

The Great Grid Upgrade

Sea Link

Sea Link

Volume 7: Other Documents

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Contents

MARINE BIOSECURITY PLAN FOR THE SEA LINK PROJECT	3
1. Scene setting	3
2. Introduction	4
3. Environmental information	5
4. Activity risk	12
5. Biosecurity Actions/Control Measures	13
6. Monitoring	14
7. Contingency plan	14

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Contents

MARINE BIOSECURITY PLAN FOR THE SEA LINK PROJECT	1
1. Scene setting	1
2. Introduction	2
3. Environmental information	3
4. Activity risk	12
5. Biosecurity Actions/Control Measures	14
6. Monitoring	14
7. Contingency plan	15



MARINE BIOSECURITY PLAN FOR THE SEA LINK PROJECT

1. Scene setting

Invasive Non-Native Species (INNS) are those that have been transported outside their natural range and that damage our environment, the economy, our health and the way we live.

The purpose of this document is to support the Outline Marine INNS Management Plan (**Application Document 7.5.12 Outline Invasive Non-Native Species Management Plan**) and describe the potential risks of marine INNS introduction and spread associated with the Sea Link Project (hereafter referred to as the 'Proposed Project'), and to provide a framework for preventing this during the construction, operation and maintenance, and decommissioning phases. It identifies risk from vectors and their associated pathways by which a species is moved from place to another place due to human activity. This document also includes relevant biosecurity measures to make sure that good practices are in place to reduce and minimise the risk of spreading INNS.

This plan is a 'living' document that will be updated as required post submission of the DCO application, during the Examination Period and during the detailed design process as necessary prior to implementation.

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

Abbreviations and Acronyms

WCLV	Cable lay vessels
DCO	Development Consent Order
HDD	Horizontal directional drilling
IMO	International Maritime Organization
NBN	National Biodiversity Network
RAPID	Reducing and Preventing Invasive Alien Species

UK United Kingdom



<i>EU</i>	<i>European Union</i>
<i>INNS</i>	<i>Invasive Non-Native Species</i>
<i>HVDC</i>	<i>High-voltage direct current</i>
<i>SAC</i>	<i>Special Area of Conservation</i>
<i>SSSI</i>	<i>Site of Special Scientific Interest</i>
<i>SPA</i>	<i>Special Protection Area</i>
<i>MCZ</i>	<i>Marine Conservation Zone</i>
<i>NBN</i>	<i>National Biodiversity Network</i>
<i>CEMP</i>	<i>Offshore Construction Environmental Management Plan</i>
<i>HDD</i>	<i>Horizontal directional drilling</i>
<i>JUB</i>	<i>Jack up barge</i>

2. Introduction

- **Biosecurity Manager/Officer or responsible person or organisation/group:**

To be confirmed prior to construction activities on appointment of a Principal Contractor.

- **Plan duration and review date:**

To be confirmed prior to construction activities on appointment of a Principal Contractor.

- **Plan review process:**

To be confirmed prior to construction activities on appointment of a Principal Contractor.

- **Location of biosecurity logbook:**

To be confirmed prior to construction activities on appointment of a Principal Contractor.

- **Location of activity:**

Sea Link Order Limits – Offshore Scheme Boundary.

- **Machinery or materials to be used:**

Outlined in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**.

- **Transport routes for machinery and materials:**

To be confirmed prior to construction activities on appointment of a Principal Contractor.



- Critical control points:

To be confirmed prior to construction activities on appointment of a Principal Contractor.

3. Environmental information

Site description

The Proposed Project includes the installation of approximately 122 km of subsea High voltage direct current (HVDC) cable, running between the Suffolk landfall location (between Aldeburgh and Thorpeness), and the Kent landfall location at Pegwell Bay. A specific regional Study Area has been determined, taking a precautionary approach to ensure the assessment incorporates all areas which could contribute to INNS introduction and spread throughout the life cycle of the Proposed Project. This area has been defined based on regional Reducing and Preventing Invasive Alien Species Dispersal (RAPID) Life plans: East of England Region (RAPIDLife, 2020) and the South East Region (RAPIDLife, 2018). includes the potential maximum dispersion of suspended particles in one tidal cycle which is considered to represent the greatest distance travelled of any INNS larvae or vegetative bodies carried in suspension. Based on project specific modelling, this distance is considered to be 17 km

(Application Document 6.2.4.1 Part 4 Marine Chapter 1 Physical Processes):

The Proposed Project entails the installation of approximately 122 km of subsea high-voltage direct current (HVDC) cable, extending from the Suffolk landfall site, located between Aldeburgh and Thorpeness, to the Kent landfall site at Pegwell Bay.

