted.

HDD for the Foreshore Cables, will require 24-hour working, including evening and night-time periods when a higher number of receptors will be subject to medium and high adverse noise impacts.

The estimated schedule for all works associated with the HDD is 4 weeks. This includes setup and demobilisation. However, it is estimated that night-time activities, within this 4-week period, to facilitate the cable pulling, and HDD drilling will require two to three consecutive nights (48-hour period) each. Therefore, it is considered unlikely that high and medium magnitude night-time noise impacts will exceed the duration criteria in BS5228.

Table 6.5 Predicted noise levels at biodiversity receptors during construction

Activity	Noise Level LAeq dB	Day
	Dee Estuary SPA - Little Tern Colony	Warren Ponds
HDD under dunes	45	57
Cable burial in intertidal area	43	46

Regarding the overwintering birds that utilise Warren Farm. Analysis of annual bird counts, for the period 2021-2025, organised by the Eni PoA Land Manager, show that during February and March, there is a very low level utilisation by birds of Fields 1a, and 1b, where the works will be located. Upwards of 97% of the birds utilising Warren Farm during February and March would be found in Fields 4, 5, 7, and 8. **Figure 6.4** shows the location of the fields at Warren Farm.

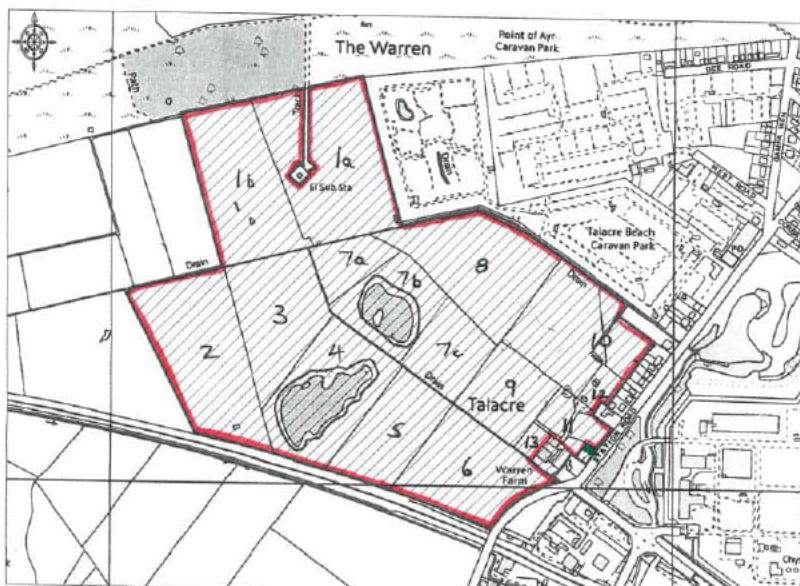


Figure 6.4: Map showing field numbers at Warren Farm managed to attract over-wintering birds

From this analysis, the Eni PoA Land Manager has proposed that while the HDD works are carried out in February – March 2026, then Fields 5 and 6 could be flooded, instead of Field 7 to attract the over-wintering birds to the fields outside of the 300m buffer from the proposed works.

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6.3.3.3 Noise monitoring

The sound level meter used should be of Type 1 classification in accordance with BS EN 61672:-1:2003 'Electroacoustics. Sound level meters. Specifications'. The calibrator used conforms to the requirements of BS EN IEC 60942:2018 'Electroacoustics, Sound calibrators'.

The meter should be capable of recording the following parameters:

- L_{Aeq} , 15 min;
- L_{A90} , 15 min;
- L_{A10} , 15 min; and
- L_{Amax} , 15 min.

The sound level meter and associated calibrator will have been calibrated to international standards within the previous year. The sound level meter will be field calibrated before and after each measurement.

It is proposed that noise monitoring positions will be established at locations considered to be representative of the nearest sensitive receptors to the construction site.

The specific location of the sound level meter should be chosen in accordance with the following:

- Locations should be representative of the noise environment of the relevant receptor;
- Locations should not be obscured by buildings or structures where there is a clear line of site between the construction works and the receiver;
- Locations should be a minimum of three meters from any reflective surfaces, screens (e.g. houses, solid fences, vehicles);
- Locations should be away from noise sources that do not represent the construction noise and vibration at the most exposed facade, or sources which unduly mask construction noise;
- Locations should be away from areas where cattle or wild animals could interfere with the meter; and
- Microphone should be positioned 1.5 m in height from relative ground.

Measurements will be undertaken in accordance with BS 7455-1:2003 'Description and measurement of environmental noise. Guide to quantities and procedures'. Noise measurements will be undertaken under meteorological conditions conducive to environmental noise monitoring. This will include low wind speeds (<5m/s) and dry conditions.

6.3.4 Residents and Local Community

The Applicant will conduct proactive community engagement prior to the commencement of the works. This will focus on the receptors identified within this document. Community engagement will be conducted through a combination of community newsletters (postal and email), posters and boundary notifications (contact details) and project websites. The following information will be made available to the surrounding community at the commencement of the project (overview of project) and prior to any high impact activity:

- Project overview;
- Start and duration of works;
- Proposed working hours;
- Steps being undertaken by the team to control noise and vibration;

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- Informing the community about high noise or vibration demolition activities, particularly for sensitive periods or structures, and providing advance notice of the timing;
- Any work which might be required out of specified working hours; and
- A helpline for queries and complaints.

6.3.5 Nuisances control measures

Table 6.6 presents the mitigation and monitoring commitments from the REAC in Planning Permission FUL/000246/23 relevant to the control and management of potential nuisances that will be implemented during the execution of the Proposed Development.

Table 6.6 Nuisances mitigation and monitoring commitments

Ref	Mitigation and monitoring commitment
T-PD-005	Construction lighting will follow BS EN 12464 (Parts 1 and 2) and guidance notes from the Institution of Lighting Professionals. In general, lighting will be used in shifts at the lowest luminosity necessary for safe delivery of each task i.e. it will not be continuous. It will be designed, positioned, and directed to reduce the intrusion into adjacent properties and habitats. The exception to this will be at trenchless crossings where 24-hour working will be required.
T-PD-008	Access for pedestrians along the foreshore will be maintained where possible and safe between Station Road and the dunes. Where this is not possible or safe, temporary diversions will be arranged for pedestrians.
T-PD-012	The Construction Contractor(s) will be responsible for obtaining all required environmental permits, licences and consents from the relevant authorities where required.
T-PD-014	Materials excavated for the trenching work will be stockpiled adjacent to the trenching work itself and reused during backfilling of the trenches.
T-PD-016	Temporary track mats will be placed along the Foreshore Area to facilitate vehicle movements over the soft sand as necessary.
T-CA-001	Trenchless methods to be used to install cables beneath Station Road and the Gronant Dunes and Talacre Warren SSSI.
T-AQ-001	The Stakeholder Communications Plan that includes community engagement will be implemented before work commences on site.
T-AQ-002	The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the Site boundary and within site cabins. This may be the environment manager/engineer or the Site manager. The head or regional office contact information will also be displayed.
T-AQ-003	The Dust Management Plan (DMP) will be implemented on site by the Construction Contractor. This will include measures to control other emissions, in addition to dust and PM10 mitigation measures.
T-AQ-004	All dust and air quality complaints will be recorded, and causes identified. Appropriate remedial action will be taken in a timely manner with a record kept of actions taken including of any additional measures put in-place to avoid reoccurrence.
T-AQ-005	The complaints log will be made available to the local authority on request.
T-AQ-006	Any exceptional incidents that cause dust and/or air emissions, either on- or off-site will be recorded, and then the action taken to resolve the situation recorded in the site log book.
T-AQ-007	Daily on-site and off-site inspections (up to a minimum of 50m from the site boundary) will be undertaken by a suitably experienced person, where receptors (including roads) are nearby (within 100m of Site or access roads) to monitor dust. The inspection results will be recorded and made available to the local authority when asked. This will include regular dust soiling checks of surfaces such as street furniture, cars, and windowsills within 100m of construction works.
T-AQ-008	The frequency of Site inspections will be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
T-AQ-012	Runoff of water and/or mud will be mitigated against while the Site is being set up and maintained.
T-AQ-014	Ensure all vehicle operators switch off engines when not in use and ensure there is no idling.
T-AQ-015	Where reasonably practicable reduce the use of diesel- or petrol-powered generators, for example by using hybrid site generators.
T-AQ-016	A maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas will be imposed.

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Ref	Mitigation and monitoring commitment
T-AQ-019	Covered skips will be used to reduce the risk of materials or dusty materials blowing out and contaminating the surrounding site.
T-AQ-020	Ensure equipment is readily available on-site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
T-AQ-022	For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
T-AQ-023	All construction plant and equipment will be maintained and in good working order.
T-AQ-026	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
T-AQ-033	Bag and remove any biological debris or damp down such material before decommissioning.
T-AQ-035	There will be no bonfires or burning of waste materials.
T-LV-001	Construction Compound sites will be located to avoid being in close proximity to residential properties to minimise the number of receptors that could be affected.
T-LV-002	Horizontal Directional Drilling (HDD) will be used under the sand dunes; minimising visibility and avoiding key landscape features.
T-LV-003	Land disturbed to make way for Construction Compounds that is not then utilised as part of the TCPA Proposed Development during operation will be reinstated and returned to existing land uses following completion of the construction stage.
T-LV-006	Arable land not required in operation will be cultivated and returned to agricultural use upon completion of construction. Fenced boundaries will be reinstated and gaps in hedgerows will be replanted. Grassland will be cultivated and reinstated. Protective fencing to areas of grassland reinstatement would typically remain in place for up to 12 months to exclude livestock and allow re-seeded grass to establish. It is considered that the majority of agricultural landscape will return to its previous use and form within a year of construction, if not earlier.
T-LV-011	Sections of other boundary features removed during construction, such as fences, will be replaced to match the original and/or adjacent boundary features. Boundary Marker posts for the new Foreshore Cables will be located at some boundaries to aid aerial surveillance and ground-based monitoring, and also to alert people to the presence of the TCPA Proposed Development to reduce any risk of damage to it. The location and design of these markers will be selected to minimise intrusion on the landscape.
T-LV-015	Any working areas, including Construction Compound (s) will be kept tidy through robust Construction Compound Management.
T-LV-016	A Dust Management Plan has been produced outlining measures to control dust, including timing works outside of prolonged dry weather and using dust suppression techniques.
T-LV-017	Habitats that are being retained during construction of the TCPA Proposed development should be protected using physical barriers, such as Heras fencing, to demarcate these areas and avoid the risk of encroachment and accidental damage.
T-LV-019	The construction programme will be kept to the minimum practicable time to reduce the duration of any ecological and/or landscape impacts. The TCPA Proposed Development will be delivered on a phased basis. Areas will be cleared for construction as close as possible to works commencing and top soiling, reseeded and planting will be undertaken during the next available season after sections of work are complete;
T-LV-021	Wherever possible, access points to the Red Line Boundary area will seek to minimise impacts on hedges and trees
T-LV-022	Retention and protection of trees covered by Tree Preservation Orders (unless agreed otherwise with the Local Planning Authority).
T-MD-001	The construction stage(s) of the TCPA Proposed Development will be managed through the implementation of the Construction Phase Plan (required under the CDM Regulations 2015).
T-MD-002	The design, installation, commissioning, operation and maintenance of plant, drainage systems, equipment, and machinery, including associated systems, will consider Good Engineering Practice.
T-MD-003	The Applicant will undertake a programme of hazard studies.
T-MD-004	The TCPA Proposed Development will be managed in accordance with Environmental, Health & Safety Management systems.
T-MD-005	All construction risks will be managed in accordance with the CDM Health & Safety Plan and Construction Phase Plan.
T-MD-006	The Proposed Development will be managed in accordance with supplier management environmental, health & safety standards (for example, Construction Skills Certification Scheme).
T-MD-007	The Proposed Development will be managed in accordance with supplier management environmental, health & safety standards (for example, Construction Skills Certification Scheme).

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Ref	Mitigation and monitoring commitment
T-MD-009	The Applicant and Construction Contractor will implement a Construction and Environmental Management systems (including the CEMP).
T-MW-001	The Construction Contractor will ensure that the application of circular economy principles will be followed, as implemented in the detailed CEMP, including: - Design solutions to prevent the production of waste where feasible, and to send the waste produced for recovery where possible; - Considering all phases of construction, operation and decommissioning in a lifecycle approach; and - Identification of resource streams that might be considered by-products (i.e. not wastes, as per applicable legislation) and reused or recycled.
T-MW-002	The Waste Management Plan, which will be produced by the Construction Contractor(s), will adhere to all relevant legislation and the Applicant's waste management procedures including technical guidance note (AMTE TG 010) as detailed in the Applicant's policy.
T-MW-003	Waste storage areas will be incorporated into the design with waste segregation measures put in place by the Construction Contractor.
T-MW-004	Identification and specification of material resources that can be acquired responsibly, in accordance with BES 6001 Responsible Sourcing of Construction Products
T-MW-005	The Construction Contractor will implement, and follow guidance within, the Materials Management Plan (MMP) in accordance with the CL:AIRE Definition of Waste: Code of Practice.
T-MW-006	Engage early with Construction Contractors to identify possible enhancement and mitigation measures to identify opportunities to further reduce any waste through collaboration and regional synergies.
T-PH-002	Where possible, a standard working-day of 10 hours per day and 5 days per working week and 5 hours on Saturdays is will be implemented for the construction of the TCPA Proposed Development
T-PH-003	A Construction Traffic Management Plan will be prepared and will provide details of procedures for construction related traffic.
T-PH-004	The public will be informed of the nature, timing and duration of particular construction activities and the duration of the construction works by newsletters and liaison with the construction contractor.
T-PH-005	Construction Compounds will be set out and managed so as to reduce impacts on access to / from private property and housing, and community facilities as far as practicable.
T-PH-006	Clear signage and directions for any alternative routes and appropriate alternative diversions will be provided and diversions clearly publicised to maintain access. Signage to advertise that businesses are open and operating as normal will also be provided where required.
T-PH-007	Community Facilities will be consulted prior to construction where access arrangements will be directly affected. Traffic management systems and diversion routes will be put in place to maintain access to identified community facilities.
T-PH-008	Vehicular access will be maintained at all times to community facilities which perform emergency service activities.
T-PH-009	A Dust Management Plan has been prepared to set out mitigation measures for dust and PM10. This is provided within the OCEMP (Document Reference: T.5.1).
T-PH-010	Construction activities that take place adjacent to Point of Ayr Holiday Park and Haven Presthaven Holiday Park, where practicable will be outside of the peak holiday seasons (e.g. peak summer season (July – August) as well as half terms and Easter holidays.

6.4 Construction Traffic Management Plan (CTMP)

Transport management measures relevant to the Proposed Development are included within the Construction Traffic Management Plan, and Construction Workers Travel Plan submitted in respect of the conditions with the extant planning permission (FUL/000246/23). Additionally, the transport management measures relevant to the Proposed Development are presented within the following sections.

Best practice measures include:

- Follow BS 5489-1:2020 and BS 8442:2022 for temporary and permanent traffic controls.

