POWERING UP OFFSHORE SOUTH COAST

Natura Impact Statement

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Prepared by:

RPS

Prepared for:

EirGrid

Dublin | Cork | Galway | Sligo | Kilkenny
rpsgroup.com

RPS Group Limited, registered in Ireland No. 91911
RPS Consulting Engineers Limited, registered in Ireland No. 161581
RPS Engineering Services Limited, registered in Ireland No. 99795
The Registered office of each of the above companies is West Pier Business Campus, Dun Laoghaire, Co. Dublin, A96 N6T7

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EXECUTIVE SUMMARY

The Powering Up Offshore South Coast (PUOSC) will be the first state-led offshore renewable electricity connection in Ireland. While the project is at an early stage of development, it is expected to include the development of offshore substation(s) off the southern coast of Ireland, new onshore and offshore transmission cables, and new onshore compensation compounds as required to accommodate the connection on the existing onshore transmission system. Following publication of the South Coast Designated Maritime Area Plan (SC-DMAP) by the Government of Ireland on 25th October 2024, as part of Shaping Our Offshore Energy Future and the PUOSC project, EirGrid plans to develop offshore electricity substation(s) and associated offshore transmission cables off the south coast of Cork, Waterford, and Wexford.

There is currently insufficient baseline geophysical, geotechnical environmental and archaeological information available to fully inform the preliminary and detailed design of the offshore elements of the PUOSC project. In order to progress the design elements of the project and carry out the necessary environmental assessments, further baseline data must be obtained. Therefore, site investigations and surveys must be undertaken.

This report has been prepared by RPS, on behalf of EirGrid, in support of the Maritime Usage Licence Application (MULA) to the Maritime Area Regulatory Authority (MARA). The MULA is for site investigation works (SI works) to inform engineering design of the PUOSC project. The results of these surveys will also provide baseline data for subsequent environmental assessments, e.g. Appropriate Assessment (AA).

The SI works include coastal and marine geophysical, geotechnical, environmental and archaeological investigations below the High Water Mark (HWM) as summarised below.

- Coastal geophysical surveys (land-based below the HWM);
- Marine geophysical surveys (undertaken from survey vessel(s));
- Coastal geotechnical surveys (land-based below the HWM);
- Marine Geotechnical Surveys (undertaken from survey vessel(s) or jack-up barge (JUB)).
- Metocean and Marine Mammal Acoustic Device Deployment (deployed by vessel and moored to seabed)
- Coastal Environmental Surveys (land-based below the HWM);
- Marine Environmental Surveys (undertaken from survey vessel(s));
- Archaeological surveys; and
- Other surveys for: noise; shipping and navigation; unmanned aircraft systems/ drone surveys; and aerial surveys for birds and marine mammals.

This Natura Impact Statement (NIS) provides MARA with the information required for their Appropriate Assessment (AA) of the SI works for the PUOSC.

A Supporting Information for Screening for Appropriate Assessment (SISAA) report was prepared for the SI works and identified the presence of twenty-two European sites, including two sites in the UK, within the potential Zone of Influence (ZoI) of the SI works. The SISAA concluded it cannot be excluded on the basis of objective scientific information that the SI works, individually or in combination with other plans or projects, will have a significant effect on these European sites.

The SISAA concluded that the SI works, in the absence of mitigation, have the potential to contribute to habitat loss, alteration, and/or fragmentation of Qualifying Interest (QI) habitats in:

- Bannow Bay Special Area of Conservation (SAC)
- River Barrow and River Nore SAC
- Hook Head SAC.

The SISAA concluded that in the absence of mitigation, the coastal and marine geophysical, geotechnical and metocean surveys will introduce subsea noise that has the potential to have likely significant effects on otter (*Lutra lutra*), migratory fish species, bottlenose dolphin (*Tursiops truncates)*, harbour porpoise

(*Phocoena phocoena*), harbour seal (*Phoca vitulina)* and grey seal (*Halichoerus grypus)* at the following SACs:

- Hook Head SAC (bottlenose dolphin and harbour porpoise)
- River Barrow and River Nore SAC (otter and migratory fish)
- Saltee Islands SAC (grey seal)
- Blackwater River (Cork/Waterford) SAC (otter and migratory fish)
- Lower River Suir SAC (otter and migratory fish)
- Slaney River Valley SAC (harbour seal, otter and migratory fish)
- Carnsore Point SAC (harbour porpoise)
- Blackwater Bank SAC (harbour porpoise)
- Roaringwater Bay and Islands SAC (grey seal and harbour porpoise)
- Glengarriff Harbour and Woodland SAC (harbour seal)
- Pembrokeshire Marine/ Sir Benfro Forol SAC (grey seal)
- West Wales Marine / Gorllewin Cymru Forol SAC (harbour porpoise)

The SISAA concluded that in the absence of mitigation measures, there is the potential for likely significant disturbance effects on the following Special Protection Areas (SPAs):

- Bannow Bay SPA (wintering waterbirds)
- Ballycotton Bay SPA (wintering waterbirds and gull species)
- Ballyteige Burrow SPA (wintering geese/swans)
- Tramore Back Strand SPA (wintering geese/swans)
- Dungarvan Harbour SPA (wintering geese/swans)
- Tacumshin Lake SPA (wintering geese/swans)
- Wexford Harbour and Slobs SPA (wintering geese/swans)
- Mid Waterford Coast SPA (breeding birds at the nest)
- Keeragh Islands SPA (breeding birds at the nest)

The SISAA concluded that in the absence of mitigation measures, there is the potential for the SI works to result in likely significant in-combination disturbance effects on SPA bird populations, and these effects were screened in for further assessment.