A precautionary approach has been adopted in defining a specific regional Study Area to ensure that the assessment encompasses all zones potentially contributing to the introduction and spread of INNS throughout the lifecycle of the Proposed Project. This Study Area has been delineated with reference to regional Reducing and Preventing



3

Marine Pathways

Managing marine non-native species



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[Invasive Alien Species Dispersal \(RAPID\) Life plans, specifically the East of England Region \(RAPIDLife, 2020\) and the South East Region \(RAPIDLife, 2018\).](#)

Tidal, salinity, stratification information

Tidal movements serve as an important vector for transporting marine INNS, as local water currents may carry pelagic species and/or larvae to new sites. ~~Potential distances that INNS may travel can be represented by maximum the potential maximum dispersion of suspended particles in one tidal cycle. Project specific modelling indicates this distance may be up to 17 km (see Application Document 6.2.4.1 Part 4 Marine Chapter 1 Physical Processes).~~

At the Suffolk Landfall, current speeds on a spring flood tide are approximately 0.4 to 0.6 m/s. At the Kent Landfall, current speeds are greater on an ebb tide due to the strong flow from the English Channel into the southern North Sea, with current speeds of approximately 0.0 to 0.6 m/s in nearshore areas. Peak current speeds gradually increase to approximately 1.0 to 1.4 m/s on a spring flood tide in the Offshore Scheme. In the nearshore areas of the Offshore Scheme, spring tidal currents are directed towards the north at the peak of the ebb tide and reverse at the peak of the flood; at times of less than peak current speed, the direction of currents rotates continuously throughout the tidal cycle, resulting in limited to completely slack water condition. Elsewhere along the Offshore Scheme, the axis of peak tidal currents is closer to north – northeast to southwest offshore.

Based on findings during Proposed Project specific surveys completed in 2021, salinity was seen to be stable along the Offshore Scheme, varying between approximately 34 and 35 ppt. Temperature and density were also observed to be stable, with temperatures between 16 to 19 °C and density of 1024 to 1026 kg/m³. There was no sign of a pycnocline at any of the sites.



4



4

Sensitive habitats and protected features/areas

Several subtidal habitats identified during Proposed Project surveys within the vicinity of the Study Area are considered protected (**Application Document 6.2.4.2 Part 4 Marine Chapter 2 Benthic Ecology**). These are:

- **Sandbanks which are slightly covered by seawater all the time**
This habitat is classified as an Annex I habitat under the Habitats Directive (2017). It has been recorded at several locations within the Offshore Scheme; however, none of these occurrences fall within a designated conservation site. The nearest protected site designated for this habitat type is the Margate and Long Sands Special Area of Conservation (SAC), located approximately 3.0 km from the Offshore Scheme. This habitat is an Annex I habitat listed under the Habitats Directive (2017). This habitat was observed at several locations in the Offshore Scheme, though none were located within a designated site. The closest protected site designated for this feature is Margate and Long Sands Special Area of Conservation (SAC) which is located approximately 3.0 km from the Offshore Scheme.
- **Communities on circalittoral rock**
Two subtypes of 'Communities on soft circalittoral rock'- clay outcrops and soft chalk, were identified in the Offshore Scheme. 'Peat and clay exposures' and 'Subtidal chalks' are listed as 'Habitats of Principal Importance' under Section 41 of the Natural Environment Research Council (NERC) Act (2006).
- **Subtidal sands and gravels**
Subtidal sands and gravels were observed at several locations in the Offshore Scheme. This broad habitat type is listed as a 'Habitat of Principal Importance' under Section 41 of the NERC Act (2006).
- **Blue mussel beds**
Mussel beds, of the blue mussel (*Mytilus edulis*), are listed as a Habitat of Principal Importance under Section 41 of the NERC Act (2006). Although mussel beds were noted to be present, the aggregations of this species comprised patches rather than continuous reef (OSPAR, 2010), and therefore, this habitat does not meet the qualifying criteria of Annex I habitat 'biogenic reefs' (1170) under the Habitats Directive (2017).
Goodwin Sands MCZ is designated for the protection of 'blue mussel beds' and has a conservation objective to recover this feature. However, the Offshore Scheme runs directly adjacent to Goodwin Sands MCZ for approximately 3.2 km, avoiding any direct impacts to this feature.
- **Intertidal mudflats**
Intertidal mudflat was identified in the intertidal area at the Kent Landfall location. This habitat is listed as a Habitat of Principal Importance under Section 41 of the NERC Act (2006). Additionally, the Kent landfall is located within Leiston – Aldeburgh Site of Special Scientific Interest (SSSI), which is designated for littoral sediments, and is 3.0 km from the Thanet Coast SSSI which is designated for the protection of mudflats. The landfall is also located within the Thanet Coast and Sandwich Bay Special Protection Area (SPA), of which mudflats are also noted as a supporting habitat for the qualifying ornithology features.