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- Promotion, management and control of such general provisions and measures for traffic management and control to be implemented by all contractors and sub-contractors throughout the extent and duration of the decommissioning.
- On-site provision for site access roads and pedestrian footways, with controlled access from the public domain for pedestrians and vehicles, on-site parking provisions, standing, lay-down and unloading facilities for delivery vehicles, and on-site compound, welfare facilities and material holding areas for use by all contractors and sub-contractors.
- Ensuring that the on-site provisions are controlled, managed and shall be safe at all times through the provision of planned and informed procedures and segregation between vehicular and pedestrian traffic.

6.4.1 Site Access

Site access for the proposed works will be via the following locations:

- **HDD Entry Pit Establishment** – via Warren Farm entry.
- **HDD Exit Pit Establishment** – via beach entry near Talacre car park incl. movements between Entry site and Exit Site via agricultural tractor and trailer. Unloading of equipment at Talacre car park, and unloading at the bottom of the ramp of the seawall prior driving to the car park/beach.
- **Pipe welding** – site compound at Talacre car park.
- **Site Establishment** – establishment for cable installation works similar to Entry and Exit Pit.
- **Drilling Fluid Break-out** – access to dune area for clean-up required in contingency situation.

A maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas will be imposed. Crew/personnel/visitors are using same site access on daily basis. Car sharing to limit vehicles on site is promoted.

Truck movements will be undertaken during early mornings when the area is quieter, and to be minimised at peak times during the days of the holiday season. Clear signage and directions for any alternative routes and appropriate alternative diversions will be provided and diversions clearly publicised to maintain access. Signage to advertise that businesses are open and operating as normal will also be provided where required. It should be noted that no diversions of public roads are planned at this stage.

Temporary mats may be laid down where necessary, across the beach between Talacre car park and HDD exit site, and from Warren Farm to the Valve Field. This will be implemented to facilitate access across areas of soft sand, but it will also minimise damage of the existing habitats along the route.

Access for pedestrians is expected only to be affected at Talacre car park, beach entry and at the beach itself. The aim is to have both the car park and beach entry accessible throughout the operations for pedestrians and emergency vehicles, however temporary diversions may be required to keep them clear of work sites.

At the beach, site compounds and work areas are temporarily fenced off for the public. However during the pipe pull-back, and cable installation preparations, installation and burial works the work area cannot be practically fenced off due to the area being intertidal. Appropriate measures will be taken for pedestrians to walk by safely. Temporary diversions on the beach for pedestrian use will be arranged as required, either between the HDD exit pit and the dunes or across the dunes in the case that the beach must be fully closed, full closure of the beach will be reduced to the minimum. It should be noted that barriers cannot be placed on

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the beach intertidal areas, as these may get loose due to the tide and become a pollutant and a hazard for shipping activities. Workers will look out at the public for them to pass the work site safely or works are stopped if they are too close in the vicinity.

6.4.2 Expected Traffic Volume

The expected traffic volume is difficult to estimate at this stage as it depends on the choices made during the detailed engineering phase. Instead an indication of expected traffic volume during the various stages of the project is shown to give an indication. As explained in the programmes of the activities (4.5.10 and 4.6.5) the works are indicatively scheduled for the following months:

- HDD activities: February to April 2026
 - HDD entry and Talacre car park welding 08-02-2026 until 05-04-2026.
 - HDD exit 01-03-2026 until 01-04-2026.
- Cable activities: June to August 2026
 - Cable works onshore 13-06-2026 until 31-08-2026.
 - Cable works beach 22-07-2026 until 31-08-2026.

The amount of traffic volume will vary during the project phases. When setting up and demobilising sites, the majority of truck movement are required. Throughout the project consumable runs are required to e.g. transport food, water, bentonite, fuel, equipment consumables to site and also to be able to dispose cuttings, waste and wastewater. Below overview gives an indication for this truck movements. The daily numbers are estimates and could be more one day and none the next day. A separation is made between truck movements towards Warren Farm and truck movements towards Talacre park and the beach area, as truck movements via Warren Farm are expected not to limit the area too much. Also please note that equipment may be offloaded first at the Warren Farm and thereafter transported by tractor/trailer towards the beach, which implies two truck movements in table below.

As mentioned, the values are conservative as detailed engineering is yet to be completed. More accurate volumes will be defined in detailed engineering and presented within the TMP by Contractor at a later stage.

The following considerations can be and have been taken to limit the impact:

- Where practicable, deliveries are made on weekdays (Monday to Friday).
- It has been checked that there is no school between the site compounds and the main road (A548). i.e., no movements need to be planned outside school hours.
- Consideration can be given, where possible, to reduce the truck movements during peak times/afternoon, and increase these in the morning and evenings.
- Truck drivers will receive delivery instructions (which will be part of the more detailed TMP) to keep them on the right roads as planned and agreed upon. Do and don'ts can be included within this instruction.

Besides truck movements, personnel movements will be done by car, vans, and/or 4x4s to access the beach. No busses transporting personnel to/from and between sites are planned for personnel transfer. Dedicated car parking will be made available on the valve field, beach location and/or at Talacre car parking. Personnel movements are not detailed in Table below but will be on a daily basis at time of execution.

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Table 6.7 Indicative overview truck movements for indication traffic volume peaks (*= no truck movements planned)

Month of 2026	Week	Main Activity (no delays considered)	Trucks via Warren Farm	Trucks via Talacre car park / beach (incl. collection at Warren Farm)
February	Wk. 6 (Mo 2 Feb)	Mobilisation Warren Farm road + HDD entry	Up to 8 daily	.*
	Wk. 7 (Mo 9 Feb)	Mobilisation Warren Farm road + HDD entry	Up to 8 daily	Up to 3 daily
	Wk. 8 (Mo 16 Feb)	Mobilisation HDD exit at beach Mobilisation Talacre Car park for welding	Up to 6 daily	Up to 3 daily
	Wk. 9 (Mo 23 Feb)	Mobilisation HDD exit at beach Mobilisation Talacre Car park for welding	Up to 2 daily	Up to 6 daily
March	Wk. 10 (Mo 2 Mar)	HDD Installation	Up to 2 daily	Up to 6 daily
	Wk. 11 (Mo 9 Mar)	HDD Installation	Up to 2 daily	Up to 4 daily
	Wk. 12 (Mo 16 Mar)	Potential delay installation / Start breaking up / demob	Up to 2 daily	Up to 4 daily
	Wk. 13 (Mo 23 Mar)	Demobilisation Beach and Warren Farm	Up to 5 daily	Up to 6 daily
April	Wk. 14 (Mo 30 Mar)	Demobilisation Beach and Warren Farm	Up to 5 daily	Up to 4 daily
	Wk. 15 (Mo 6 Apr)	.*	.*	.*
	Wk. 16 (Mo 13 Apr)	.*	.*	.*
	Wk. 17 (Mo 20 Apr)	.*	.*	.*
May	Wk. 18 (Mo 27 Apr)	.*	.*	.*
	Wk. 19 (Mo 4 May)	.*	.*	.*
	Wk. 20 (Mo 11 May)	.*	.*	.*
	Wk. 21 (Mo 18 May)	.*	.*	.*
June	Wk. 22 (Mo 25 May)	.*	.*	.*
	Wk. 23 (Mo 1 Jun)	Mobilisation Warren Farm	Up to 8 daily	.*
	Wk. 24 (Mo 8 Jun)	Mobilisation Warren Farm / Beach	Up to 4 daily	Up to 8 daily
	Wk. 25 (Mo 15 Jun)	Mobilisation Beach	Up to 2 daily	Up to 8 daily
July	Wk. 26 (Mo 22 Jun)	Mobilisation Beach	Up to 2 daily	Up to 6 daily
	Wk. 27 (Mo 29 Jun)	Beach prep. / standby for CLV arrival / cable pull-in with CLV	Up to 2 daily	Up to 4 daily
	Wk. 28 (Mo 6 Jul)	Post cable pull-in works / cable burial works	Up to 2 daily	Up to 4 daily
	Wk. 29 (Mo 13 Jul)	Cable burial works / partial demob beach	Up to 4 daily	Up to 4 daily
August	Wk. 30 (Mo 20 Jul)	Deemob Beach and Warren Farm	Up to 6 daily	Up to 8 daily
	Wk. 31 (Mo 27 Jul)	Demob Beach and Warren Farm	Up to 4 daily	Up to 8 daily
	Wk. 32 (Mo 3 Aug)	Demob Warren Farm (if required)	Up to 2 daily	.*
	Wk. 33 (Mo 10 Aug)	.*	.*	.*

Table 6.8 presents the traffic and transport related mitigation and monitoring commitments from the REAC in Planning Permission **FUL/000246/23** that will be implemented during the execution of the Proposed Development.

Table 6.8 Traffic, and Transport mitigation and monitoring commitments

Ref	Mitigation and monitoring commitment
T-TT-001	Careful consideration will be taken of the siting of temporary access points during construction. Access points will require the incorporation of site-specific and appropriate visibility splays, turning radii and, where deemed necessary or appropriate, speed limit reductions.
T-TT-002	The Construction Contractor will follow the mitigation measures in the Construction Traffic Management Plan (CTMP) during construction works.
T-TT-003	Sensitive selection and specification of construction access points off the public highway. Construction traffic routes have been selected to reduce, where possible, traffic effects on links that would be more sensitive to changes in traffic volumes, due to the presence of built environment indicators used by sensitive affected parties.
T-TT-004	Details of temporary diversions for footpaths are provided within the Outline CTMP included within the OCEMP (Document Reference: T.5.1), of which the Construction Contractor will implement on site.
T-TT-005	Community Engagement and Public Information. Information regarding construction traffic activities and movements would be provided to the public. The means of communication would include online updates, letter drops, information boards and details of key contacts.

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Ref	Mitigation and monitoring commitment
T-TT-006	CTMP measures to include other standard forms of mitigation including for example temporary traffic management, hazard signage, timing restrictions – details and requirement for these measures to be agreed with the LPA. Specific measures to include: - the introduction of temporary speed restrictions; - controls on timings to minimise HGV deliveries at peak times; and - the use of traffic marshals to manage HGV movements with local traffic and pedestrians/cyclists to minimise exposure for these groups to construction traffic; - the details and requirement for these measures to be agreed with Flintshire County Council by the contractor in development of the full CTMP.

6.5 Soil and Land

The following best practice construction methods have the potential to reduce adverse impacts and have been included:

- Backfilling of earthworks and use of trenchless crossing technologies to reduce loss of site won material.
- Materials excavated for the Entry and Exit pits work will be stockpiled adjacent to the works and reused during backfilling of the trenches. Any topsoil or organic surface material will be stockpiled separately for re-use on completion of the works and revegetated as necessary.
- Temporary installation or upgrade of existing access tracks for the works will be set up to minimise disruption and local environmental impacts to Land and Soil. Options will include provision of bog mats (where wet soil conditions are anticipated) and compacted gravel tracks (where road-going vehicles or heavy traffic is anticipated).

6.5.1 Arable Land

Passage through Warren Farm is planned to be done by placing matting across the field. However, if required, topsoil can be stripped, but this is currently not planned by the Contractor. This layer is then stockpiled and will be reinstated and returned to existing land at completion of the construction phase.

Table 6.9 presents the land and soil related mitigation and monitoring commitments from the REAC in Planning Permission **FUL/000246/23** that will be implemented during the execution of the Proposed Development.

Table 6.9 Land and soil mitigation and monitoring commitments

Ref	Mitigation and monitoring commitment
T-LS-002	Any facilities for the storage of oils, fuels or chemicals will be sited on impervious bases and surrounded by impervious bund walls. The volume of the bunded compound should be 110% of the capacity of the tank, all filling points, gauges, vents and sight glasses will be located within the bund. Associated pipework should be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets will be detailed to discharge downwards into the bund and refuelling will be supervised at all times, preferably on an impermeable surface. This system will reduce the potential for the addition of new contaminants to the existing baseline environment (e.g., spill or leak)
T-LS-003	Any waste materials generated as a result of the TCPA Proposed Development will be disposed of satisfactorily by registered waste carriers and in accordance with Section 34 of the Environmental Protection Act 1990 and NRW relevant guidance on waste management. Uncontrolled disposal or discharge of waste is strictly forbidden, and compliance of all activities related to the management of waste with all existing local laws and regulations shall be assessed and assured by the subsidiary
T-LS-004	Acute exposure to potential contamination will be mitigated through normal working practice using appropriate Risk Assessment Method Statement and use of standard PPE and hygiene best practice. Where contamination is suspected, construction workers will be provided with appropriate Personal

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Ref	Mitigation and monitoring commitment
	Protective Equipment (PPE) or Respiratory Protective Equipment (RPE) (over and above the standard PPE) to prevent direct contact, ingestion or inhalation of potential soil or groundwater contamination.
T-LS-005	Earthworks will be completed in accordance with a Contaminated Land: Applications in Real Environments (CL:AIRE) compliant Materials Management Plan (MMP) to ensure re-used material does not present a risk to human health or the environment and complies with UK waste legislation regulations. An earthworks specification will be produced that will include protocols for testing and limiting values to ensure that imported materials are suitable for their intended use in terms of their chemical quality;
T-LS-008	Appropriate measures to limit contamination to the ground from construction related plant/machinery and storage of materials will be incorporated within the detailed CEMP
T-LS-009	The handling and temporary storage of soils will be in accordance with DEFRA (2009) Construction code of Practice (Ref. 11.31) and the IoQ (2021) Soil Handling Guide (Ref. 11.32).
T-LS-018	Backfilling of earthworks and use of trenchless crossing technologies to reduce loss of Site won material.
T-LS-020	Combination of cable trenching and horizontal directional drilling (HDD) to reduce loss of BMV agricultural land, avoid damage to environmentally sensitive land uses and controlled waters, and prevent exposure pathways to human health within the dunes area of the Foreshore of this ES.
T-LS-022	A dewatering management plan should be produced by the Construction Contractor (see Appendix 11.5, Volume III), to assess the potential risks arising from dewatering, in regard to local private water supplies and ecosystems
T-LS-025	If, during the trenched ploughing, unexpected contamination is encountered, the open trench will be lined in order to inhibit water percolation and subsequent leachate generation
T-LS-026	The Construction Contractor will appoint an appropriately qualified person (e.g., Environmental Clerk of Works (EnvCoW)) to maintain a Watching Brief for the duration of any ground excavations. The aim and scope of the Watching Brief will be to identify any unexpected contamination and advise on the correct course of action if discovered. Should unexpected Made Ground or unexpected contaminated ground (i.e., visual or olfactory evidence of contamination) be encountered during the construction phase the ECoW or equivalent qualified person will be notified. Testing of Made Ground for a minimum of asbestos, metals, petroleum hydrocarbons and polyaromatic hydrocarbons to assess suitability for re-use and potential risks to construction works should be undertaken.
T-LS-029	An Unexploded Ordnance (UXO) assessment will be undertaken and will be used during the production of all risk assessments and method statements.

6.6 Resource Use and Management

The Principal Contractor will follow a waste hierarchy approach: eliminate, reduce, reuse, recycle, and dispose.

6.6.1 Fuel Storage and Refuelling

To reduce spills and leaks, fuel storage and refuelling will be managed as follows on site:

- Materials should never be stored on bare ground, always impermeable surfaces to be used.
- Materials should never be stored anywhere near to watercourses, soakaways or other sensitive areas.
- Plant nappies of suitable size must be always placed under static plant & equipment. Drip trays will be used in the event that plant nappies are not available.
- Regularly check the plant, equipment & vehicles for leaks. Arrange for leaking plant to be taken out of service and maintained.
- Use secondary containment systems with a 110% capacity.
- Keep spill kits available near fuel storage areas. If spill kits are utilized to contain a spill on site, the products will be replenished for future use.
- Refuel in designated areas away from water bodies.