MARA in their Screening for Appropriate Assessment for a Maritime Usage Licence Application dated 1st May 2025 (MUL240036) also determined that an AA was required. MARA identified the following potential impacts from the proposed SI works:

- Direct habitat damage (loss) or habitat degradation.
- Water quality deterioration (increase in suspended sediments or water pollution) from survey activities or survey vessels leading to habitat degradation or impacts on migratory fish species, birds and marine mammals, or their prey species.
- Disturbance and displacement from underwater noise to marine mammals (including seals), otter, migratory fish and seabirds.
- Disturbance and displacement from above water noise, vibration, lighting and human presence to bird populations, marine mammals and otter.
- Potential collision risk to marine mammals from survey vessels.

Based on the above list of potential impacts, MARA screened in additional European sites and/or additional qualifying interests (QI) and species of conservation interest (SCI) that were screened out in the SISAA report.

This finalised NIS takes into consideration the findings of MARA's Screening for Appropriate Assessment for a Maritime Usage Licence Application.

Within this NIS, mitigation measures have been specified to avoid adverse effects to European sites, from the SI works alone, and the SI works in combination with other plans and projects. Following implementation of mitigation measures there will be no adverse effects on the integrity of European sites. The NIS provides complete, precise and definitive findings to MARA, with no lacunae or gaps, to enable MARA to complete their AA of the SI works.

1 INTRODUCTION

1.1 Overview

The Irish Government is taking major steps to make Ireland carbon neutral by 2050. These steps include a commitment to increase the proportion of electricity generated from renewable sources to 80% by 2030. The Climate Action Plan 2024 (DECC, 2024) places offshore wind power at the centre of this commitment, with a key target being the grid connection of at least 5 Gigawatts (GW) of offshore wind by 2030.

EirGrid develops, manages, and operates Ireland's electricity grid and are responsible for the safe, secure and reliable supply of Ireland's electricity. EirGrid was established to act as the independent Transmission System Operator (TSO), in line with the requirements of the EU Electricity Directive (EU) 2019/944 (EU Electricity Directive). EirGrid became operational as the TSO on 1 July 2006 and is a public limited company, registered under the Companies Acts. The Irish Government has also designated EirGrid as the TSO and Transmission Asset Owner (TAO)/ Offshore Asset Owner (OAO) for Ireland's offshore electricity grid.

In March 2023, the Department of the Environment, Climate and Communications (DECC) published the "Accelerating Ireland's Offshore Energy Programme; Policy Statement on the Framework for Phase Two Offshore Wind" (the Framework). This policy identified EirGrid as the developer of new offshore grid transmission infrastructure to connect new offshore wind farms on the south coast.

On the basis of the policy, EirGrid has initiated the Powering Up Offshore South Coast (PUOSC) project. This will be the first state led offshore renewable electricity connection in Ireland. The project was included in the European Network of Transmission System Operators for Electricity (ENTSO-E) Ten Year Network Development Plan (TYNDP) in 2024. While the project is at an early stage of development, it is expected to include the development of offshore substation(s) off the southern coast of Ireland, new onshore and offshore transmission cables and new onshore compensation compound as required to accommodate the connection on the existing onshore transmission system. The development area will be established based on the South Coast Designated Maritime Area Plan (SC-DMAP) which was published by the Government of Ireland on 25th October 2024. This infrastructure will facilitate up to 900 MW of power generated by offshore wind farms in Irish waters into our national electricity grid.

DECC's Framework outlined a four-phase process for developing offshore wind energy infrastructure. In the short-term, the framework is based on a developer-led approach, taking advantage of projects that have been in development for several years. In the medium to long-term it transitions to a plan-led approach in which EirGrid plays a key role.

EirGrid are undertaking the engineering, planning and environmental services necessary to provide the grid infrastructure to support the development of offshore wind.

PHASE 2

As part of the government-led approach to the delivery of offshore wind, known as Phase 2, approximately 900 MW of electricity will be supplied from wind farms off Ireland's south coast. It is anticipated that these offshore wind farms will be constructed in Area A – Tonn Nua within the SC-DMAP area (see Figure 1.1).

These wind farms will be provided by private developers. EirGrid will be responsible for delivering the infrastructure that will connect the power from these wind farms off the south coast to the onshore grid. This will be realised through EirGrid's PUOSC project.

Following publication of the SC-DMAP, EirGrid plans to develop offshore electricity substation(s) and associated offshore transmission cables. This new infrastructure will connect the power generated by offshore windfarms to the national electricity grid.