5



5

Relevant designated sites within the Study Area:

- **Sandwich Bay SAC**

This SAC covers the intertidal area of Pegwell Bay, where the Kent Landfall is located. However, this site is designated for the protection of a range of dune habitats located above mean high water springs (MHWS).

- **Sandwich Bay to Hacklinge Marshes SSSI**

The Sandwich Bay to Hacklinge Marshes SSSI covers the intertidal area of Pegwell Bay, where the Kent Landfall is located. This site is designated for the protection of a range of terrestrial habitats and species, as well as saltmarsh and littoral sediment.

Cables will be installed between the marine environment and onshore via a trenchless technique and will completely avoid saltmarsh habitats.

- **Thanet Coast and Sandwich Bay SPA**

The Offshore Scheme crosses this SPA at the Kent Landfall. The SPA is designated to protect a breeding population of little tern (*Sternula albifrons*), and wintering populations of European golden plover (*Pluvialis apricaria*), and ruddy turnstones (*Arenaria interpres*). The designated features of this site rely on intertidal mudflats.

INNS have been identified as a threat to the condition of this site in the North East Kent Site Improvement Plan. The main threat is from Pacific Oysters (*Magellana gigas*), as well as Wireweed (*Sargassum muticum*), Chinese mitten crab (*Eriocheir sinensis*), Carpet Sea Squirt (*Didemnum vexillum*), Wakame (*Undaria pinnatifida*), *Caulacanthus ustulatus* (a red algae).

- **Goodwin Sands Marine Conservation Zone (MCZ)**

The MCZ is designated for the protection of 'subtidal coarse sediment', 'subtidal sand', 'blue mussel beds', 'moderate energy circalittoral rock' and 'Ross worm (*Sabellaria spinulosa*) reefs' (Defra, 2019a). The presence of INNS within the MCZ could have a significant impact upon the community composition of habitats through excessive growth, change of substrate type and competition with native species. However, the Offshore Scheme runs directly adjacent to the boundary of this MCZ for approximately 3.2 km, avoiding direct impacts to the protected features.

- **Thanet Coast MCZ**

The MCZ is located <1 km north of the Kent landfall site and is designated to protect 'blue mussel (*Mytilus edulis*) beds', 'moderate energy circalittoral rock', 'moderate energy infralittoral rock', 'peat and clay exposures', 'Ross worm *Sabellaria spinulosa* reefs', 'stalked jellyfish *Calvadosia cruxmelitensis*' and '*Halicyclotus* spp.', 'subtidal chalk', 'subtidal coarse sediment', 'subtidal mixed sediments', and 'subtidal sand'. The introduction of INNS within the MCZ could have a significant impact upon the community composition of habitats through excessive growth, change of substrate type and competition with native species.

- **Thanet Coast SAC**



6



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This SAC is located 1.2 km from the Offshore Scheme off the Kent coast. This SAC is designated for the protection of 'reefs' and 'submerged or partially submerged sea caves'.

INNS have been identified as a threat to the condition of this site in the North East Kent Site Improvement Plan. The main threat is from Pacific Oysters (*M. gigas*), as well as Wireweed (*S. muticum*), Chinese mitten crab (*E. sinensis*), Carpet Sea Squirt (*D. vexillum*), Wakame (*U. pinnatifida*), *C. ustulatus* (a red algae) through competition with blue mussel beds and affecting intertidal chalk reef biotopes.

- **Kentish Knock East MCZ**

This MCZ is located approximately 1 km from the Offshore Scheme and is designated for the protection of 'subtidal sand', 'subtidal coarse sediment', and 'subtidal mixed sediment'.