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- Supervise all fuel transfers and ensure appropriate protective measures are in place.
- Where possible, refuelling should only be carried out in a designated area, which will be secured/locked out of hours.
- The refuelling area shall be located away from drains and watercourses (>10m from a watercourse and >50 meters from a spring, well or borehole).
- Areas of permanent waste oil/fuel/chemical storage will be located 50m away from watercourses or drainage paths. Where this is not possible, advice will be sought from the Field Environmental Manager, and a minimum distance will be agreed with the Client.
- Refuelling will always be supervised by a competent supervisor.
- Mobile plant must be refuelled away from surface waters, drains, permeable pavements and open excavations. A fuel drip tray must be used.

6.6.2 Use and Storage of Hazardous Materials/Substances

Any contaminated topsoil (if encountered) will be managed according to national and local regulations. The use and storage of solvents, cements, adhesives, grout and concrete shall be managed as follows during the HDD and the lay of the cable activities :

- The Contractor is responsible for carrying out a risk assessment of each substance and ensuring that all appropriate storage, protective equipment and if necessary, emergency procedures are put in place on site.
- All hazardous materials shall be labelled, sealed and stored with their Control of Substances Hazardous to Health (COSHH) assessment in a bunded and lockable container away from drains and watercourses when not in use.
- COSHH datasheet will be read and understood before using any hazardous materials.
- Any spent (contaminated) spill kits, absorbent granules, sheets or fibres must be disposed of in accordance with COSHH regulations requirements.
- Hazardous liquids shall be transferred using a funnel and drip tray and sealed and returned to the container immediately after use. Damaged containers shall be reported to the Field Environmental Manager.
- All usages shall comply with its requirements.
- Hazardous liquids must be re-sealed after use. Empty containers are to be disposed of to the designated container within the waste compound.
- Construction workers are required to wear Personal Protective Equipment (PPE) such as gloves and face masks (where appropriate) to prevent dermal contact and inhalation or ingestion.

Table 6.10 presents the resource use and management related mitigation and monitoring commitments from the REAC in Planning Permission **FUL/000246/23** that will be implemented during the execution of the Proposed Development.

Table 6.10 Resource use and management mitigation and monitoring commitments

Ref	Mitigation and monitoring commitment
T-GG-001	The Detailed Design of the TCPA Proposed Development will ensure the design is optimised to avoid unnecessary permanent design aspects, and minimising material consumption and waste generation, as far as reasonably practicable
T-GG-002	The Detailed Design of the TCPA Proposed Development will aim to substitute-in and use alternative raw materials and resources , where practicable.

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Ref	Mitigation and monitoring commitment
T-GG-003	The Detailed Design of the TCPA Proposed Development will aim to reduce the elements required and maximise the re- use of existing equipment where possible.
T-GG-004	Maximising the opportunity to use more sustainable materials and products with reduced embodied carbon emissions and materials/resources featuring recycled content (where safe and of sufficient integrity for engineering), eventually supported with eco- and carbon labels or verified Environmental Product Declarations (EPD), are preferred.
T-GG-005	Construction materials will be sourced from local suppliers and local waste disposal facilities will be used where available and practicable to minimise the distance materials are transported from source to Site and from Site to disposal.
T-GG-006	Avoid disposal of construction waste to landfill, maximising recycling, and reuse of waste where possible.
T-GG-007	Using modern and efficient low emission construction plant and delivery vehicles, and/or those powered by electricity from alternative/lower carbon fuels, as far as practicable. Construction Contractors will ensure high performance of plant and equipment through correct and efficient operation, maintenance, and servicing of vehicle fleet to avoid polluting emissions.
T-GG-008	Training policies will be in place during site induction to avoid idling of engines, spills of fuels (for example, when refuelling) and safe/environmentally sensitive driving techniques to maximise fuel saving.
T-GG-009	The sustainability credentials of suppliers and companies in the supply chain will be considered as part of the procurement process.
T-GG-010	To reduce the level of energy consumption used during construction, innovative construction methods will be utilised where practicable. These may include: • avoiding sharp acceleration and braking to conserve fuel; • adjusting haul and access road/points to smoother gradients to avoid unnecessary fuel usage; and • only using plant when required (including future planning as to what plant is required, and when).
T-WR-016	Waste fuels and other fluid contaminants will be collected in leak-proof containers prior to removal from the construction area to an approved recycling processing facility.
T-WR-017	Oil absorbent booms will be made available at construction compounds and works areas and will be deployed as soon as possible in the event of a significant spillage.
T-WR-019	Measures implemented to control spillage or pollution risks for site runoff or works within watercourses will be regularly inspected to ensure they are working effectively.
T-WR-022	Surface water run-off and excavation dewatering will be captured and settled out prior to disposal where practicable. The Construction Contractor will ensure that any contaminants are to be suitably removed prior to disposal.
T-WR-024	Silt fences, silt traps, filter bunds, settlement basins and/or proprietary units' will be used to treat sediment laden water generated on-site before discharge.
T-WR-025	Sewage generated from site welfare facilities will be disposed of appropriately. This may be by discharge to the foul sewer network or by collection in septic tank for disposal off-site.
T-WR-026	Works will be undertaken in compliance with the relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009) with respect to protection of water quality and control of Site drainage including washings, dewatering, abstractions, and surface water.

6.7 Waste Management Plan

6.7.1 General principles

The Proposed Development shall comply with the Waste Duty of Care Code of Practice. The Principal Contractor shall seek to promote the re-use of excavated materials through optimisation of cut and fill operations to improve the sustainable and cost-effective development of land, as per the Definition of Waste: Development Industry Code of Practice (DoWCoP). In many instances the DoWCoP can provide an alternative to Environmental Permits or Waste Exemptions when seeking to reuse excavated materials.

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The control measures that will be applied to waste management during the Proposed Development include:

- Set up waste collection areas with segregated containers for different waste types.
- Use licensed waste carriers and keep duty of care documentation on-site.
- Implement a Site Waste Management Plan and audit waste transfer records.
- Divert waste from landfills by recycling or reusing materials such as timber, metal, and concrete.
- Regularly update recycling progress and report any waste incidents.
- All waste incidents shall be reported immediately to the Construction Manager and Field Environmental Manager.
- Spoil and recycled aggregate transfers shall be carried out in accordance with an approved Materials Management Plan and all transfer tickets must be retained on site.

The waste management foreseen for the Proposed Development will arise from the use, generation, and handling of the following:

- Drilling Fluids.
- Cuttings.
- Unplanned bentonite discharge into sea.
- Unplanned bentonite break out.
- Water abstraction for water supply on site.
- Potential Dewatering discharge permit.
- Other waste such as:
 - Toilet water;
 - Dirty water;
 - Canteen waste;
 - Wood/steel/concrete waste;
 - Packaging / plastic;
 - Oil and waste fuel; and
 - Other.

6.7.2 Drilling fluid management

At Warren Farm / HDD Entry site, the used drilling fluids are collected and deposited in a mud lagoon for cleaning prior to re-use. Used drilling mud will be transferred from the storage lagoon to the recycling system by way of an electrical submersible slurry pump. The multi screened cleaning system separates cuttings from the used fluid using a combination of mesh screens and a series of hydro-cyclones to remove coarse and fine particles from the used fluid. Reducing the solids sufficiently allows the used drill fluid to be returned to the mixer and static holding tanks and then re-used downhole. The separated solids removed from the drill fluid are collected and stockpiled for removal from site on completion.

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Figure 6.5: Drill Fluid Recycling Plant (typical)

To transfer the drilling fluid back from the HDD exit pit to the HDD Entry site for recycling, it is proposed to have a mud return line drilled next to the HDD drill line. Due to the sensitivity of the area and the distance to travel by road to the entry site it is not deemed practical to do all transfer by road. Therefore, it is proposed to install a mud return line by drilling an initial bore from HDD entry to HDD exit site. The drill pipe is left in place to serve as transfer line between the two sites. On completion of the works, this pipe is removed.

However, as cuttings within the fluid may block the mud return line, first the drilling fluid is cleaned at the beach. To do so, it is proposed to have a shaker system (similar but smaller than the recycling facility at the HDD entry- see Figure 4.24) at Warren Farm. With this the rougher cuttings are separated from the drilling fluid. Allowing the drilling fluid to return via the mud return line, while the separated cuttings are contained at the beach before being transported by agricultural tractor / vacuum tankers back to Warren Farm. These cuttings are stockpiled.

At the end of the project, drilling fluid incl. the fluid in the lagoon will be taken away by tanker. This will be reused on other projects and otherwise disposed of by an accredited waste handler.

Soil that encountered the drilling fluid, i.e. at the lagoon, drill rig, HDD entry and HDD exit pit, will be excavated and transported from site to be handled by a waste handler.

6.7.3 Cuttings

Cuttings from the drilling works are stockpiled during the works and will be removed by transporting them from site on completion of the works. The cuttings will be either stored in skips or tipper lorries for transporting. Disposal of the cuttings will be made in accordance with this Waste Management Plan and legislative requirements.

6.7.4 Unplanned drilling fluid break-out

During the drilling process there is an inherent risk that an uncontrolled release of drilling fluids may occur, Contractor will maintain lookout for such occurrence at all stages of the drilling operations. In the event this does occur the drilling will be stopped, and a cleanup and mitigation plan will be implemented. This may require some personnel and equipment to access the sand dunes area.

While precautions will be taken to avoid this happening, if it does, it is required to be able to clean up and drilling fluids that are lost. This would be with handheld equipment where possible, but use of a small, tracked

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excavator and some pumping equipment or a dumper truck can be required. Access to the dunes is considered to be done via the valve field exit towards the dunes and/or other parking space found in the area

6.7.5 Potential need Abstraction permit for water supply on site / Hydrant licence

For the water supply of the drilling we envisage that water will be delivered by 3rd party, we will ensure that they provide the suitable extraction license for the provision of water. Therefore, this is for information only, we will make sure the supplier takes care of this.

6.7.6 Potential Dewatering

Detailed engineering needs to be completed to confirm whether dewatering would be required. However, due to the nature, and location of the construction works dewatering is unlikely. However, should dewatering be required, the method and location will be agreed with NRW.

6.7.7 Other Waste

Waste originating from the personnel and welfare facilities on site will be disposed of as per local regulations. Waste is stowed in covered skips where possible to prevent materials being blown out by the wind. Waste water coming from the welfare facilities will be contained in tanks. Waste and waste water is removed by trucks from registered waste carriers. Covers are used where required to limit escape of materials during transport. No burning of waste on site is considered.

Good housekeeping is held on the site to limit debris flying around and where possible machinery is switched off when not in use. This also relates to maintenance of construction plant and equipment on site to ensure good working order and to prevent spills. In case of spills, equipment is readily available on-site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. Please see **Chapter 7.0 EMERGENCY PREPAREDNESS AND RESPONSE**.

Electricity on site is provided by generators, and solar panels and battery packs can also be used for certain equipment to reduce emissions. Fuel is transported to site by truck and stored in double bunded fuel tank on site. When refuelling, the appropriate measures are taken to limit potential spills.

Table 6.11 presents the waste management, and water management related mitigation and monitoring commitments from the REAC in Planning Permission **FUL/000246/23** that will be implemented during the execution of the Proposed Development.

Table 6.11 Waste management and water management mitigation and monitoring commitments

Ref	Mitigation and monitoring commitment
T-MW-001	The Construction Contractor will ensure that the application of circular economy principles will be followed, as implemented in the detailed CEMP, including: • Design solutions to prevent the production of waste where feasible, and to send the waste produced for recovery where possible; • Considering all phases of construction, operation and decommissioning in a lifecycle approach; and • Identification of resource streams that might be considered by-products (i.e. not wastes, as per applicable legislation) and reused or recycled.
T-MW-002	The Waste Management Plan, which will be produced by the Construction Contractor(s), will adhere to all relevant legislation and the Applicant's waste management procedures including technical guidance note (AMTE TG 010) as detailed in the Applicant's policy.

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Ref	Mitigation and monitoring commitment
T-MW-003	Waste storage areas will be incorporated into the design with waste segregation measures put in place by the Construction Contractor.
T-MW-004	Identification and specification of material resources that can be acquired responsibly, in accordance with BES 6001 Responsible Sourcing of Construction Products
T-MW-005	The Construction Contractor will implement, and follow guidance within, the Materials Management Plan (MMP) in accordance with the CL:AIRE Definition of Waste: Code of Practice.
T-MW-006	Engage early with Construction Contractors to identify possible enhancement and mitigation measures to identify opportunities to further reduce any waste through collaboration and regional synergies.
T-WR-001	When laying the Foreshore Cables, HDD trenchless method will be used to cross the Talacre Brook and the Gronant Dune and Talacre Warren SSSI. The PoA Ditch 1 will be crossed using a trench and during this the hydrological regime will be maintained through temporary diversion or pumping and there will be careful control of sediment and pollutants. The bed and banks will be reinstated, and similar vegetation will be replanted.
T-WR-004	Construction works will avoid the positioning of temporary material stockpiles near to watercourses and will ensure material stockpiles are located outside of the flood zone where practicable.
T-WR-011	Areas with a greater risk of spillage (for example, vehicle maintenance and storage areas for hazardous materials) will be carefully sited (for example, away from drains or areas where surface waters may pond) and on an impermeable surface.
T-WR-012	Emergency response plans will be developed, and spill kits made available on-site.
T-WR-013	Measures to be put in place to prevent pollution from construction plant including: - activities involving vehicles and machinery including refuelling and lubricating are to be carried out in designated areas, on an impermeable surface, with appropriate cut-off drainage located away from watercourses; - plant to be maintained in a good condition with wheel washing in place (avoiding vehicle cleaning near to existing watercourses), - all refuelling would be supervised and carried out in a designated area. In the event of plant breakdown, drip trays would be used during any emergency maintenance and spill kits would be available on-site. Guidance for Pollution Prevention would be used to inform the CEMP.
T-WR-014	Fuels and potentially hazardous construction materials would be stored in bunds that have areas with external cut-off drainage; fuel would be stored in double skinned tanks with 110% capacity.
T-WR-015	Construction plant will be checked regularly for oil and fuel leaks, particularly when construction works are undertaken in or near the existing waterbodies.
T-WR-016	Waste fuels and other fluid contaminants will be collected in leak-proof containers prior to removal from the construction area to an approved recycling processing facility.
T-WR-017	Oil absorbent booms will be made available at construction compounds and works areas and will be deployed as soon as possible in the event of a significant spillage.
T-WR-019	Measures implemented to control spillage or pollution risks for site runoff or works within watercourses will be regularly inspected to ensure they are working effectively.
T-WR-022	Surface water run-off and excavation dewatering will be captured and settled out prior to disposal where practicable. The Construction Contractor will ensure that any contaminants are to be suitably removed prior to disposal.
T-WR-024	Silt fences, silt traps, filter bunds, settlement basins and/or proprietary units' will be used to treat sediment laden water generated on-site before discharge.
T-WR-025	Sewage generated from site welfare facilities will be disposed of appropriately. This may be by discharge to the foul sewer network or by collection in septic tank for disposal off-site.
T-WR-026	Works will be undertaken in compliance with the relevant sections of BS6031:2009 Code of Practice for Earthworks (British Standards, 2009) with respect to protection of water quality and control of Site drainage including washings, dewatering, abstractions, and surface water.