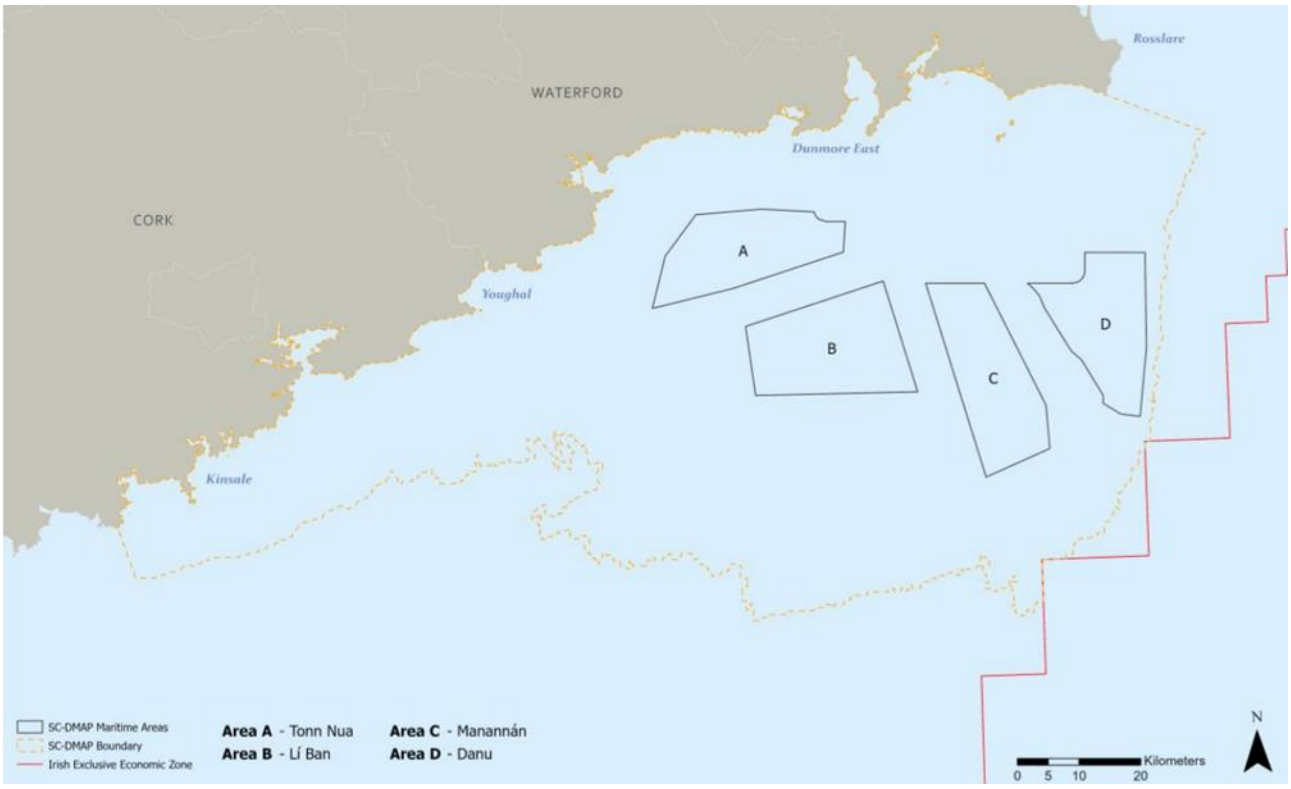

Figure 1.1 SC-DMAP Area

The main components of the PUOSC project are:

- Offshore substation(s) – to be located within Maritime Area A (Tonn Nua) of the SC-DMAP (Figure 1.1).
- A connection between the offshore substation(s) and onshore compensation compounds. This will involve offshore transmission cables; and
- Onshore compensation compounds.

The precise location of the offshore substations have not yet been determined, nor has it been determined how and where they will connect to the national electricity grid onshore. However, due to onshore grid capacity constraints, it is anticipated that one 450 MW offshore to onshore connection will be developed in the Cork area and the other 450 MW offshore to onshore connection will be developed in the Waterford/ Wexford area.

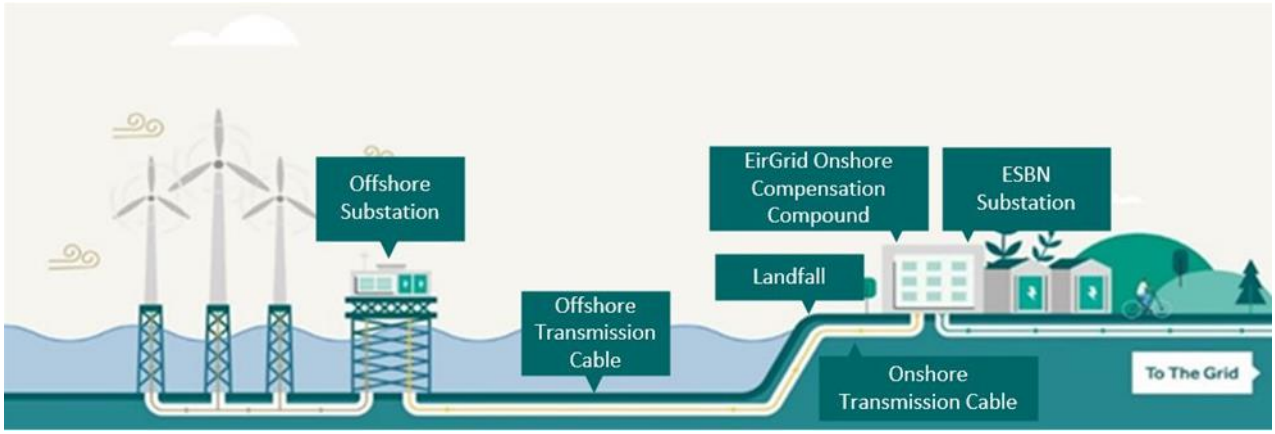

Figure 1.2 Typical Offshore Wind Project Schematic

1.2 Accompanying Reports

The Maritime Usage Licence Application (MULA) that was submitted to MARA on 11 November 2024 (Licence Application MUL240036) consists of the following documents and reports:

- Maritime Usage Licence Application;
- Project Description including drawings;
- Assessment of Impact on the Maritime Usage (AIMU);
- Supporting Information for Screening for Appropriate Assessment (SISAA);
- Risk Assessment for Annex IV Species;
- Subsea Noise Technical Report.

In order to avoid repetition, this report makes reference to these other reports and drawings throughout.

1.3 Purpose of the Report

This report has been prepared by RPS, on behalf of the EirGrid, to provide information on the site investigation (SI) works proposed to be undertaken for the PUOSC in support of the MULA to MARA. This Natura Impact Statement (NIS) provides all necessary information to MARA for them to complete an Appropriate Assessment of the potential for adverse effect(s) on the integrity of (a) European site(s), arising from the SI works either individually or in-combination with other plans or projects.

This report provides a brief description of the SI works, consisting of coastal and marine geophysical, geotechnical, metocean, environmental, archaeological and other investigations and surveys that are proposed to be undertaken. A more detailed description is provided in the separate 'Project Description' document (report ref: IE001220-RPS-RP-XX-RP-EN-0001), which has been submitted to MARA as part of the MUL application. The Project Description includes details of the methods, equipment and quantities for proposed activities and drawings of the proposed locations for the SI works. The results of the SI works will be used to inform engineering design and will also provide baseline data for any subsequent environmental assessments.

1.4 Statement of Authority

The technical competence of the authors is outlined below:

[redacted] is Technical Director in the Environmental Services Business Unit in RPS. He has over 24 years' experience. He holds an honours degree in Civil Engineering (B.E.) from NUI, Galway, a postgraduate diploma in Environmental Sustainability from NUI, Galway, and a Master's in Business Studies from the Irish Management Institute/ UCC. [redacted] is also a Chartered Engineer and Project Management Professional with the Project Management Institute (PMI-PMP). He has managed the delivery of numerous environmental projects including marine and terrestrial projects that have required environmental impact assessment, appropriate assessment, and Annex IV species reports.

[redacted] is a Principal Scientist in the Environmental Services Business Unit in RPS. She has over 13 years' experience in the marine science field and is a Chartered Environmentalist and a Full Member of the Institute of Environmental Sciences.[redacted] holds an honours degree in Environmental Science from Trinity College Dublin and a Master's in Marine Environmental Protection from Bangor University, Wales. [redacted] has delivered the environmental assessments for a wide range of marine and coastal projects, including environmental impact assessment, appropriate assessment and Annex IV species reports.

[redacted] is a Project Scientist in the Environmental Services Business Unit in RPS. She holds a Bachelor's Degree in Marine Science from the University of Galway and Master's Degree in Climate Change and Managing the Marine Environment from Heriot-Watt University Edinburgh. She has three years' experience working in consultancy, assisting on a wide range of projects from offshore renewable energy projects to flood relief schemes, including marine and terrestrial surveys. She is a qualifying CIEEM member.

[redacted] is a Scientist in the Environmental Services Business Unit in RPS. He holds a Bachelor's Degree in Environmental Science from the University of Galway. He has two years' experience working in

consultancy, assisting on a wide range of projects from offshore renewable energy projects to flood relief schemes, including terrestrial surveys.

This NIS report has been prepared in compliance with the legislative and policy requirements described in Section 1.5 below.

1.5 Legislation

1.5.1 European Legislation

Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (the Habitats Directive) provides protection for habitats and species of European importance; Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the Conservation of Wild Birds (codified version) (the Birds Directive) aims to protect all of the 500 wild bird species naturally occurring in the European Union (EU). Areas designated for protection under the Habitats Directive are described as Special Areas of Conservation (SAC) and those designated under the Birds Directive, as Special Protection Areas (SPA) and the sites are known collectively as European sites within the Natura 2000 network (see section 1.5.2.4). As each member of the EU is required to designate areas in their jurisdictions, the establishment of this Natura 2000 network of sites under Articles 3 to 9 of the Habitats Directive is the key measure to protect nature and biodiversity in the EU.

Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to have a significant effect on or to adversely affect the integrity of European sites. Article 7 of the Habitats Directive extends the scope of its articles 6(3) and 6(4) to the Birds Directive.

Article 6(3) establishes the requirement for Appropriate Assessment (AA):

> "*Any plan or project not directly connected with or necessary to the management of the* [Natura 2000] *site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. Considering the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the public.*"

Further detail on the stages of AA is provided in Section 3.2 below.

In the context of the SI works to which this MULA relates, the Habitats and Birds Directives have been transposed into Irish Legislation under, amongst other things, the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended.