- **Thanet Coast SSSI**

The Thanet Coast SSSI is located 3 km north of the Kent landfall site, and is designated for the protection of foreshore habitats, such as sand and mudflats and smaller areas of saltmarsh and coastal lagoons. Marine INNS have been identified as a potential pressure on this site, with medium risk.

- **Orford Inshore MCZ**

This MCZ is located 8.6 km from the Offshore Scheme and is designated for the protection of 'subtidal mixed sediments'.



7



7

Known environmental management measures

~~Regional invasive species management plans have been developed by RAPID Life to support the prioritisation of INNS management. These include tailored plans for both the East of England and South East regions. The plans utilise species sighting data to classify INNS present in each region into the following categories:~~
~~Regional invasive species management plans have been developed by RAPID Life to prioritise management of INNS. This included management plans for the East of England Region and the South East Region. These plans use species sightings data to categorise INNS species noted in the region into the following categories:~~

- **Red** – High priority species that are of European Union (EU), national or regional concern;
- **Amber** – High priority species that are currently widespread; and
- **Green** – Low priority species that have minimal impact, are already well established, or there are impacts that are currently not known.

Additionally, within the north east Kent region, INNS have been identified as a threat to the condition of Thanet Coast SAC and Thanet Coast and Sandwich Bay SPA. The main threat is from Pacific Oysters (*M. gigas*), as well as Wireweed (*S. muticum*), Chinese mitten crab (*E. sinensis*), Carpet Sea Squirt (*D. vexillum*), Wakame (*U. pinnatifida*), *C. ustulatus* through competition with blue mussel beds and affecting intertidal chalk reef biotopes. There is currently a mechanism of management which has been identified in the North East Kent Site Improvement Plans. This management is led by Natural England, Kent Wildlife Trust, and Thanet District Council.



8



INNS known to be present

Four non-native species, two of which are invasive to the UK, were recorded within the Offshore Scheme during the Proposed Project specific benthic survey (**Application Document 6.3.4.2.A ES Appendix 4.2.A Benthic Characterisation Report (Original Report)**). These species included:

- Acorn barnacle (*Austrominius modestus*) - Six individuals were found across two grab sample stations, in shallow nearshore areas;
- *Eusarsiella zostericola* - 54 individuals were found across three grab sample stations;
- Slipper limpet (*Crepidula fornicata*) - Four individuals were found across three grab sample stations; and
- American piddock (*Petricolaria pholadiformis*)- One single individual was recorded.

Regional invasive species management plans have been developed by RAPID Life to guide and prioritise the management of invasive INNS. These plans, which cover both the East of England and South East regions, identify key species of concern based on recorded sightings and ecological impact. The following INNS have been identified within these plans and have also been observed within the defined Study Area:

~~Regional invasive species management plans have been developed by RAPID Life to prioritise management of INNS. This included management plans for the East of England Region and the South East Region. The following species have been identified as within these management plans and have been noted within the Study Area:~~

-
- Sea spider (*Ammothea hilgendorfi*).
- Bay barnacle (*Amphibalanus improvises*).
- Compass sea squirt (*Asterocarpa humilis*).
- Acorn barnacle (*Austrominius modestus*).
- San Diego sea squirt (*Botrylloides diegensis*).
- Orange cloak sea squirt (*Botrylloides violaceus*).
- Ruby bryozoan (*Bugula neritina*).
- Erect bryozoan (*Bugula simplex*).
- Erect bryozoan (*Bugula stolonifera*).
- Pom-pom weed (*Caulacanthus okamurae*).
- Oyster thief (*Colpomenia peregrina*).
- Orange-tipped sea squirt (*Corella eumyota*).
- Slipper limpet (*C. fornicata*).
- American razor clam (*Ensis directus (americanus)*).
- Chinese mitten-crab (*E. sinensis*).
- Trumpet tube worm (*Ficopomatus enigmaticus*).
- Devil's tongue weed (*Grateloupia turuturu*).
- Asian shore crab (*Hemigrapsus sanguineus*).
- Brush clawed crab (*Hemigrapsus takanoi*).
- Pacific oyster (*M. gigas*).

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9



- Hard-shelled clam (*Mercenaria mercenaria*).
- Sand gaper (*Mya arenaria*).
- Rainbow trout (*Oncorhynchus mykiss*).
- American piddock (*P. pholadiformis*).
- Manila clam (*Ruditapes philippinarum*) -(only within the South East Region management plan);
- Wireweed (*S. muticum*).
- Leathery sea squirt (*Styela clava*).
- Tufty-buff bryozoan (*Tricellaria inopinata*).
- Wakame (*U. pinnatifida*).
- American oyster drill (*Urosalpinx cinerea*).
- Red ripple bryozoan (*Watersipora subatra*).