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7.0 EMERGENCY PREPAREDNESS AND RESPONSE

7.1 Emergency Preparedness

7.1.1 Spill kits

Spill kits for hydrocarbon and chemical spills will be available at all worksites, with clear signage for easy identification. The site team shall ensure:

- Additional spill kits are located at construction compounds, fuel storage points, and COSHH stores.
- Each kit will include:
 - Absorbent pads.
 - Absorbent booms.
 - Absorbent granules.
 - Hazardous waste disposal sacks.
- Regular checks will ensure spill kits are fully stocked and ready for use.
- Spill drills will be conducted periodically to ensure the workforce can effectively handle spills.
- All drills will be documented, with records kept throughout the project.

7.1.2 Fire prevention

Means to raise the alarm in the event of a fire shall be available at the points of work. An assembly point shall be designated a safe distance from the active works locations and will be communicated to all members of the workforce before works commence. The workforce shall assemble at the point for a rollcall and to receive further instructions. All individuals at the worksite, including visitors, will be obliged to immediately sign in on arrival.

7.1.3 Extreme weather

The Principal Contractor's Site Manager shall register to receive Met Office weather warnings. All warnings issued by the Met Office with the potential to impact upon the works shall be communicated by the Construction Manager to the workforce in a timely manner so that measures can be implemented where necessary. In the absence of the Construction Manager the Field Environmental Manager or equivalent person shall also receive and act upon all alerts.

7.2 Incident Reporting and Investigation

7.2.1 Reporting

All incidents, including near misses, shall be classified according to the categories outlined in **Table 7.1**. All categories of environmental incident shall be reported by the Principal Contractor to the client as outlined below.

Table 7.1 Reporting

Incident Classification	Definition
Near Miss	An event, controlled through implementation of an effective incident control measure (e.g. drip tray used, effective use of noise barrier).

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Incident Classification	Definition
Minor Environmental Incident	Incidents that have caused minor harm or damage to the environment e.g. • A minor fuel spill below 10 litres onto ground which is immediately cleared. • A minor spill of a chemical not classified as presenting an ecotoxic risk. • Exceeding noise levels. • Silt runoff from site which does not enter into a surface water feature; or • Excess dust emissions.
Major Environmental Incident	Incident that has caused or may cause significant harm or damage to the environment e.g. • A minor fuel spill which impacts a sensitive land feature, a water, or drains. • A major fuel spillage or 10 litres. • Any spillage of a chemical which is classified as presenting an ecotoxic risk. • Silt runoff from site which enters a water feature. • Receipt of a nuisance complaint.

Minor incidents and near misses must be reported to the Company within 24 hours. Major incidents must be reported to the Project Manager as soon as reasonably practicable.

The contractor, after informing Company, shall report all environmental incidents that are required to be reported to National Resources Wales and/or to any other relevant statutory or regulatory bodies. Emergency contact details are outlined in **Section 7.2.3** for all contacts relevant to the works.

7.2.2 Investigation

Reporting of an incident to the Project Manager shall, where necessary, commence the incident investigation which shall be jointly conducted between Company and its contractor[s].

The Principal Contractor shall prepare an investigation report for all environmental incidents. The report is to include:

- Summary of the environmental incident, describing the:
 - Nature of the incident.
 - Details of any pollutant released including the type and quantity of pollutant released.
 - Location for the incident (e.g. grid reference).
- Receptors that were or could have been impacted.
- An analysis of what led to the incident occurring.
- Summary of immediate actions taken to mitigate the incident.
- Summary of any remedial action required.
- Lessons learned and future measures or actions to be implemented.

Company will verify the incident investigation and agree with its contractors any further actions which are to be implemented to prevent a reoccurrence of comparable incidents. A timeline for the implementation of all actions shall be established and the contractors shall provide details of when they have been implemented.

An incident investigation shall be complete when all details have been recorded on file.

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7.2.3 Emergency Contacts

In the event of an emergency occurrence at the Site, the Client and its contractors shall determine the relevant statutory and regulatory bodies that must be notified. Notification shall be in accordance with the measures outlined above in **Section 7.2.2**.

Table 7.2 Emergency Contacts-

Emergency Contacts	
Contact	Contact Details
Client Site Manager – [Name/TBC]	TBC
Contractor Site Manager – TBC	TBC
Contractor Environmental Manager – TBC	TBC
Boskalis Emergency number (24/7)	+31 (0) 78 6969 999
National Resources Wales	0300 065 3000
Health and Safety Executive (HSE Construction)	01519 229 235
Local Authority – Flintshire County Council	01352 703020
Major Spill Emergency Response	TBC
Fire	999 / 112
Police	999 / 112
Ambulance	999 / 112

7.3 Incident Response

All pollution incidents should be managed through the **STOP – CONTAIN – NOTIFY** concept.

As soon as an incident is identified, the first action should be **STOP** and prevent further discharge to drainage/river/ground.

CONTAIN may constitute control of discharge in the event of a spill, or cessation of works if it is the works that are resulting in the incident, e.g. halting excavations until silt runoff is contained. It is recognised that due to personal health and safety risks it may not always be safe to stop the source of the spill, for instance if a significant volume of an unidentified substance has been released.

NOTIFICATION should take place as soon as practicable and frequently can take place while further release is being stopped or while a spill is being contained. The emergency contact numbers outlined in **Table 7.2** should be used.

Guidance on managing contaminants and limiting adverse effects is provided in the Oil Spill Containment Plan.

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8.0 GENERAL ENVIRONMENTAL REQUIREMENTS

8.1 Roles, Responsibility and Authority

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

8.1.1 Project Roles

The PoA team and all appointed contractors will be responsible for ensuring that the potential risks to the environment are adequately avoided or controlled by the application of measures as documented within this PoA Decommissioning CEMP, which shall be complained throughout decommissioning stage.

During the execution of the activities foreseen by the Project, the Contractor/Subcontractor:

- will carry out its activities in accordance with the applicable national legislation, its own and the Company's standards, the Environmental Statement (attached to the TCPA) and the Register of Environmental Actions and Commitments (REAC) and international best practices;
- will be responsible for the environmental impacts resulting from its activities and operations and for implementing all measures necessary to avoid or, if not possible, reduce and mitigate them, in accordance with Contractual requirements;
- will react promptly to accidental events for which it is responsible in order to mitigate the resulting impacts as much as possible;
- will implement this PoA Decommissioning CEMP and all identified mitigation and monitoring measures and operational control actions.

The most important Project Functions, responsible for development, implementation and monitoring of the PoA Decommissioning CEMP are identified and described in the following sections.

8.1.1.1 Project Director / Project Manager

The Project Director (PD) / Project Manager (PM) is responsible for ensuring that the Project is executed in a responsible manner that is protective of human health and environment.

The responsibilities of the PD / PM are as follows:

- supervise compliance with regulatory requirements and adherence to applicable standards and procedures to which the Contractor has committed to adhere;
- approve this document and ensures its application on Site with the support of the Project HSE Manager and the Project Environmental Manager;
- ensure the availability of adequate funds and human resources for the implementation of this document;
- define the Project strategies in relation to environmental protection measures, supervising the planning and scheduling of activities;
- support initiatives and awareness campaigns on environmental issues.

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8.1.1.2 Project HSE Manager

The Project HSE Manager (PHSEM) manages and supervises the Project activities of competence related to health, safety and environment during the development of the Project, ensuring the correct application of the HSE Management System of the Contractor; its function includes:

- ensuring the review of the contractual documents of competence;
- controlling the activities related to the HSE aspects of the Project carried out by the various functions;
- ensuring the preparation of the Environmental Plans for the construction phase in accordance with the HSE objectives of the Project;
- ensuring the review of the Project documents on environmental matters, to verify compliance with the HSE Management System of the Contractor;
- coordinating the HSE audit activities for the Project;
- ensuring, in line with the contractual constraints and local legislation and coordinating with the other Project positions, the definition of the environmental requirements to be considered and applied in all phases of the work, subsequently verifying their implementation.

8.1.1.3 Environmental Manager

The Environmental Manager (EM) shall:

- ensure that the Project activities comply with the requirements of environmental legislation;
- provide guidance to the Environmental Team and the Project on environmental management;
- be overall responsible for the implementation and monitoring of the environmental program;
- monitor the implementation of the environmental management requirements as described in this Plan;
- ensure support to the PM in relations with the Client and with the relevant environmental bodies;
- report environmental incidents to the Client and implement corrective actions of the PoA Decommissioning CEMP when necessary;
- be responsible for ensuring that the PoA Decommissioning CEMP is developed in a timely manner and in accordance with applicable national legislation, current authorizations and international best practices;
- ensure that adequate knowledge is provided to all workers and interested parties regarding the contents of this Plan;
- ensure that adequate training on the contents of this procedure are identified, developed and provided;
- ensure that any corrective actions are correctly identified and implemented;
- identify and develop specific environmental campaigns to raise awareness of environmental issues;
- develop environmental incident management procedures and spill response plans to ensure a rapid and effective response in the event of an environmental incident.

8.1.1.4 Construction Manager

With the support of PHSEM and EM, the Construction Manager (CM) is responsible for:

- ensuring that the planning and programming of the Project take into account the environmental management aspects, coordinating to this end with the other organizations and functions involved in the implementation of the Project and ensuring the most appropriate solutions;

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- ensuring the coordination of the environmental management activities with the other Project plans and programs, the Construction Plans, defining the construction methods, logistics, activity programming, tools and control methods;
- participating, as far as it is competent and in conjunction with PHSEM, in the development, updating and adjustment (if necessary) of the PoA Decommissioning CEMP.

8.1.1.5 Field HSE Manager

In collaboration with CM, Project HSE Manager and Field EM, the Field HSE Manager (FHSEM) has the following responsibilities:

- ensure adequate resources and facilities provided at Site for HSE management in compliance with national legislation and international standards;
- provide training and awareness to all relevant workers to ensure proper implementation of the HSE management plans and procedures;
- monitor Site conditions to ensure that HSE mitigation measures are being implemented;
- monitor the correct implementation of HSE procedures on site;
- coordinate the HSE inspections and audits, ensure the follow-up actions.

8.1.1.6 Field Environmental Manager

The Filed EM's responsibilities include:

- ensuring compliance of the PoA Decommissioning CEMP with the requirements of the Contractor and the Company;
- verifying the implementation of the PoA Decommissioning CEMP for construction site activities;
- verifying the implementation of the requirements contained in the environmental permits;
- participating in accident investigations;
- planning and supervising the application of environmental procedures;
- updating and providing training on environmental issues;
- planning and carrying out environmental audits, checks and inspections;
- managing environmental reporting for the Contractor;
- developing and updating the PoA Decommissioning CEMP in relation to possible legislative changes or operational activities;
- ensuring that all personnel are aware of the environmental management strategy in the following Plan and comply with it;
- planning and carrying out environmental emergency response drills;
- participating in the analysis of the causes of any accidents and ensuring the collection of data;
- carrying out the analysis of environmental data and formulating the necessary improvement proposals;
- ensure control over the correct compilation of documentation in compliance with current legislation;
- keep all documents relating to environmental management archived, organized and available for reporting and auditing.

8.1.1.7 Workers

All personnel are responsible for their environmental performance during the Project.

As a minimum, personnel are expected to:

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- comply with the requirements of applicable environmental legislation and environmental authorities, including the specific requirements of Project approvals and supporting documentation;
- be responsible for their environment and for fully complying with all plans, procedures and other work instructions applicable to their work activities;
- undertake activities in an environmentally responsible manner;
- undertake activities in accordance with agreed environmental management plans, procedures and working method statements;
- ensure they are aware of the identity of key persons relevant to environmental management on the site;
- report any non-compliance with the PoA Decommissioning CEMP, environmental management procedures or regulatory approval requirements where identified;
- report any incidents which have resulted in, or may potentially result in, environmental damage;
- ensure they attend any environmental training provided relevant to their role and responsibilities.

8.1.1.8 Subcontractors

All environmental requirements for which the Contractor is responsible fall to the Subcontractors, which shall carry out their activities in accordance with the regulatory provisions, this Plan and the ongoing environmental authorization process.

Each Subcontractors shall have an operational site structure (e.g. presence of a Field EM) adequate to guarantee complete and efficient control of the environmental aspects of the field and to carry out the necessary management and coordination activities for these issues.

Contractor will provide each Subcontractor with the copy of this document prior to start of their activities and organize additional trainings to all Subcontractors, if required. Subcontractors are responsible to Contractor for respecting the provisions of this document and are subject to Contractor's supervision and audits. Subcontractors are responsible to provide Contractor with the data of their environmental performances.

8.2 Competence, Training and Awareness

The Principal Contractor shall ensure that appropriate awareness training is delivered to all site operatives and only appropriately qualified Subcontractors are appointed.

Every member of the workforce shall be required to participate in a site induction prior to starting work on the site. The level of induction training will depend upon the position and duties the person is to perform. The site induction will include:

- A brief overview of the works to be undertaken and any potential environmental aspects associated with the decommissioning activities.
- A summary of the sensitive environmental receptors near the site.
- An overview of the applicable environmental mitigation and pollution control measures.
- An overview of the health and safety management measures in particular emergency response procedures required at the site.

Company will require its Principal Contractor to provide continuing training and awareness raising of the workforce. This can be delivered in the form of Toolbox Talks tailored to the specific environmental mitigation

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measures required dependent on the work activities being undertaken and to raise awareness on environmental best practice.

Records of all inductions and Toolbox Talk deliveries shall be maintained at the site office. Copies shall be made available to the Company on request.

8.2.1 Internal Communication

The Principal Contractor's CM, Field EM or equivalent person and other relevant team members shall meet weekly to review the status of environmental aspects including but not limited to:

- Works activities underway and planned.
- Mitigation measures required to be implemented.
- Results of weekly inspections and any audit results/feedback.
- Any corrective and preventative actions required to be implemented.
- Identification of areas for continual improvement.
- Status of staff competence and training needs.
- Status of CEMP and of any required consent and approvals and the need for review and updating.

Company shall be informed of the outcome/minutes of all such meetings.

Additional and ongoing communication of environmental performance and requirements is to be determined by the Principal Contractor and provided as appropriate.

8.2.2 Notice Boards

The Contractor provides and maintains project environmental notice board(s) which are positioned to ensure all operatives can review the notice board a daily basis. The notice boards should be updated at least monthly. As a minimum, the notice boards shall contain:

- Clients Environmental Policy.
- Emergency contacts list.
- Relevant statutory and non-statutory advice and guidance.
- Description of the key environmental risks and intended risk mitigation measures.

These environmental notice boards will be situated in prominent positions including the main reception area of the site office.

8.2.3 Toolbox Talks

Toolbox Talks will be used to inform all site personnel of key information concerning the management of the site, procedures to be followed and expected standards / controls when working on the project. The Toolbox Talks will cover a broad range of topics including those related to best practice environmental management.