Each European site has assigned Conservation Objectives (COs) and a list of Qualifying Interests (QI) in the case of SACs or Special Conservation Interests (SCI) in the case of SPAs. The CO concept appears in the eighth recital of the Habitats Directive which reads: "*whereas it is appropriate, in each area designated, to implement the necessary measures having regard to the conservation objectives pursued*". Article 1 then explains that "*conservation means a series of measures required to maintain or restore the natural habitats and the populations of species of wild fauna and flora at a favourable status*".

The National Parks and Wildlife Service (NPWS) has established COs for each European site in Ireland. These are published on their website. NPWS advise in the general introductory notes of their site-specific conservation objectives (SSCO) series publications, that an appropriate assessment based on their "*published conservation objectives will remain valid even if the CO targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out*". NPWS advise that to assist in that regard, it is essential that the date and version are included when objectives are cited.

1.5.2 National Legislation

1.5.2.1 Maritime Area Planning Act

The Maritime Area Planning Act, 2021 (as amended) (the MAP Act) established MARA. One of the functions of MARA is to consider applications for the granting of licences to undertake any of the activities included in Schedule 7 of the MAP Act.

The following definitions in relation to Appropriate Assessment (AA) are included in Section 2(1) of the MAP Act:

> *"screening for appropriate assessment" shall be construed in accordance with, as appropriate—*
>
> *(a) section 177U of the Act of 2000, or*
>
> *(b) Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)*
>
> *"appropriate assessment" shall be construed in accordance with, as appropriate—*
>
> *(a) section 177V of the Act of 2000, or*
>
> *(b) Part 5 of the European Communities (Birds and Natural Habitats) Regulations (S.I. No. 477 of 2011);*

where the Act of 2000 refers to the Planning and Development Act 2000 (as amended).

Under Section 112 of the MAP Act, MARA has been designated as a competent authority for the purposes of Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as amended; and appropriate assessments to which that Part applies.

MARA is required to carry out a screening for Appropriate Assessment (AA) in accordance with Section 117(4)(a) of the MAP Act.

Where MARA determines that an AA is required it shall carry out the AA in accordance with Section 117(7)(a) of the MAP Act, 2021.

1.5.2.2 Screening In for Appropriate Assessment

Under Regulation 42(6) of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) the competent authority shall determine that an AA of a plan or project *is required* where the plan or project is not directly connected with or necessary to the management of the site as a European site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site. Under Section 117(4) of the MAP Act the MARA shall, as soon as is practicable after it receives a MUL application and if it considers it necessary to do so in its capacity as the competent authority, carry out screening for Appropriate Assessment in respect of the proposed maritime usage the subject of the application.

Where the competent authority determines that an AA is required, they shall make a determination under Article 6(3) of the Habitats Directive as to whether or not the proposed development would adversely affect the integrity of a European site and an Appropriate Assessment shall be carried out by the competent authority before consent is given for the proposed development - see Regulation 42(11) European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

1.5.2.3 Appropriate Assessment

In accordance with Section 117(6)(a) of the MAP Act, MARA requires that the applicant prepare and submit a Natura Impact Statement (NIS) as defined in Regulation 2 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended):

> *"Natura Impact Statement" means a report comprising the scientific examination of a plan or project and the relevant European Site or European Sites, to identify and characterise any possible implications of the plan or project individually or in-combination with other plans or*

> *projects in view of the conservation objectives of the site or sites, and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an Appropriate Assessment.*

Following receipt of the NIS, MARA will, under Section 117(6)(b), satisfy itself as to the adequacy of the NIS and then write to the applicant to require them to give notice to the public that the application and supporting information has been provided to MARA. Following a consultation period of not less than 30 days, MARA will then carry out an AA in accordance with Section 117(7)(a).

1.5.2.4 European Sites and Natura 2000 Sites

The term European site is defined in the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) as:

> *"European Site" means—*
> *(a) a candidate site of Community importance,*
> *(b) a site of Community importance,*
> *(c) a candidate special area of conservation,*
> *(d) a special area of conservation,*
> *(e) a candidate special protection area, or*
> *(f) a special protection area;*

The term Natura 2000 is defined in the same Regulations as:

> *"Natura 2000" means the European network of special areas of conservation under the Habitats Directive and special protection areas under the Birds Directive, provided for by Article 3(1) of the Habitats Directive and, for the purposes of these Regulations, includes European Sites.*

As such, and as adopted in this report, the term European site refers to one of the sites comprising the Natura 2000 network.

2 PROJECT DESCRIPTION

A detailed Project Description report has been included as a separate report to the MULA to reduce repetition in reports. Please refer to this document for the detail on each of the elements summarised in the text below.

In summary, the PUOSC project SI works Area of Interest (AoI) is located off the south coast of Ireland from the High Water Mark (HWM) out into the Celtic Sea. The AoI has been developed to include:

- Potential areas where offshore substations (OSS) may be constructed,
- Potential offshore transmission cable corridors from the OSS locations towards seven potential landfall zones in coastal areas, and
- The intertidal area below the HWM at seven potential landfall zones where the offshore transmission cables will come to shore and connect to onshore infrastructure.