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In addition to this list, the following species have been identified within the Study Area and have been recorded on National Biodiversity Network (NBN) Atlas:

- Red alga spp. (*Antithamnionella spirographidis*).
- Marine diatom spp. (*Biddulphia sinensis*).
- Marine diatom spp. (*Coscinodiscus wailesii*).
- Sand hopper (*Echinogammarus marinus*).
- Atlantic jackknife clam (*Ensis leei*).
- Ostracod (*E. zostericola*).
- Harvey's siphon weed (*Melanothamnus harveyi*).
- Sea grapes *Molgula manhattensis*.
- Marine amphipod spp. (*Monocorophium sextonae*).



40



10

INNS likely to be of concern (horizon scanning)

High alert marine INNS species identified by the GB Secretariat:

- Northern Pacific seastar (*Asterias amurensis*).
- Sponge (*Celtodoryx ciocalyptoides*).
- Nemertean worm (*Cephalothrix simula*).
- Asian shore crab (*H. sanguineus*).
- American lobster (*Homarus americanus*).
- Comb jelly (*Mnemiopsis leidyi*).
- Dwarf surf clam (*Mulinia lateralis*).
- Japanese oyster drill (*Ocenebrellus inornatus*).

Regional invasive species management plans have been developed by RAPID Life to prioritise management of INNS. This included management plans for the East of England Region and the South East Region.

The following species have been identified as high priority species from within the Study Area that are of EU, national or regional concern:

- Brush clawed crab (*H. takanoi*) (only within the South East Region management plan).

The following species have been identified as high priority species from within the Study Area that are currently widespread:

- Bay barnacle (*A. improvises*).
- Compass sea squirt (*A. humilis*).
- San Diego sea squirt (*B. diegensis*).
- Orange cloak sea squirt (*B. violaceus*).
- Ruby bryozoan (*B. neritina*).
- Erect bryozoan (*B. simplex*).
- Erect bryozoan (*B. stolonifera*).
- Orange-tipped sea squirt (*C. eumyota*).
- Slipper limpet (*C. fornicata*).
- Chinese mitten-crab (*Eriocheir sinensis*).
- Trumpet tube worm (*F. enigmaticus*).
- Asian shore crab (*H. sanguineus*).
- Brush clawed crab (*H. takanoi*).
- Pacific oyster (*M. gigas*).
- Manila clam (*R. philippinarum*) (only within the South East Region management plan).
- Wireweed (*S. muticum*).
- Leathery sea squirt (*S. clava*).
- Tufty-buff bryozoan (*T. inopinata*).
- Wakame (*U. pinnatifida*).
- American oyster drill (*U. cinerea*).
- Red ripple bryozoan (*Watersipora subatra*)

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44



4. Activity risk

Activity	Risk Factors
Vessel/Vehicle movement	<p>Several vessels will be involved in the construction, operation and maintenance, and/or decommissioning of the Proposed Project. These vessels include CLVs, cable barges, trenching vessels, guard vessels, support vessels, and rock placement vessels. Vessel size will differ according to phase (e.g. construction, operation and maintenance, decommissioning) and/or task. Some vessels may originate from outside UK waters, or from local waters known to host high concentrations of INNS.</p> <p>In this instance, measures for marine INNS risk mitigation will be applied, complying with the IMO Ballast Water Management Convention. Additionally, vessels will be required to adhere to the IMO guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (Biofouling Guidelines) (resolution MEPC.207(62)). These measures lower the probability of INNS transmission from vessels.</p> <p>At this stage, vessel origin is unknown. As such, a worst-case scenario has been assumed to include the use of vessels originating from non-UK waters or waters with known INNS colonisation. Should vessels or Proposed Project infrastructure originate from the areas with knowingly established populations of marine INNS, the risk of local INNS introduction may be high.</p>
Export cable installation	<p>The Offshore Scheme includes a worst-case scenario of one bundled HVDC (x2) and one fibre optic cable in one trench. The total length of cable on the seabed is expected to be 122 km, with cable diameters of 100 – 150 mm. There is a minimum burial depth of 0.5 m, and where burial depth cannot be achieved, remedial rock berms will be used, indicating no exposure of the cable to the water column. As cabling will be buried within the sediment, no cable area will be exposed to the water column. As such, there is no pathway for introduction of marine INNS associated with this component. The risk of marine INNS introduction has therefore been appraised as negligible.</p>