A record of Toolbox Talks will be kept on site, starting date, description of non-conformance, potential implications, proposed corrective actions, individual responsible and target data. Toolbox Talks shall include, but will not be limited to, instances where:

- There is a change to existing legislation, which requires an operation change.
- Site inspections or audits have identified corrective actions which require communicating.
- There are significant changes in environmental conditions i.e. heavy rainfall.

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The frequency and topics of the Toolbox Talks shall depend upon the phase construction. They shall be provided as often as necessary to address site-specific environmental requirements.

8.2.4 External Communication

The Principal Contractor, with the Company's agreement, will notify residents and relevant businesses of upcoming works at least two weeks before starting, typically via letter. A Liaison Officer may be appointed to handle inquiries and complaints, and a hotline or email may be provided during decommissioning stage.

All received complaints will be assessed and addressed promptly, aiming for same-day contact with the complainant. The CM or an equivalent person will be the contact for regulatory authorities, and any communications received will be reported to the Company immediately. A record of all communications will be maintained, with incident-related communications detailed in **Section 7.2** of this CEMP.

The workforce will be informed during induction to direct any public inquiries to the CM, who will document these and inform the Company's Project Team.

8.3 Documentation

The Field EM shall be responsible for documenting and retaining safe all suitable records relating to environmental issues at the site and/or arising from site operations. Documents shall be stored in a suitable manner and backups created to safeguard the records. The CEMP shall be controlled document and authorised latest version shall be signed and dated by the responsible person[s]. Other site data records and environmental management document would include, but not necessarily be limited to the following:

- Copies of relevant consents, permissions, or other approvals/ authorisations.
- Environmental data records including waste transfer notes/records of waste collection and treatment/ disposal.
- Records of any environmental incidents including actions taken and resolution.
- Records of all plant/equipment entering / leaving site together with any relevant compliance documentation (for instance in respect of noise or air pollutant emissions class).
- Copies of any enforcement notices or instructions issues by the local authority or statutory regulatory body.
- Record of any prosecutions pending or resolved, and any penalties enforced.
- Records of daily site inspections.
- Records of weekly/monthly audits and minutes of environmental team briefings.
- Records of staff training including site inductions and toolbox talks.

8.4 Monitoring

The Principal Contractor shall be responsible for managing environmental performance during all site works. This will be supported with a programme of monitoring, inspections and audits.

8.4.1 Daily Inspections

Daily inspections shall be undertaken by the Contractor and recorded as follows:

- Visual inspection of the site perimeter to check for dust deposition (evident as soiling and marking) on vegetation, cars and other objects.
- Visual inspection of the local haul roads to check their condition to ensure there is no build-up of dust or earth deposits liable to cause dust emissions as vehicles pass.

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- Vehicles, equipment and plant inspections shall be completed to check the absence of damage or maintenance issues and that it is correctly functioning.
- Visual inspection of all acoustic barriers / screening to check they are present and in good condition.
- Visual inspection of waste containers and waste storage areas to verify wastes are being correctly segregated and to confirm the absence of mixing of hazardous and non-hazardous wastes.
- Visual inspection of all site areas to ensure there is no deposited or wind-blown litter.
- If a waste collection is made, a check shall be made of the Waste Transfer Note / Hazardous Waste Consignment Note provided for the collection.

On all days when potentially dust emitting activities are being conducted, the level of dust generation shall be kept under constant review. A record shall be added to the official site diary when such activities are conducted, the dust emission conditions observed and when necessary, the mitigation measures taken.

Any elements of the site management found to be in an unsatisfactory condition during the site inspection shall be addressed on the day. In the event it is not possible to address the matter on the day it is raised; a note of the reason why shall be made on the inspection record sheet.

8.4.2 Audits

Only suitably trained and competent staff will be authorised to perform environmental audits.

Audits (or at a suitable frequency to be determined by the nature / duration of the work) of the worksites and Contractors shall be undertaken by or on behalf of the Company. All aspects of the environmental management at the site shall be assessed against this PoA Decommissioning CEMP. The audit shall include checks of the site records including the daily inspection record sheets, vehicle arrival logs and waste disposal paperwork. All audits shall be documented; where audit actions are raised, close out of these actions shall be assessed at the following audit.

An audit of an Environmental Management Process will be undertaken by the EM throughout the Project duration and will typically cover the activities identified in the above chapters.

8.4.3 Non-Conformity and Corrective Action

Where the Company has a concern or raises an issue for resolution, or where potential issues are raised from an inspection or audit of the site/ operations, or by a regulatory authority, the Contractor shall investigate the root cause and any implications arising from the issue and shall if necessary following discussion with the Company implement measures to rectify the problem.

The Contractor shall monitor the effectiveness of the corrective action and report the outcome to the client and where relevant the regulatory authority. All documentation of the issue/ event and corrective action/ outcome shall be retained by the contractor.

8.4.4 Data Reporting

The Principal Contractor may be required to submit the Company all relevant data on the following (list non exhaustive):

- Energy usage (i.e. electricity meter readings and diesel generator fuel used/delivered to site).

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- Water consumption (i.e. water meter readings or bowser water deliveries to site).
- Waste collections.
- Heavy Duty Vehicles entering/leaving site.

The Principal Contractor shall comply with any additional reporting requirements that may be introduced through the conditions of any agreements or permits.

8.5 Review and updates

A management review of the performance of the Environmental Management System will be undertaken yearly and will include the Company's PM and senior management (as a minimum this should include the PD, HSEQ Manager and senior corporate representative) key personnel including the Field Environmental Manager.

Matters such as staffing, training, matters arising from audits and inspections and performance against Key Performance Indicators (KPIs) will be discussed and where there is a shortfall in performance, actions shall be agreed to rectify this.

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APPENDIX A – INVASIVE NON-NATIVE SPECIES MANAGEMENT PLAN

Liverpool Bay CCS Ltd

HYNET CARBON DIOXIDE TRANSPORTATION AND STORAGE PROJECT - OFFSHORE

Environmental Statement

Volume 4, appendix T: Invasive Non-Native Species Management Plan



EHE7228B
Liverpool Bay CCS Limited
Final
February 2024
Offshore ES
Invasive Non-Native
Species Management Plan

Document status					
Version	Purpose of document	Authored by	Reviewed by	Approved by	Date
FINAL	Final	RPS	Eni UK Ltd	Eni UK Ltd	February 2024

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Prepared by:

RPS

Prepared for:

Liverpool Bay CCS Limited

Glossary

Term	Meaning
INNS	Any non-native animal or plant that can spread causing damage to the environment, the economy and human health.
Non-native Species	The equivalent of 'alien species' (as used by the Convention on Biological Diversity (CBD)) and 'non-indigenous species' (as used by the OSPAR Commission and the UK Marine Strategy); it refers to a species intentionally or unintentionally introduced outside its native range by human actions.
Project	The HyNet Carbon Dioxide Transportation and Storage Project.
Proposed Development	The offshore components of the Project which are subject of this Environmental Statement, as described in Chapter 3: Proposed Development Description.

Acronyms and Initialisations

Acronym/ Initialisation	Description
CBD	Convention on Biological Diversity
CCS	Carbon Capture Storage
CMS	Construction Method Statement
CO ₂	Carbon Dioxide
EIA	Environmental Impact Assessment
ES	Environmental Statement
EMP	Environmental Management Plan
HRA	Habitats Regulations Assessment
INNS	Invasive Non-Native Species
INNSMP	Invasive Non-Native Species Management Plan
LAT	Lowest Astronomical Tide
MCAA	Marine and Coastal Access Act
MHWS	Mean High Water Springs
MMMP	Marine Mammals Mitigation Plan
MMV	Monitoring, Measurement and Verification
PDE	Project Design Envelope
PWA	Pipeline Works Authorisation
SAC	Special Area of Conservation
UK	United Kingdom
WFD	Water Framework Directive

Units

Unit	Description
m	Metre (distance)
km	Kilometre (distance)
kV	Kilovolt (electrical potential)

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1 INVASIVE NON-NATIVE SPECIES MANAGEMENT PLAN

1.1 Introduction

1.1.1 Background

This Invasive Non-Native Species Management Plan (INNSMP) has been prepared by RPS on behalf of Liverpool Bay CCS Ltd (the Applicant) to support the Environmental Statement (ES) for the HyNet Carbon Dioxide Transportation and Storage Project - Offshore (hereinafter referred to as the 'Proposed Development'). This INNSMP considers the installation, operation and maintenance and decommissioning of the Proposed Development within the waters of Liverpool Bay (Figure 1.1).

Several invasive non-native species (INNS), including the high – medium risk American lobster *Homarus americanus*, Chinese mitten crab *Eriocheir sinensis*, the kelp wakame *Undaria pinnatifida*, Japanese skeleton shrimp *Caprella mutica*, wireweed *Sargassum muticum* and Pacific oyster *Crassostrea gigas* have been recorded within Liverpool Bay (Hurst, 2016; Solway Firth Partnership, 2015) although the majority of records were only single or a few individuals found within ports and harbours.

This management plan has been drawn up using the Precautionary Principle to assess the risk of the introduction and spread of INNS associated with the Proposed Development and to present appropriate measures to minimise these risks as much as possible following best guidance (GB INNS, 2023; Cook *et al.*, 2014; Payne *et al.*, 2015). Furthermore, the INNSMP addresses a comment made within the Scoping Opinion by The Offshore Petroleum Regulator for Environment and Decommissioning whereby:

'Section 7.2.7: Potential Mitigation, where it states 'Compliance with available guidance on mitigating the introduction and spread of INNS', we advise that a full Biosecurity Risk Assessment and Invasive Non-Native Species (INNS) Management Plan is completed in relation to all marine operation activities associated with the Project. The risk assessment and management plan should include consideration of all activities, vehicles and equipment used as well as how the risk will be minimised through appropriate mitigation and adherence to best-practice guidance and management measures. The risk assessment should include a review of all the available data in relation to the presence of marine INNS where applicable to the Project, and the potential risks associated with each species identified.'

1.1.2 Scope

The scope of the INNSMP is for the activities taking place within the Proposed Development seaward of Mean High Water Springs (MHWS). This INNSMP considers the installation, operation and maintenance and decommissioning of the Proposed Development within the waters of Liverpool Bay (Figure 1.1).

1.1.3 Purpose

This document provides an outline INNSMP aimed at providing an overview of the aspects that will form the basis of the INNSMP. The INNSMP will be further developed post-application in advance of the construction phase of the Proposed Development.

The purpose of the INNSMP is to set out the approach to INNS management and mitigation in respect of the Proposed Development. The management plan will provide an outline of the measures proposed to be implemented to facilitate biosecurity control and to minimise potential impacts on the local and wider environment.

The INNSMP will ensure all procedures pertaining to marine works (including construction, operation and maintenance and decommissioning of subsea structures) and vessel operations follow best practice guidance,

preventing and reducing the risk of the possible spread or introduction of INNS into the waters of the Proposed Development.

The method employed follows the principles of the ‘Great Britain (GB) INNS Strategy’ (GB NNSS, 2023). The INNS Strategy follows a hierarchical approach which emphasises prevention, followed by early detection and rapid response, and finally long-term management and control. The key outcomes of the GB INNS Strategy are that by 2030 it will have achieved:

- **Prevention:** reduce establishments of INNS by at least 50% compared to 2000 levels.
- **Surveillance, early detection and monitoring:** significantly improve our detection and monitoring capability, including increasing inspections and investigations.
- **Management:** eradicate, control or contain INNS – prioritised by greatest impact and the likelihood of success.
- **Prioritisation and risk analysis:** set out an agreed approach to the prioritisation of species based on risk and likelihood of success to ensure our efforts are focused on where they can achieve the greatest benefit.
- **Evidence:** commission the research priorities outlined in the Evidence Strategic Plan, to ensure that the strategy is based on the best available evidence and identify gaps and priority areas for further development.
- **Awareness raising:** increase awareness of INNS issues and promote appropriate changes in behaviour or attitudes throughout all relevant sectors and among the general public.
- **Coordination:** improve coordination of actions within governments, government-associated bodies, and key actors outside government.

This INNSMP will be finalised prior to construction and will remain a ‘live’ document throughout the lifetime of the Proposed Development, with periodic updates by the Applicant during the construction, operational and maintenance, and decommissioning phase, as outlined within Section 1.4.7 (Evaluation and Review).

1.1.4 Document structure

The INNSMP is structured as follows:

- Section 1.2: Project Description;
- Section 3: Legislative Context and Consenting Process
- Section 4: Invasive Non-Native Species Management Plan Methodology; and
- Section 5: Invasive Non-Native Species Management Plan.

1.2 Project Description

This section provides the project characteristics, policies and consents relevant to the Proposed Development for the management of INNS, and how this INNSMP links with other management plans.

1.2.1 Proposed Development location

The Proposed Development is located in the Irish Sea, within Liverpool Bay, approximately 12 km to the north of the Welsh coastline and 2 km west of the English coastline. It covers an area of approximately 576.82 km². The application for a marine licence for the Proposed Development is shown as a red line boundary which encompasses all the planned and modified infrastructure (Figure 1.1). This includes the pipeline and cables corridor (up to Mean High Water Springs (MHWS)). The pipeline and cables corridor shore approach are located to the north of Talacre in Flintshire, Wales based at the mouth of the Dee Estuary (Figure 1.1).

1.2.2 Proposed Development characteristics

The key offshore infrastructure of the Proposed Development will include both new and repurposed existing infrastructure. The new and re-purposed infrastructure will be located within the Proposed Development (Figure 1.1).

The key offshore infrastructure of the Proposed Development will include:

- New Infrastructure:
 - Installation of a new Douglas CCS platform to replace the existing Douglas Process platform to receive CO₂ from the onshore Point of Ayr (PoA) Terminal and distribute CO₂ to the Hamilton Main, Hamilton North, and Lennox wellhead platforms and when necessary, provide heating to the CO₂ stream. Installation of the new Douglas CCS platform will include up to eight driven piles.
 - Installation of new sections of pipeline to connect the new Douglas CCS platform and the existing subsea natural gas pipelines.
 - Installation of new topsides on the Hamilton Main, Hamilton North, and Lennox wellhead platforms to receive and inject CO₂ into the depleted hydrocarbon reservoirs.
 - Implementation of a programme of Monitoring, Measurement and Verification (MMV) activities - This includes the drilling of two new monitoring wells, one at Hamilton North and one at Hamilton Main.
 - Installation of two submarine 33 kilovolt (kV) power cables, with integrated fibre-optic cable connections (35 kilometres (km) from PoA Terminal onshore to the modified Douglas platform, including within the intertidal/foreshore area up to MHWS, within Welsh waters only).
 - Installation of new submarine 33 kV power cables with integrated fibre-optic connecting the modified Douglas platform with the Hamilton Main (12 km; 33 kV), Hamilton North (15 km; 33 kV) and Lennox (35 km; 33 kV) platforms.
 - Installation of cable and/or pipeline protection, at crossings of existing cables, and in areas where cable burial is not deemed feasible, or as a remedial secondary protection measure if the target cable depth of lowering cannot be achieved.
- Repurposing infrastructure:
 - Repurposing of the existing subsea natural gas pipelines for their change of use from hydrocarbon to CO₂ service.
 - Development of the Hamilton Main, Hamilton North and Lennox reservoirs for CO₂ storage through the drilling and re-completion of injection wells by side-tracking existing production wells. This includes drilling and recompletion operations, all of which will be within the existing footprint (template) of each platform.
 - Implementation of a programme of MMV activities - Additional monitoring wells will be created from the recompletion of existing wells within the existing footprint (template) of each platform: one monitoring well created by side-tracking an existing well in Lennox; and two sentinel wells, one in Hamilton North and one in Lennox.