This area is almost entirely within the area of the SC-DMAP except for a number of coastal locations. The AoI also includes the full extent of SC-DMAP Area A Tonn Nua within which it is proposed that the OSS will be located.

A site location map and detailed drawings of the proposed locations of SI works are provided in Appendix A.

The total AoI encompass an area of 2,336 km^2. The western extent of the AoI is at Ringroe in County Cork (approx. 10 km south of Crosshaven and 13 km east of Kinsale) and extends eastwards to Cullenstown in County Wexford (approx. 4 km east of Bannow Bay and 6 km south of Wellingtonbridge). The AoI extends into the offshore area to approx. 34 km (18.4 nm) from the coastline at its furthest distance (measured from Bunmahon).

The AoI includes coastal areas below the HWM from Ringroe, Co. Cork to Ballycrenane Co. Cork, and from west of Bunmahon, Co Waterford to east of Bannow Bay, Co. Wexford. Seven potential landfall locations and zones for surveys and investigations have been identified and are summarised in Table 2.1.

Table 2.1 Potential Landfall Locations to be Investigated

Landfall Zone	Nearest Townlands	County
A	Ballintra West, Ballintra East, Inch, Lahard	Cork
B	Ballybrangan, Ballycroneen West, Ballyrobin South	Cork
C	Garryvoe Lower, Ballybutler, Ballycrenane	Cork
D	Templeyvrick, Ballynasissala, Bunmahon, Ballynagigla, Knockmahon	Waterford
E	Ramstown, Carnivan	Wexford
F	Bannow	Wexford
G	Haggard, Blackhall, Ballymadder	Wexford

The drawings prepared in support of the MULA are included in Appendix A of this report. The proposed locations shown in the drawings are subject to refinement based on the results of the coastal and marine geophysical and environmental surveys. Similarly, the location may be moved due to the presence of obstructions/ refusals at individual locations, i.e. where a physical object, e.g. a subsurface boulder, prevents the borehole, CPT, etc., from going to its target depth. In such circumstances, the borehole location is moved to another nearby location away from the obstruction and drilled again to the target depth.

Following the assessment of the results of the SI works, it may be necessary to undertake further SI works in particular areas within the AoI, e.g., potential OSS locations, along routes for the offshore transmission cable corridors and approaches to landfall zones. The proposed SI works, including the quantities detailed and assessed in this MULA, include contingencies to cover any follow up investigations that may be undertaken at refined locations. For the avoidance of doubt, this assessment is based on the quantities stated in the Project Description as these are the maximum quantities that will be undertaken as part of the SI works.

The activities proposed to be carried out within the AoI are summarised in Table 2.2. It should be noted that the information provided in this table lists the proposed activities individually. Where possible and efficient to do so, activities will be grouped together and undertaken as part of one survey campaign. For example, the marine geophysical survey campaign will likely involve one vessel undertaking the multi-beam echosounder (MBES), sub-bottom profiler (SBP), side scan sonar (SSS) and magnetometer surveys, with the magnetometer survey providing the information necessary for the archaeological geophysical survey. Similarly, the marine environmental drop-down video (and/or remotely operated vehicle; ROV) and benthic

grab sampling surveys will, where convenient to do so, be undertaken from the geotechnical survey vessel. Undertaking surveys in combined campaigns will not change the nature or magnitude of environmental impacts, as assessed in Chapter 5.

Table 2.2 Proposed SI works Activities

Survey Type	Survey Elements	Maximum Quantity (where relevant)
Coastal Geophysical Surveys (land-based below the HWM)	Ground Penetrating Radar (GPR) and/or Seismic Refraction.	n/a
	Topographical surveying techniques including UAS, GPS, GNSS devices	n/a
Marine Geophysical Surveys (undertaken from survey vessel(s))	Multi Beam Echosounder (MBES).	n/a
	Sub-bottom profiler (SBP) including Ultra-High Resolution Seismic (UHRS) survey.	n/a
	Side Scan Sonar (SSS).	n/a
	Magnetometer.	n/a
Coastal Geotechnical Surveys (land-based below the HWM)	Trial Pit Investigations.	42
Marine Geotechnical Surveys (undertaken from survey vessel(s) or jack-up barge; JUB)	Grab sampling (this is the same campaign as the surveys included under the Environmental Surveys).	420 (subtidal)
	Vibrocore testing.	276
	Borehole investigations (including downhole Cone Penetration Testing; CPT and sampling).	21 (inshore) 8 (OSS locations)
	Shallow CPT.	276
	Deep Drive CPT.	16
Metocean and Marine Mammal Acoustic Device Deployment (deployed by vessel and moored to seabed)	Metocean buoy.	2
	Acoustic Doppler Current Profiler (ADCP).	3
	Marine mammal static acoustic monitoring (SAM)	16 locations (4 SAMS x 4 different locations)
Coastal Environmental Surveys (land-based below the HWM)	Ecological walkover surveys (habitats, bat activity and roost assessment, mammals including otter).	n/a
	Ornithological vantage point surveys.	n/a
	Marine mammal vantage point surveys.	n/a
	Intertidal core sampling survey.	Intertidal cores = 126
Marine Environmental Surveys (undertaken from survey vessel(s))	Drop-down video (DDV) and/or Remotely Operated Vehicles (ROV) survey	n/a
	Grab sampling (this is the same campaign as the surveys included under the Marine Geotechnical Surveys Surveys).	Subtidal = As per geotechnical specification.
	Ornithological surveys (boat-based)	n/a
	Marine mammal surveys (boat-based) including passive acoustic monitoring (PAM).	Monthly surveys for minimum two-year period.
	Water Quality Samples, including Conductivity, Temperature and Depth (CTD) Measurements	n/a
Archaeological Surveys	Intertidal Survey.	n/a
	Marine Geophysical Survey (this is the same campaign as the Marine Geophysical Survey above).	n/a
	Sampling	n/a
	Dive Survey	n/a
	Wade Survey	n/a