Activity	Risk Factors
Installation of cable protection	<p>Cable protection will comprise remedial rock berm, rock backfill, and concrete mattresses. The maximum area of the Offshore Scheme subject to protection is 0.15 km².</p> <p>Areas of exposed substrate may provide ideal conditions for the settlement of marine INNS. However, studies of artificial substrate placement associated with subsea cables have indicated that colonisation largely occurs by endemic species (OSPAR, 2023). When considering this in conjunction with the fact that most local INNS are found in the coastal/intertidal zone, the risk of marine INNS introduction has been assessed as low.</p>
Activities at Suffolk Landfall	<p><u>Based on an assumed worst-case scenario, Up to four horizontal directional drilling (HDD) ducts will exit in the subtidal zone between Aldeburgh and Thorpeness.</u></p> <p>During construction, a jack up barge (JUB) will be used at each HDD entry/exit point, and post-installation protection would then be added to stabilize the HDD exits, with up to five concrete mattresses per HDD exit point, with a total area of concrete mattresses of 0.00036 km².</p> <p>Areas of exposed substrate can provide ideal conditions for the settlement of marine INNS. Furthermore, of the marine INNS species known to occur within the vicinity of the Proposed Project, many are nearshore or intertidal species. Given the surface area of expected cable protection, the risk of marine INNS introduction has been assessed as medium.</p>
Activities at Kent Landfall	<p>Up to four HDD ducts will exit in the intertidal zone at Pegwell Bay. During construction, several structures will temporarily be used at the Kent Landfall, temporarily disturbing 0.02 km² from the use of an excavator, JUB or backhoe dredger, cable lay barge and temporary cofferdam. <u>The installation process will involve the temporary placement of concrete mattresses and rock bags at the horizontal directional drilling (HDD) entry and exit points. These temporary measures will be removed approximately one week prior to cable pull-in, after which permanent cable protection will be installed over the HDD entry and exit points and buried at the same locations.</u></p> <p><u>Areas of exposed substrate created during installation can offer favourable conditions for the settlement of marine invasive non-native species (INNS). Notably, several marine INNS known to occur in proximity to the Proposed Project are nearshore or intertidal species. Given the anticipated surface area of cable protection, the risk of marine INNS introduction has been assessed as medium.</u></p>

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43



13

Activity	Risk Factors
	<p>This will also include concrete mattresses/rock bags that will be placed at the HDD entry/exit points during installation. These will then be removed approximately one week before cable pull-in, before permanent protection will be buried at the same location.</p> <p>Areas of exposed substrate can provide ideal conditions for the settlement of marine INNS. Furthermore, of the marine INNS species known to occur within the vicinity of the Proposed Project, many are nearshore or intertidal species. Given the surface area of expected cable protection, the risk of marine INNS introduction has been assessed as medium.</p>

5. Biosecurity Actions/Control Measures

Who	Biosecurity Action
Environmental Manager	Where possible the rock protection will be locally sourced or environmentally benign.
Environmental Manager	All Proposed Project vessels shall adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine INNS (IMO, 2017) and the IMO Guidelines for the control and management of ships' biofouling to minimise the transfer of invasive aquatic species (Biofouling Guidelines) (IMO, 2011).
All personnel	Relevant staff should be trained in common marine INNS identification ¹ and encouraged to report suspicious plant or animal species.

6. Monitoring

¹ Example identification guides include: the identification guide for selected marine non-native species (Marine Biological Association, 2020); and non-indigenous species quick reference survey guide (CEFAS, 2020).



Early detection of marine INNS is key, as it will increase the likelihood of successful containment and eradication (Cook, Macleod, Payne, & Brown, 2015). An essential first step in this process is prevention, which can be implemented through visual monitoring of all equipment, materials, and vessels involved in Proposed Project activities for the presence of any potential marine INNS.

Relevant personnel should receive or have up-to-date training in the identification of common marine INNS and be encouraged to report any sightings of unusual or potentially invasive flora or fauna. Where necessary, prompt action should be taken to remove fouling communities and mitigate the spread of identified marine INNS.

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Operations managers should be responsible for overseeing inspections related to marine INNS presence, as well as the implementation of appropriate cleaning procedures and biofouling waste disposal.