To facilitate the construction, operation and maintenance, and decommissioning of the Proposed Development, vessels will be used.

For further information on the Project Description, see volume 1, chapter 3 of the ES.

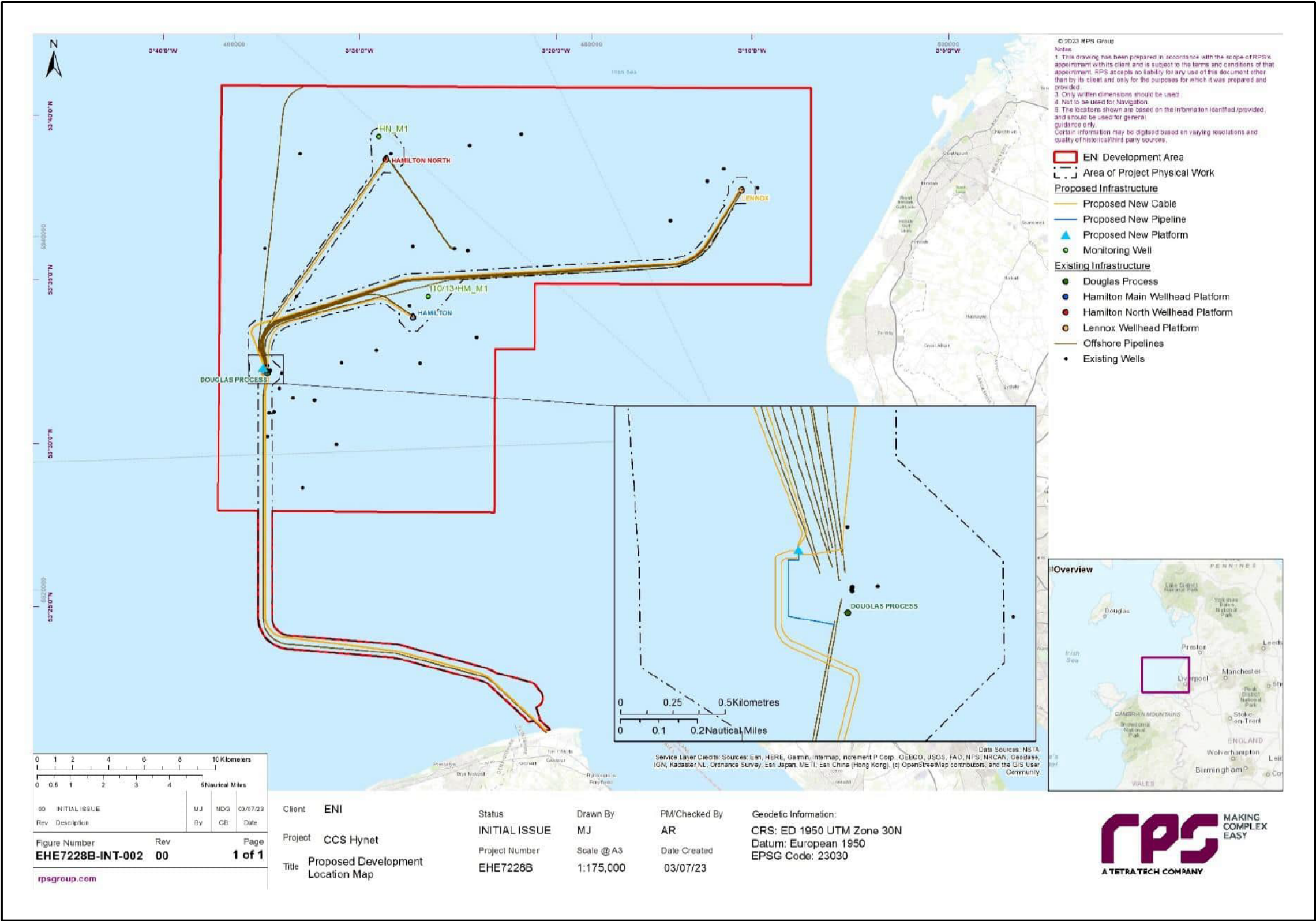


Figure 1.1: Location Overview Of The Proposed Development

1.3 Legislative context and consenting process

1.3.1 Policy

1.3.1.1 International

Convention on Biological Diversity (CBD)

This convention arose from the United Nations Conference on Environment and Development held in Rio in 1992. Within the framework of the convention, there are 15 Guiding Principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species. These principles provide an international framework for governments and other organisations to develop effective strategies to prevent the introduction, control and eradicate invasive non-native species. Article 8(h) states that each Contracting Party shall prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.

Acknowledging the growing threat from INNS, the CBD has provided a major driver for international action. One of its guiding principles calls for national strategies on INNS. In response to this, devolved governments across the UK have produced the 'GB INNS Strategy' (GB NNSS, 2023) as described in Section 1.1.3. This Strategy provides the framework to support the coordination of policy and action across GB and aligns these efforts with national and international biosecurity and environmental strategies.

1.3.1.2 National

EU Regulation (1143/2014) on the prevention and management of the introduction and spread of invasive alien species.

EU Regulation 1143/2014 was retained in domestic law under the European Union (Withdrawal) Act 2018. It was amended through several statutory instruments to ensure operability following the UK's exit from the EU but applies to Great Britain only.

This Regulation sets out rules to prevent, minimise and mitigate the adverse impact on the biodiversity of the introduction and spread within the Union, both intentional and unintentional, of invasive alien species.

The Invasive Alien Species (Enforcement and Permitting) Order 2019

The Invasive Alien Species (Enforcement and Permitting) Order 2019 came into force on 1 December 2019 and pertains to England and Wales. It contains provisions relating to offences, penalties, enforcement, licensing and permitting to meet the requirements of the Regulation.

1.3.2 Consents

This section provides a summary of the consenting process and associated legislative requirements being followed for the Proposed Development.

Table 1.1 sets out the permits and licences pertinent to the Proposed Development and to which the following legislation applies. The applications will be supported by an ES, as well as a Water Framework Directive (WFD) assessment, and a Report to Inform Appropriate Assessment (RIAA).

Should additional pre-construction licences be required, these will be discussed and agreed upon with the relevant consent authority during the pre-construction phase of the Proposed Development.

Table 1.1: Consents Applicable To The Proposed Development

Activity	Permit / Licence / Requirement	Key Legislation
Benthic Ecology Baseline Surveys: – Intertidal Benthic Survey – Subtidal Benthic Survey	- Marine Licence (Band 1) from Natural Resources Wales-Marine Licensing Team (Marine Management Organisation exemption) - OPRED Survey Notification - Crown Estate seabed survey licence	Marine and Coastal Access Act (MCAA) 2009
Pipeline repurposing / Installation of new pipeline spools to new platform	- Pipeline Works Authorisation updates/renewals for the repurposed pipeline - Marine Licence Band 3	- The Pipeline Safety Regulations 1996 - The Offshore Chemicals Regulations 2002 (as amended) - MCAA
New Platform Installation	- Marine Licence Band 3 - Consent to Locate for fixed installation	- MCAA 2009 - Energy Act 2008
Drilling	Master Application Templates and Subsidiary Application Templates for new wells, side-track drilling and well intervention	- Offshore Oil and Gas Exploration, Production, Unloading and Storage (Environmental Impact Assessment) Regulations 2020 - The Offshore Chemicals Regulations 2002 (as amended) - Part 4A of The Energy Act 2008 (as amended) - The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (as amended) - Consent for a Marine Geological Survey or Investigation under The Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001 (as amended)
Environmental Impact Assessment	- Scoping - ES Production - Screening and appropriate assessment - WFD assessment - Submission and Public Notice	- The Offshore Oil and Gas Exploration, Production, Unloading and Storage (Environmental Impact Assessment) Regulations 2020; - The Offshore Environmental Impact Assessment (The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)); - Habitat Regulations Assessment (Conservation of Habitats and Species Regulations 2017 (as amended); Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)); - EU (Withdrawal) Act 2018 - The Habitats and Birds Directive - Water Framework Directive;
Carbon Storage	- Carbon Dioxide Appraisal and Storage Licence already awarded by Oil and Gas Authority (now North Sea Transition Authority) - Crown Estate Lease - Carbon Storage Permit	Energy Act 2008

Activity	Permit / Licence / Requirement	Key Legislation
Cable Laying and associated activities	• Marine Licence Band 3 in Welsh Waters • Pipeline Works Authorisation for inter-platform cables in English Waters	• MCAA 2009 • The Pipeline Safety Regulations 1996 • The Offshore Chemicals Regulations 2002 (as amended)

1.3.3 Linkages with other consents management plans

The INNSMP is consistent as far as possible with other relevant consent management plans prepared to inform the implementation of the Proposed Development. Additionally, management plans will be added as and when available. These are set out in Table 1.2 below with details of the linkages presented.

Table 1.2: Linkages With Other Consent Management Plans

Consents Management Plan	Linkage with the INNSMP
Environmental Management Plan (EMP)	The EMP provides the overarching framework for environmental management during the construction, operational and maintenance, and decommissioning phases of the Proposed Development. This can include proposed monitoring, methodologies and timings, along with a range of management plans including stakeholder engagement, traffic, waste, emergency response, invasive non-native species management and decommissioning and restoration.

1.4 Invasive Non-native Species Management Plan Methodology

This section outlines the process of creating an INNSMP using the best available evidence and following best practice guidance (Cook *et al.*, 2014, Payne *et al.*, 2015). To make an accurate risk assessment of the Proposed Development, and derive a suitable INNSMP, a stepwise approach was taken as outlined in Figure 1.2 and described in detail below.

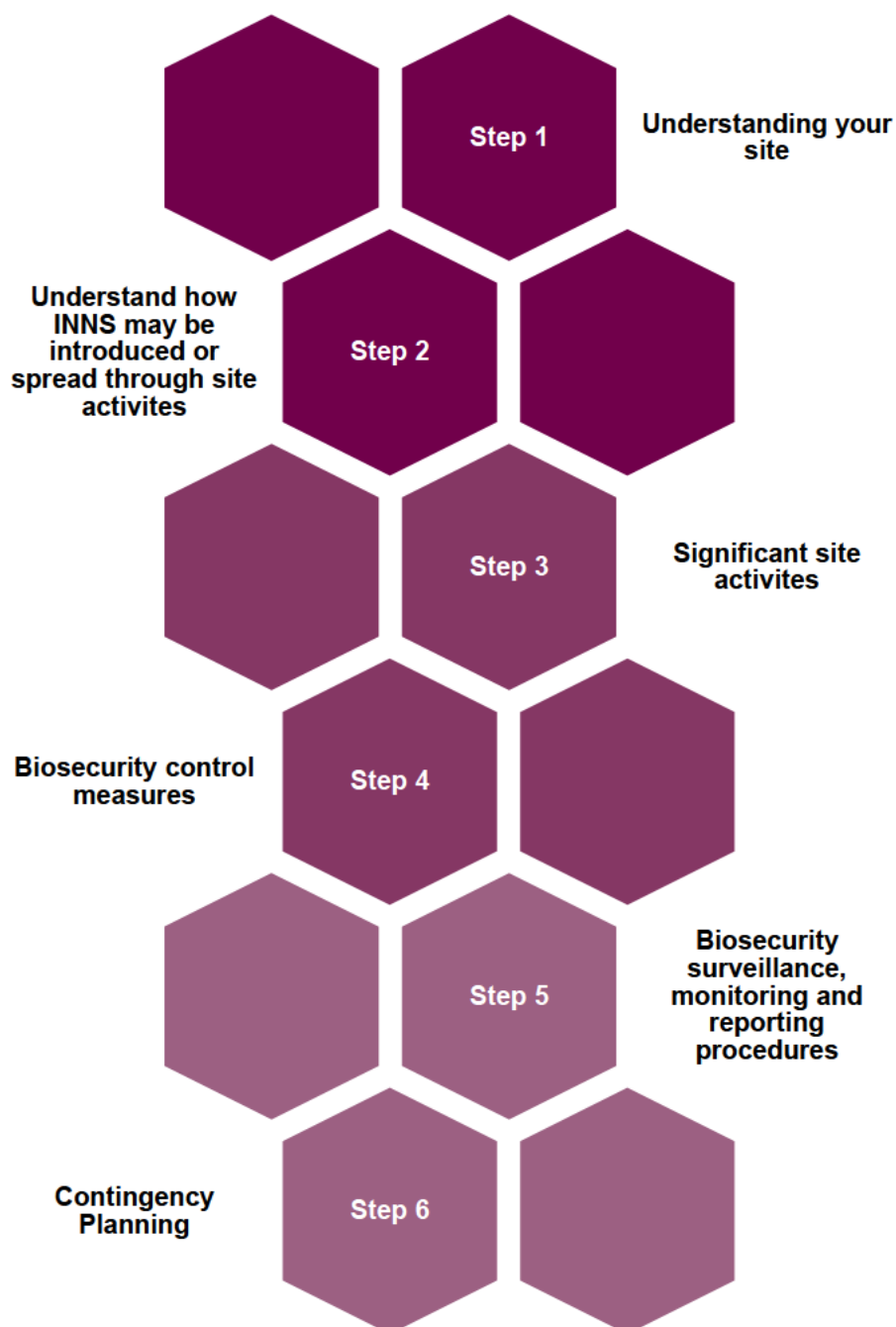


Figure 1.2: Six Steps Used To Produce The INNSMP For The Proposed Development

1.4.1 Step 1: Understanding your site

The first step in creating an INNSMP is to provide a detailed description of the site. This information should include the environmental conditions of the site, such as salinity, depth and the availability of hard substrate (Zaiko, 2007), details of any man-made structures, and if INNS are present within the site.

Understanding the salinity of the site will determine if INNS are present. The majority of marine flora and fauna are unable to tolerate freshwater due to osmoregulatory effects leading to death (Evans, 1980). An increased volume of freshwater flowing into a site will likely result in less hospitable conditions, decreasing the risk of INNS on-site; conversely, a fully marine site tends to represent a greater risk of INNS introduction to communities of native species (Tang *et al.*, 2022).

The depth profile of a site can influence the ability of a species to colonise a site. Species live within an ecological range of tolerances, should a site be too deep for a species to live there, then it won't establish. Equally, within shallow environments, periods of tidal inundation and air exposure may decrease the likeliness of a species to establish.

The establishment of a species can also be influenced by the presence of a suitable hard substrate, for more sessile-encrusting organisms (Zaiko, 2007). Should a site only have gravel or sand present, then the likeliness of an INNS that requires a hard substrate to establish is reduced. Therefore, the presence of artificial structures increases the risk of INNS establishment, even if the structure has only been present for just a few weeks as INNS are quick to establish populations (Bax *et al.*, 2003). Information related to any slow or stationary periods of work or climatic conditions that may increase biosecurity risk should be included.

If INNS have been found on-site, then the INNSMP should focus on reducing the risk of introducing new INNS and consider how to prevent the spread of existing INNS to other sites. Throughout the whole process, the precautionary principle should be followed, even if no INNS are present on site.

Using this information, a site can be assessed as having a low or significant risk of introducing or spreading INNS. Table 1.3 provides an example of this.