Survey Type	Survey Elements	Maximum Quantity (where relevant)
	Monitoring.	n/a
Other Surveys	Noise Surveys.	n/a
	Shipping & Navigation Survey.	n/a
	Unmanned Aircraft Systems (UAS)/ drone surveys.	n/a
	Aerial Surveys (birds and marine mammals).	n/a

2.1.1 Vessels

At the time of this application specific details of the survey vessels to be used were not available and were subject to an ongoing tender process. Based on typical survey vessels operating in Irish waters, the SI works are proposed to utilise vessels which range in length between 15 m and 75 m, have an endurance of up to 30 days and require a draft depth greater than 15 m below lowest astronomical tide (LAT) to safely operate. Such vessels will therefore generally be deployed for survey tasks from approximately the 15 m depth contour of the Lowest Astronomical Tide (LAT) to the seaward extent of the AoI.

In cases where survey is required but larger survey vessels cannot be deployed safely (i.e. in waters typically shallower than the 15 m depth contour of LAT) smaller vessels may be used subject to safe vessel draft limits and other local conditions.

For the shallowest locations, including the intertidal zone, and where intrusive geotechnical survey is required (i.e. vibrocores, CPTs, boreholes and grab samples), such investigations may be undertaken from a jack-up barge (JUB). Where required, the JUB will be towed to and from the investigation sites by tugs.

Survey vessels will be used to undertake the following surveys:

- Marine geophysical surveys (one smaller vessel in waters shallower than 15 m LAT; another larger vessel in waters deeper than 15 m LAT);
- Marine geotechnical surveys (one smaller vessel and/or the JUB in waters shallower than 15 m; another larger vessel in waters deeper than15 m LAT);
- Marine environmental surveys (one smaller vessel in water shallower than 15 m LAT; another larger vessel in waters deeper than 15 m LAT. Usually undertaken from one of the geophysical and/or geotechnical survey vessels);
- Marine archaeological surveys (one smaller vessel in waters shallower than15 m LAT and another larger vessel in waters deeper than 15 m LAT. Usually undertaken from one of the geophysical and/or geotechnical survey vessels);
- Boat-based ornithology surveys (one vessel); and
- Boat-based marine-mammal surveys (one vessel).

In addition, vessels will be required to deploy and retrieve the static recording devices; metocean buoy, ADCP and static acoustic monitors (SAM). A tug will be required to tow the JUB into and from position, and a rigid inflatable boat (RIB) will be used to transfer personnel to and from the JUB as required.

Specific survey vessel details are subject to a procurement process and are currently unavailable, and it is not yet known if a multi-disciplinary survey vessel will be used, i.e. one vessel capable of undertaking geophysical, geotechnical and environmental surveys, or separate vessels for each survey type. It is extremely unlikely that all vessels will be mobilised at the same time. For example, the geophysical survey campaign will need to occur prior to geotechnical and environmental sampling. Vessels retrieving static recording devices, transferring personnel or positioning the JUB will operate for a short period of time, transiting to and from survey locations. It is estimated, on a precautionary basis, that up to eight vessels could be operating within the AoI at a time.

Further information on vessels and survey equipment is provided in the Project Description document accompanying the MULA.

2.1.2 Surveying Periods

Surveys will be conducted during the following daily periods:

- Landfall/ intertidal zone – during daylight hours and subject to tidal conditions.
- <15m below LAT – during daylight hours up to 12 hours per day, seven days a week.
- >15m below LAT – 24 hours per day, seven days a week.

Subject to any mitigation required following assessment of adverse effects, and subject to weather conditions, surveys may be carried out at any time of year over the duration of the licence.

3 APPROPRIATE ASSESSMENT METHODOLOGY

3.1 Guidance

The following guidance has been used in the preparation of this NIS:

- EC (2000). Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg;
- EC (2002). Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission;
- EC (2007). Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. European Commission;
- DoEHLG (2009, rev. 2010). Appropriate Assessment of Plans and Projects in Ireland Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government;
- EC (2013). Interpretation Manual of European Union Habitats. Version EUR 28. European Commission, Luxembourg;
- EC (2018). European Commission Notice C (2018) 7621 'Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg;
- OPR (2021). Practice Note PN01: Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, Dublin Ireland.
- EC (2021). European Commission Notice C (2021) 6913 'Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg.

3.2 Stages

Appropriate Assessment (AA) is a four-stage process with tests at each stage. The four stages are summarised diagrammatically in Figure 3.1 below. An important aspect of the process is that the outcome at each successive stage determines whether a further stage in the process is required.