Considering the recommended biosecurity measures and embedded mitigation strategies, the likelihood of the Proposed Project contributing to the introduction or spread of INNS is considered low.

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Relevant staff should be trained in common marine INNS identification¹ and encouraged to report suspicious plant or animal species. If deemed necessary, immediate action should be taken to remove fouling communities and control the spread of present marine INNS. Operations managers should oversee checks regarding marine INNS presence and any cleaning/biofouling disposal. When considering the recommended biosecurity measures and embedded mitigation, it is unlikely that the Proposed Project will contribute to the introduction and spread of INNS.

7. Contingency plan

Even with the most effective preventative and containment measures in place, introduction of marine INNS can still occur. Additionally, introduction may occur as a result of external activities or processes. This section outlines the appropriate measures which should be taken if biosecurity measures fail to prevent the introduction and spread of marine INNS to the Study Area, as recommended by the Non-Native Species Secretariat and RAPID Life project.



Should marine INNS be reported within the Study Area, the following steps should be taken (Cook, Macleod, Payne, & Brown, 2015):

1. **Determine the extent** – conduct a survey to determine the extent and distribution of marine INNS on Proposed Project infrastructure;
2. **Inform relevant authorities** – contact authorities to report the observation and obtain guidance on whether action is required;
3. **Action to eradicate** – should the identified species be deemed a high risk and necessary to eradicate, a Response Group will be formed led by the Responsible Authority which will act as advisors, guiding operators (Operational Group) and liaising between senior officials and ministers as necessary. The Operational Group will be responsible for the following (RAPID Life, 2020):
 - Assess the affected area for the extent of the population of the marine INNS;
 - Initiate the immediate implementation of biosecurity measures, as advised by the response group;
 - Undertake a biosecurity risk assessment of pathways in and out of the affected area;
 - Informed by surveys, provide advice on management (eradication or containment), which will include any site-specific issues;
 - Undertake surveillance of other water bodies that may be affected, dependent on risk analysis;
 - Liaise with landowners and interested parties, to secure access and gather site-specific information;
 - Implement additional biosecurity measures where appropriate; and
 - Identify and investigate outbreak source, to prevent further contamination, pursue appropriate legal action etc.
4. **Monitor** – should eradication successfully occur; long-term monitoring is essential to ensure the reintroduction does not occur.

Responsibilities:

- **Project Manager / Director**
Overall environmental management of the Proposed Project, ensuring that all works are carried out in accordance with the Offshore Construction Environmental Management Plan (CEMP) (**Application Document 7.5.3.1 CEMP Appendix A Outline Code of Construction Practice**).
- **Environmental Advisor / Manager**



- Work with programme planners and project managers to ensure consents are embedded within the programme.
 - Monitor and report progress on consents and commitments and monitoring construction works for compliance against method statement control measures.
 - Monitoring environmental training, consultation and implementation of contractor procedures.
 - Monitoring of all environmental incidents and ensuring they are reported and investigated.
 - Act as the main point of contact on environmental matters relating to the Proposed Project.
- **Fisheries Liaison Officer**
Will be maintained throughout installation to ensure project information is effectively disseminated to ensure a dialogue is maintained with the commercial fishing industry and access to home ports remains during the main fishing season.
 - **Engineering Manager**
Ensure environmental issues and constraints are included in individual designs, in accordance with environmental design procedures.
 - **Construction Manager**
 - Advising contractor representative on the implementation of the Offshore CEMP.
 - Monitoring environmental training, consultation and implementation of contractor procedures.
 - Accompanying Environment Inspections where required and any environmental authority inspections.
 - Attending Environmental co-ordination meetings.
 - **Works Supervisors**
Ensuring that all work is carried out in accordance with project requirements and that staff under their supervision are aware of their environmental responsibilities. They will ensure key risks are identified and brief operatives on environmental topics and carry out inspections to identify any environmental issues.
 - **General Operatives**
 - Ensuring environmental mitigation measures are carried out during the course of their duties, in line with project requirements.

- Working considerably with a good working ethic in order to minimise adverse environmental impacts and follow all requirements communicated during briefings and project training sessions.
- Informing relevant persons of any environmental issues, so that these can be communicated to the project management team for further investigation.
- Attending the project induction prior to commencing work where details of the environmental requirements will be provided.

Contact details:

To be confirmed on appointment of Principal Contractor



18



18