Table 1.3: Example Of Low And Significant-Risk Sites (Payne *et al.*, 2015)

Low-Risk Site	Significant Risk Site
- Supply of fresh water from a local river. - Isolated from surrounding environments by walls or breakwaters (i.e. closed or semi-enclosed areas with little to no flow of water). - Anti-fouling is used on artificial structures with periodic removal for air drying.	- Full salinity with no freshwater inflow. - Artificial structures have no antifouling coating with no management in place for maintenance. - The site has connectivity to similar environments.

1.4.2 Step 2: Understand how INNS may be introduced or spread through site activities

In addition to understanding the site, consideration of pathways by which INNS may be introduced or spread is needed. This step should be iterative and revisited when the INNSMP is due for review. The questions and associated risks included in Table 1.4 have been adapted from Payne *et al.* (2015) and provide the type of questions to consider when creating an INNSMP.

Table 1.4: Example Of Questions And Risks To Consider Whilst Creating An INNSMP (Payne *et al.*, 2015)

Question	Yes = High	Yes = Medium	Yes = Low
1. Has the vessel/ equipment just arrived from the local area?			
2. Has the vessel/ equipment had an anti-fouling coating applied to submerged structures within the last 12 months (or the time recommended by the manufacturer)?			
3. Are all the visible submerged surfaces of vessels or equipment to be deployed free of biofouling (a green 'slime' is OK)?			
4. Do the visible submerged surfaces of vessels or equipment to be deployed have more than a green 'slime' coating?			
5. Does the vessel or equipment to be deployed have noticeable clumps of algae and/ or animals clinging to the visible parts?			
6. Has the vessel/ equipment just arrived from another country or region with similar environmental conditions (e.g. seawater temperature)?			
7. Has the vessel/ equipment just arrived from a water body known to have INNS present?			
8. Does the vessel/ equipment spend long periods of time stationary at sites in between anti-fouling treatments?			
9. Is the vessel 'slow moving', such as a construction barge or drilling rig?			

For example, a recreational vessel showing no signs of biofouling on the hull or below the waterline would be considered a low risk for introduction of INNS; conversely, a work vessel/barge that moves from site to site and is present on site for long periods may have a medium–high risk, and therefore a significant risk of introducing INNS to site. For this step, information on the vessels and equipment to be used will be obtained from the Project Description, see volume 1, chapter 3 of the ES. A condition assessment of all vessel/equipment to be used will be performed based on the questions in table 3.2. Any results from this assessment that fall within the 'Low' category will be assessed as 'Low' Risk. Any results that fall within the 'Medium' or 'High' category will be assessed as a 'Significant' Risk. This is considered to present a conservative approach to assessing the risk of introducing INNS.

1.4.3 Step 3: Identify significant site activities

The outputs from Step 2 will be used to compile a list of all the significant risks of introducing INNS as a result of the Proposed Development. This will include all vessels and equipment and the associated activities which have been assessed as being of significant risk of introducing INNS and their associated activities within the different phases of the Proposed development. Once this list has been created, the next step is to develop relevant and proportionate control measures.

1.4.4 Step 4: Biosecurity control measures

The outcomes of Steps 1 – 3 will be used to guide the biosecurity measures which should be implemented. Measures to control the introduction or spread of INNS must be effective, clear, realistic and easy to communicate to others. These measures must also consider how much control is enforceable over the site. A list of example control measures can be found within Cook *et al.* (2014), and Payne *et al.* (2015), many of which are included in the INNSMP (see section 1.5.4). Where possible, biosecurity measures should be included in the in-design stage of a new development and aim to 'design out' any possible significant risk of introducing or spreading INNS.

1.4.5 Step 5: Biosecurity surveillance, monitoring and reporting procedures

This step will outline what procedures should be followed in the event of discovering and positively identifying an INNS on-site. All staff and other site users should be encouraged to report any unusual sightings to the biosecurity officer.

1.4.6 Step 6: Contingency plan

In the event of the failure of the 'prevention', 'early detection' and 'rapid response' methods to effectively manage INNS introduction (section 1.5.6), a contingency plan will be created. This document should be short, provide a step-by-step approach to action and be accessible to all staff. This plan will review the identified listed activities, identify potential biosecurity control failures and recommend actions for effective management. For example, if a vessel had been wrongly assessed as low risk and introduced an INNS to the site, the introduced species would be sampled and identified, with the relevant authorities notified, followed by further containment and management measures being sought.

1.4.7 Evaluation and review

Following completion of the INNSMP, a clear recording system and review cycle date will be put in place to refine and update the INNSMP as required in line with relevant regulations and legislation.

1.5 Invasive Non-Native Species Management Plan

1.5.1 Step 1: Understanding your site

1.5.1.1 Site description

The Proposed Development is located in Liverpool Bay in the Irish Sea, covering an area of about 576.82 km². It is positioned 12 km north of the Welsh coast and 2 km west of the English coast. The marine licence application area for the Proposed Development is shown as a red line boundary which encompasses all the planned and modified infrastructure including the pipeline and cables corridor up to MHWS, near the mouth of the Dee Estuary. The cable and pipeline make landfall within the Dee Estuary SAC. For further information see Section 1.2.1.

1.5.1.2 Environmental conditions affecting biosecurity

Liverpool Bay is a region of freshwater influence with strong horizontal density gradients. The bay is also strongly tidally dominated, with a high tidal range and extensive intertidal areas. Freshwater enters Liverpool Bay from several rivers, including the Mersey, Dee, Ribble, Conwy and Clwyd, which collectively maintain a strong salinity gradient and freshwater plumes (Bricheno *et al.* 2014; Polton *et al.*, 2011; Howarth and Palmer, 2011).

The Proposed Development is located in water depths that range from 0.72 m Lowest Astronomical Tide (LAT) to 35 m LAT, with average water depths across the development area being approximately 20 m LAT. Shallower water is generally present towards the southern and eastern boundaries of the Proposed Development, including the pipeline and cables, situated in inshore waters.

Tidal currents in the area are relatively weak, with spring tides indicating a current flow speed of up to 1m/s, flooding to the east, and ebbing to the west, at a current flow speed of circa 0.8 m/s, as determined through the desktop study for volume 2, chapter 6 of the ES.

The 2019 EUSea Map datasets, describe the Proposed Development area as being composed predominantly of EMODnet seabed substrate folk classification 311 gravelly Sand, 212 (gravelly) Sand, and 211 Sand (EMODnet, 2019). Fine and sandy sediments are dominant in inshore waters and particle sizes range from

260 to 420 µm in areas with stronger currents and from 190 to 250 µm in areas with contrasting, weaker currents (Eni, 2019). This has been corroborated through volume 2, chapter 6 of the ES.

Overall, the influx of freshwater into Liverpool Bay and through the Proposed Development is likely to reduce the presence of INNS. Furthermore, tidal currents and a higher proportion of sand fractions, with no rock, found throughout the Proposed Development are likely to reduce the likeliness of INNS being present within the area. Therefore, the environmental conditions of the site can be assessed as **Low-Risk**.

1.5.1.3 Man-made structures

Section 1.2.2 listed the existing hard structures present within the Proposed Development area. These hard structures include the platforms, injection, monitoring and sentinel wells and pipelines. It is important to note that some of these structures may be buried, such as the power and fibre optic cables and pipelines. Furthermore, Gwynt y Mor offshore wind farm is located within the south-western most corner of the Proposed Development. These structures are likely to increase the potential for INNS to establish. Therefore, the presence of man-made structures are likely to increase the risk of INNS to the site and is assessed as a **Significant-Risk**.

1.5.1.4 INNS within the Proposed Development

The Proposed Development is located within the Dee Estuary Special Area of Conservation (SAC), which is primarily tidal rivers, estuaries, mud flats, sand flats and lagoons (including saltwork basins) (81% coverage). The SAC is designated for a range of Annex I habitats including mudflats and sandflats not covered by seawater at low tide, as well as Annex II species, such as sea and river lamprey (*Petromyzon marinus* and *Lampetra fluviatilis*, respectively). The Natura 2000 - Standard Data Form (JNCC, 2015) for the SAC identifies INNS as a high ranked negative impact pressure. However, it should be noted that this pressure is attributed to the terrestrial invasive saltmarsh species, common cord grass *Spartina anglica*. No marine INNS have, as of yet, been identified as a negative pressure on the Dee Estuary SAC.

National Biodiversity Network (NBN) data (2023) indicated no INNS are present within the Proposed Development area. However, within the wider area of the Proposed Development, Liverpool Bay is known to have INNS present within ports and harbours. As the Proposed Development will require the use of vessels during the construction, operational and maintenance, and decommissioning phases, INNS that have been identified within ports and harbours have been listed on a precautionary basis (Table 1.5).

Table 1.5: Non-Native Species Known To Be Present Throughout Liverpool Bay

	Non-native Species ¹	Environmental risk to native Great Britain species ²
Present throughout Liverpool Bay:	- American lobster <i>Homarus americanus</i> - Chinese mitten crab <i>Eriocheir sinensis</i> - Wakame <i>Undaria pinnatifida</i>	High Risk
	- Slipper limpet <i>Crepidula fornicata</i> - Japanese skeleton shrimp <i>Caprella mutica</i> - Wireweed <i>Sargassum muticum</i> - Pacific oyster <i>Crassostrea gigas</i>	Medium Risk
	Acorn Barnacle <i>Elminius modestus</i>	Risk not assessed / available

¹ Sources: Hurst (2016); Solway Firth Partnership (2015); NBN Gateway (2023).

² According to assessment by GB Non-Native Species Secretariat ([Risk assessment » NNSS \(nonnativespecies.org\)](#)).

Non-native Species ¹	Environmental risk to native Great Britain species ²
• Bay barnacle <i>Amphibalanus improvisus</i> • Bryozoan <i>Bugulina simplex</i> • Bryozoan <i>Bugulina stolonifera</i> • Carpet sea squirt <i>Didemnu vexillum</i> • Colonial sea squirt <i>Aplidium cf. glabrum</i> • Compass sea squirt <i>Asterocarpa humilis</i> • Chain Tunicate <i>Botrylloides violaceus</i> • Darwin's barnacle <i>Austrominius modestus</i> • Devil's tongue weed <i>Grateloupia turuturu</i> • Green sea fingers <i>Codium fragile fragile</i> • Polychaete <i>Goniadella gracilis</i> • Orange-striped anemone <i>Diadumene lineata</i> • Orange-tipped sea squirt <i>Corella eumyota</i> • Red ribbon bryozoan <i>Watersipora subatra</i> • Tufty buff byozoan <i>Tricellaria inopinata</i> • Trumpet tubeworm <i>Ficopotamus enigmaticus</i> • Leathery sea squirt <i>Styela clava</i>	

A species account has been provided for those with a high to medium risk:

- High Risk:
 - American Lobster: A large crustacean from the north-west Atlantic. Slightly larger than (but very similar to) the native lobster (GB NNSS, 2015). The species has been recorded in Solway, at Workington (Solway Firth Partnership, 2015).
 - Chinese mitten crab: The Chinese mitten crab measures up to 56 mm in carapace length. Its carapace has a square outline, tapering towards the front, and features four teeth on each side. The most prominent characteristic of this crab is the thick layer of hair covering its claws and legs. The species have been found to be distributed within the River Dee, Mersey, Ribble and at the mouth of the River Duddon (NBN Gateway, 2023).
 - Wakame: A large species of kelp native to Japan, which has a broad frond with fingered edges and a conspicuous midrib. The holdfast is compact and root-like, and the stipe above it bears many folded reproductive frills. Grows on hard substrates from low intertidal to approximately 18 m, tolerant of salinities as low as 20 (GB NNSS, 2019a). The species has been recorded in Liverpool Bay and is currently contained within Fleetwood Marina, located near Blackpool, however, it has increased in abundance in recent years (Hurst, 2016).
- Medium Risk:
 - Slipper Limpet: Shell is oval and up to 5 cm in length. The large shell opening has a shelf, extending half its length. Shell is smooth and white, cream, yellow or pinkish in colour with streaks or blotches of red or brown. The species is now distributed in Europe from Norway to the Mediterranean, with population explosions on the south and south-west England. Within Liverpool Bay, the species has been recorded along the north-west of Wales around Anglesey and at the mouth of the River Mersey (NBN Gateway, 2023).

- Japanese skeleton shrimp: An aggressive skeleton shrimp originally from northeast Asia, which is rapidly invading and has established populations in the North Sea, the West coast of Scotland and the Irish Sea (GB NNSS, 2012). The species has been recorded in Loch Ryan and can be found in harbours and marinas amongst fouling growth on boat hulls, ropes and nets where it can clog equipment and nets as well as outcompete native species (Hurst, 2016).
- Wireweed: A highly distinctive large olive-brown seaweed, often over 1m long. Its lateral branches hang like washing from a line when held out of the water. Wireweed competes with native seaweeds and sea grasses through rapid growth, shading and abrasion. It is a nuisance in harbours and shallow waters where it is a hazard to boating due to the entanglement of propellers (GB NNSS, 2019b). The species is distributed widely along the coasts of south and west England, Wales and West Scotland. It was first recorded in Scotland in Loch Ryan in 2004 and has since populated various areas further north up the west coast (Hurst, 2016).
- Pacific oyster: There are extensive beds of naturally recruited Pacific oysters in some southern estuaries of England and sparse settlements are known from the north coast of Wales near Conwy. Mature individuals were first recorded on the Galloway coast at Ravenshall in October 2012, Ross Bay in December 2012 and Balcary Bay in January 2013. A survey published in 2015 confirmed the Solway Firth to be an ideal habitat for the species although densities were low (Solway Firth Partnership, 2015).

Volume 3, Marine Biodiversity Technical Report (RPS Group, 2024) appendix I of the ES highlights the discovery of an INNS, the polychaete worm *Goniadella gracilis*, at the partially decommissioned station GS28 by Hamilton North (Figure 1.1).

The presence of INNS within and near to the Proposed Development area is considered to be of **Significant-Risk**.

Should any further INNS be recorded in the area prior to finalising the plan, these should be highlighted here, identifying the risk that each species represents to the UK's native species. Table 1.6 presents a summary of the results of Step 1.

Table 1.6: Summary Of The Site Risk Of The Introduction And Spread Of INNS

Site factor effecting risk of INNS	Assessment Result	Risk of INNS
Environmental conditions affecting biosecurity	The influx of freshwater into Liverpool Bay, tidal currents and a higher proportion of sand fractions, with no rock, found throughout the Proposed Development are likely to reduce the likeliness of INNS being present within the area. Therefore, the environmental conditions of the site can be assessed as Low-Risk.	Low
Man-made Structures	The presence of existing hard structures within the Proposed Development, as well as the presence of Gwynt y Mor offshore wind farm located within the south-westernmost corner of the Proposed Development are likely to increase the potential for INNS to establish. Therefore, the presence of man-made structures is assessed as a Significant-Risk.	Significant
INNS within the Proposed Development	NBN data (2023) indicated no INNS are present within the Proposed Development area. However, within the wider area of the Proposed Development, Liverpool Bay is known to have INNS present within ports and harbours. Additionally, volume 3, Marine Biodiversity Technical Report (RPS Group, 2024) appendix I of the ES highlights the discovery of an INNS, the polychaete worm <i>Goniadella gracilis</i> , at the partially decommissioned station GS28 by Hamilton North within the Proposed Development area. Therefore, the presence of this INNS is considered to be of Significant-Risk.	Significant

Given the results of Step 1 indicate two areas where the risk of INNS is significant, the INNSMP should focus on reducing the risk of further introducing new INNS and consider how to prevent the spread of existing INNS to other sites.

1.5.2 Step 2: Understand how INNS may be introduced or spread through site activities

1.5.2.1 Vessels and equipment to be used in the Proposed Development

Table 1.7 lists the vessels and equipment to be used for the Proposed Development with a 'risk' indicator for the potential to introduce or spread INNS. This risk assessment will be updated once the final project parameters have been confirmed and will be based on professional judgement, the final Proposed Development design, INNS present within the area (see Section 1.5.1), and available guidance.

The ES is based on the Proposed Development design parameters, which include the use of several vessels, planned infrastructure, such as cables and CO₂ injection, sentinel and monitoring wells, and the modification of existing installations (Figure 1.1). Additionally, there may be a requirement to use concrete mattresses and rock armour. These will be refined post-consent, such that the risk can be accurately assessed. As stated previously, this is a 'live' document and as such, if specific details of the Proposed Development undergo review or are changed, this document will be updated accordingly.

The results of Step 2 as presented in Table 4.2 indicate that the use of vessels in all phases of the Proposed Development presents a significant risk for the introduction of INNS. However, operational speeds of the vessels combined with the implementation of standard control measures to comply with relevant regulations such as MARPOL and those to manage ballast water will reduce the risk to low.

Man-made structures also present a significant risk to the introduction of INNS and given the identified presence of an INNS within the Proposed Development. Additional project specific control measures will be required to manage this risk.

Table 1.7: Vessel, Foundation Types, And Substrates To Be Used In The Proposed Development

Name	Type	Details & Risk factors	Risk before control measures: Low/Significant	Assumptions and Standard Control Measures	Risk after control measures: Low/Significant
Vessels (Construction phase)	Various	- Vessel types and sizes to be used in the construction phase for the: - Oil Platform and wells include: Main installation and support vessels, tug/anchor handlers, cargo barges, support vessels, survey vessels, pre-comm vessels, seabed preparation vessels and crew transfer vessels; and - Cables and pipe include: cable lay installation & support, vessels, jack-up, multicat, working boat, support vessel (for trenching), dsv/lcv (for cable pull-in), survey vessel, seabed preparation vessel, crew transfer vessel, cable protection installation vessel and cable burial installation vessel. - Indicative construction port: - Port of Belfast Shipyard, Belfast, N.Ireland, UK (150 nm from the Proposed Development), and - Arnish Point Yard, Isle of Lewis, Scotland, UK (380 nm from the Proposed Development), with the final decision still to be made.	Significant	Vessels will be slow moving during construction and are expected to come from the Port of Belfast, approximately 150 nm from the Proposed Development. Vessels will be required to have an anti-fouling coating, inspection history complying with relevant regulations (MARPOL Regulations) and to manage ballast water. Anti-fouling coating and adherence to the MARPOL regulations and ballast standards will reduce the risk of INNS being present on the hulls of vessels.	Low
Vessels (operation and maintenance)	Various	- Vessel types and sizes to be used in the operation and maintenance phase include a jack-up barge and a multi-purpose support vessel. - The indicative operation and maintenance port is yet to be confirmed.	To be confirmed	Vessels will be required to have an anti-fouling coating and inspection history complying with relevant regulations (MARPOL Regulations).	To be confirmed

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Name	Type	Details & Risk factors	Risk before control measures: Low/Significant	Assumptions and Standard Control Measures	Risk after control measures: Low/Significant
Vessels (Decommissioning phase)	Various	- Vessel types and sizes to be used in the decommissioning phase include decommissioning and support vessels, tug/anchor handlers, cargo barges, cable decommissioning and support vessels, survey vessels, and crew transfer vessels. - Indicative decommissioning port: - Port of Belfast Shipyard, Belfast, N.Ireland, UK (150 nm from the Proposed Development), and	Significant	Vessels will be slow moving when removing structures during decommissioning and are expected to come from the Port of Belfast, approximately 150 nm from the Proposed Development. Vessels will be required to have an anti-fouling coating, inspection history complying with relevant regulations (MARPOL Regulations) and to manage ballast water. Anti-fouling coating and adherence to the MARPOL regulations and ballast standards will reduce the risk of INNS being present on the hulls of vessels.	Low
New Infrastructure	- CCS platforms - Topsides	Infrastructure, pile jacket and topsides will be delivered via heavy lift vessel, crane or transport barge.	Low	The piles will be prefabricated at an onshore facility and delivered offshore by means of a transportation barge and are unlikely to come into contact with the water, (and therefore INNS), until installation.	Low
	Pipeline	A 595 m length of the pipeline is to be installed and laid on the seabed. This is likely to be transported via barge.	Low	The pipeline will be delivered offshore by means of a transportation barge and is unlikely to come into contact with the water, (and therefore INNS), until installation.	Low
	Monitoring Wells	Monitoring wells are to be drilled.	Low	INNS are unlikely to colonise the drilled wells.	Low
	Cables	Cables will be installed from onshore through to the connection point via the installation vessel.	Significant	Cables are to be installed throughout a wide range of environmental conditions and habitats, with vessels likely to have come from ports where INNS may be present. There is therefore an increased risk of introducing an INNS along the cable.	Low

Name	Type	Details & Risk factors	Risk before control measures: Low/Significant	Assumptions and Standard Control Measures	Risk after control measures: Low/Significant
				However, according to the Project Description cables are expected to be buried thereby mitigating any colonisation of INNS on the cable	
	Concrete Mattresses/ Other External Cable Protection	Concrete mattresses and other external cable protection will be installed at crossings of existing cables, and in areas where cable burial is not deemed feasible, or as a remedial secondary protection measure if the target cable depth of lowering cannot be achieved	Low	Concrete mattresses/ other external cable protection are to be delivered to the site via barge and will not come into contact with the water, (and therefore INNS), until installation.	Low
Repurposed infrastructure	- Repurposing of existing pipelines - Redevelopment of reservoirs - Recompletion of monitoring wells	Existing infrastructure is to be repurposed for the Proposed Development.	Significant	Volume 3, Marine Biodiversity Technical Report (RPS Group, 2024)appendix I of the ES has reported that one specimen, the polychaete worm <i>Goniadella gracilis</i> was recorded at the partially decommissioned station GS28.	Significant

1.5.3 Step 3: Significant site activities

Based on the results of Step 2, a list of the Proposed Development activities per phase, that may have a significant risk of introducing or spreading INNS is provided in Table 1.8. The assessment in Step 2 was derived from information provided in the Project Description and will be updated based on the final project design as explained in Step 2 (section 1.5.2), with these activities predicted to represent a significant risk of INNS introduction during the construction, operation and maintenance and decommissioning phases.

Table 1.8: Site Activities Which Have A Significant Risk Of Introducing Or Spreading INNS

Phase	Activity Description
Construction	• Presence of existing man-made structures that may have INNS present.
Operation and Maintenance	• Presence of man-made structures that may have INNS present. • Maintaining man-made structures and ancillary equipment that may have INNS present.
Decommissioning	• Removal of man-made structures and ancillary equipment that may have INNS present. • Cleaning and disposal of biofouling from man-made structures and ancillary equipment.

1.5.4 Step 4: Biosecurity control measures

This section provides information on site-specific risks and control measures associated with the Proposed Development.

1.5.4.1 Presence/maintenance/ removal of existing man-made structures that may have INNS present

Risk

This may pose one of the greatest risks of INNS spreading associated with the Proposed Development. New or clean surfaces, such as vessels and infrastructure are typically the first colonisation sites for INNS due to their ability to settle and rapidly proliferate, replacing native populations (Huxel, 1999). Newly available hard surfaces (e.g. new platforms and auxiliary infrastructure) associated with the Proposed Development may be susceptible to colonisation by INNS found at the partially decommissioned station GS28 (near Hamilton North and Hamilton) in the first few weeks/months after installation (Bax *et al.*, 2003).

Control measures

Any man-made structure to be used for the Proposed Development should be of terrestrial origin (i.e. not coming from another marine environment) and inspected for INNS prior to placement in the marine environment. During maintenance, the structure should be inspected for any INNS present, and if detected, then actions should be followed as presented in Section 1.5.6.

It should be noted that the INNS *Goniadella gracilis* is a species of polychaete worm, these worms are unlikely to adhere themselves to structures but will be inhabiting the surrounding sediments of the station GS28. As the species does not adhere to structures, this is likely to decrease the risk of spreading the INNS to other areas. However, caution should be advised if dredging within the vicinity of GS28 is required.

1.5.4.2 Cleaning and disposal of biofouling from structures during operation and maintenance activities and decommissioning

Risk

During routine operations and maintenance activities (e.g. jet washing of marine growth from the splash zone, or component replacement where required), there is potential for any established INNS to be detached from subsea structures. Where there is an identified risk that these activities may lead to the spread of INNS in the marine environment, additional control measures may be required.

Following the removal of marine structures during the decommissioning phase, INNS, if present, may still be attached to the surface. Should the INNS be removed without due care and washed back into the marine environment surrounding the Proposed Development, these INNS may represent a risk of spreading to areas previously unaffected.

Control measures

Where there is an identified risk that operation and maintenance activities (e.g. periodic cleaning of infrastructures) may lead to the spread of INNS (e.g. if there is a high risk that INNS are present on infrastructure), control measures may be required to minimise the amount of material entering the marine environment.

Large volumes of material detached or removed from decommissioned subsea infrastructure should be prevented from re-entering the marine environment. The material should be taken away and properly disposed of onshore. Control measures taken in relation to the disposal of biofouling will be aligned with the relevant Port Authority 'Waste Management Plan'.

Biosecurity action

Prior to the installation of subsea structures or operation of new vessels to the Proposed Development, the Applicant and their contractors must include the following biosecurity clauses in any contract agreement:

- The contractor must submit a Biosecurity Risk Assessment to the Project Environmental Manager at least six weeks prior to installation/operations; and
- The contractor must ensure that all equipment, materials, machinery, Personal Protection Equipment (PPE) and vessels used are in a clean condition prior to their arrival on-site to minimise the risk of INNS introduction into the marine environment.

1.5.4.3 Additional biosecurity measures

The Proposed Development has been assessed as Significant in Step 1, therefore, using the precautionary approach, additional biosecurity measures have been presented.

1.5.4.4 Using vessels from outside of the Proposed Development

Risk

Using vessels from outside the Liverpool Bay area poses a significant risk of introducing INNS to the area (Minchin and Gollasch, 2010), especially vessels coming from areas of a similar marine environment. Information on the origin of the vessels to be used in all phases of the Proposed Development will be included within the INNSMP once the exact details and origins of vessels are specified following the appointment of construction contractors.

Control measures

All vessels to be used for construction, operation and maintenance and decommissioning activities must follow the guidelines as directed by the 'Guidelines for the Control and Management of Ships' biofouling to minimize the transfer of invasive aquatic species³, and where applicable, to comply with the 'International Convention for the Control and Management of Ships' Ballast Water and Sediments'⁴.

1.5.5 Step 5: Biosecurity surveillance, monitoring and reporting procedures

Table 1.9 outlines who is responsible for carrying out certain checks of INNS, where these checks are to be carried out and when. Note that these positions are indicative, and roles and responsibilities will be confirmed upon contract award.

Table 1.9: Roles, Responsibilities, And Instructions For Staff, Contractors, And Site Users

Who	What	Where	When
Project Operations & Environment Manager - developers and contractors	- Oversee removal of flora and fauna from infrastructure, concrete mattress etc. and ancillary equipment, ensure material is properly disposed of and that no material is released into the water as per the relevant Port/Harbours 'Waste Management Plan'. - Awareness of INNS, including identification guidance on the key risk species. If uncertainty arises, follow the contingency plan.	At Port	Beginning of works
Project Operations & Environment Manager or appropriate contractor	- Oversee installation and removal of infrastructure, concrete mattress etc. and ancillary equipment, checking for INNS or unknown organisms. - For operations and maintenance, periodic checks should be carried out to ensure no growth/settlement of INNS, when possible. - Be aware of any slow-moving or inactive craft and take steps to assess risk. - Ensure a Check, Clean and Dry message is sent to any new developers or contractors. - Where possible, collaborate with the relevant port/Harbours and other users of Liverpool Bay to raise INNS awareness.	At Port	Beginning of works
Developers and contractors	- Confirm the origin of the material used in infrastructure, concrete mattress etc. and ancillary equipment (i.e. terrestrial origin, not previously submerged in marine water). - Encourage 'toolbox' talks on INNS prevention and monitoring.	N/A	Throughout works
Project Operations & Environment Manager - developers and contractors	Through collaboration with the Regulators (including relevant Stakeholders) will develop measures appropriate to the Proposed Development deployment specific to the site, nature, and duration of activities on a case-by-case basis.	N/A	Beginning of works

³ For more information, see: [Biofouling \(imo.org\)](https://www.imo.org/)

⁴ For more information, see: [Ballast Water Management \(imo.org\)](https://www.imo.org/)

1.5.6 Step 6: Contingency plan

Table 1.10: Contingency Plan In The Event Of Failure Of Prevention Of Inns Introduction

Action	Responsibility
Stage One – Suspected arrival of high-alert species	
Take photographs of the sample and collect the sample in a plastic bag.	Designated biosecurity officer, site manager, Contractor Environmental Manager or Client Environmental Manager (depending on the phase of the project), or any member of staff at the site of INNS discovery.
Check the organism against the identification sheet (see ID sheets » NNSS (nonnativespecies.org))	Designated biosecurity officer, site manager, Contractor Environmental Manager or Client Environmental Manager (depending on the phase of the project), or any member of staff at the site of INNS discovery.
Report to Recording » NNSS (nonnativespecies.org)	
Stage Two – Presence of high-alert species confirmed	
Initiate immediate containment measures, including restricted vessel movements.	Designated biosecurity officer, site manager, Contractor Environmental Manager or Client Environmental Manager (depending on the phase of the project).
Carry out a wider survey of vessels and structures.	Designated biosecurity officer, and qualified ecologist.
Stage Three – Eradication/employ long-term control measures	
Seek advice from the GB Non-Native Species Secretariat on appropriate measures and actions for long-term control.	Designated biosecurity officer and Contractor Environmental Manager or Client Environmental Manager (depending on the phase of the project).

1.5.7 Evaluation and review

1.5.7.1 Location of biosecurity logbook

A biosecurity logbook will be kept (in electronic form) for the Proposed Development and will be made available for inspection and review as and when required.

1.5.7.2 Plan review date

This plan will be updated prior to construction to include the final project design and include an updated risk assessment based on that final design. This will include all measures to manage INNS during the construction, phase as agreed with the relevant regulatory authorities.

The plan will be updated following the completion of construction and at the beginning of the operational and maintenance phase to ensure the plan is appropriate for the next phase of the development and the risks and activities associated with it. The plan will be updated at regular intervals during the operational and maintenance phase and prior to the decommissioning phase to ensure all measures are appropriate and any changes in the environment and risk of INNS (e.g. records of INNS being present on site) are reflected in the INNSMP, as agreed with the relevant regulatory authorities.

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