Stages 1-2 deal with the main requirements for assessment under Article 6(3) of the Habitats Directive. Stage 3 is a precursor to Stage 4 which is the main derogation step of Article 6(4).

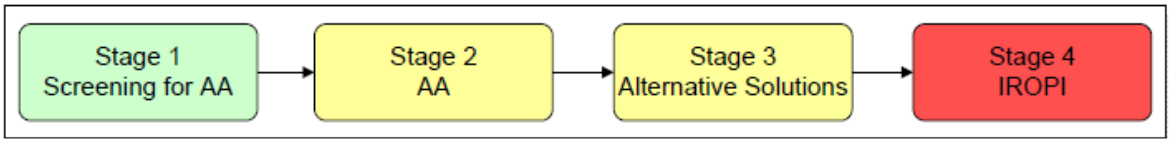

Figure 3.1 Four Stages of Appropriate Assessment

The screening for AA carried out by the competent authority (Stage 1), will determine whether an AA (Stage 2) of the proposed project is required. The purpose of the screening stage is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project, alone and in-combination with other plans or projects, could have significant effects on a European site in view of the site's conservation objectives.

There is no necessity to establish such an effect; it is merely necessary for the competent authority to determine that there may be such an effect. The need to apply the precautionary principle in making any key decisions in relation to the tests of Appropriate Assessment (AA) has been confirmed by the case law of the Court of Justice of the European Union (CJEU). Plans or projects that have no appreciable effect on a European site may be excluded. The threshold at this first stage is a very low one and operates as a trigger in order to determine whether a Stage Two AA must be undertaken by the competent authority on the implications of the proposed development for the conservation objectives of a European site. Therefore, where significant effects are likely, uncertain or unknown at screening stage, a second stage AA will be required.

Stage 2 is required if it cannot be excluded, on the basis of the objective information provided at Stage 1, that the proposed project, individually or in combination with other projects or plans, will have a significant effect on a European site, in view of the site's conservation objectives. In this case, a Natura Impact Statement (NIS) must be prepared to assist the competent authority to conduct the Stage 2 AA. Stage 2 AA is a focused and detailed examination, analysis and evaluation carried out by the competent authority of the implications of the plan or project, alone and in-combination with other plans and projects, on the integrity of a European site in view of that site's conservation objectives. Case law has established that such an Appropriate Assessment, to be lawfully conducted, in summary:

> (i) must identify, in the light of the best scientific knowledge in the field, all aspects of the proposed development which can, by itself or in-combination with other plans or projects, affect the conservation objectives of the European site;
>
> (ii) must contain complete, precise and definitive findings and conclusions and may not have lacunae or gaps; and
>
> (iii) may only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where the competent authority decides (on the basis of complete, precise and definitive findings and conclusions) that no reasonable scientific doubt remains as to the absence of the identified potential effects. If adverse impacts can be satisfactorily avoided or successfully mitigated at this stage, so that no reasonable doubt remains as to the absence of the identified potential effects, then the process is complete. If the assessment is negative, i.e. adverse effects on the integrity of a site cannot be excluded, then the process must proceed to stage three and, if necessary, stage four.

If it is not possible during Stage 2 to avoid adverse effects on the integrity of one or more European sites through avoidance and/or mitigation, Stage 3 of the process must be undertaken which is to objectively assess whether alternative solutions exist by which the objectives of the plan or project can be achieved. If it can be demonstrated that there are no reasonable alternative solutions, the AA progresses to Stage 4. This final stage is undertaken when it has been determined that negative impacts on the integrity of a European site will result from a plan or project and there are no alternative solutions. At Stage 4 of the AA process, the competent authority must determine if, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, the project must nevertheless be carried out for imperative reasons of overriding public interest, or 'IROPI', including those of a social or economic nature. In such circumstances, the Member State is required to take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected.

While there is no prescribed form or content for reporting (DoEHLG, 2009) the methodology and format adopted in this report has been in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (EC, 2021) and the European Commission Guidance 'Managing Natura 2000 sites' (EC, 2018), guidance prepared by the NPWS (DoEHLG, 2009) and by the Office of the Planning Regulator (OPR, 2021).

As per DoEHLG (2009):

> *The first test is to establish whether, in relation to a particular plan or project, appropriate assessment is required.*

3.3 Identification of Relevant European sites

3.3.1 Source-Pathway-Receptor Model

Relevant European sites were identified in the Supporting Information for Screening for Appropriate Assessment (SISAA) report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006), based on the identification of a 'zone of influence' (ZoI) of the SI works using a Source-Pathway-Receptor (S-P-R) model (OPR, 2021) where:

- A 'source' is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features, and its COs;
- A 'pathway' is defined as the means or route by which a source can affect the ecological receptor; and

- A ‘receptor’ is defined as the Qualifying Interest (QI) or Species of Conservation Interest (SCI) of the European site being assessed for which COs have been set.

An S-P-R model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The S-P-R model was used to identify a list of European sites, and their QIs/SCIs, to which the SI works are linked. These are termed as ‘relevant’ sites/QIs/SCIs throughout this report.

3.3.2 Zone of Influence

Determination of the SI works’ ZoI was achieved by assessing the SI works against the ecological receptors within the AoI, in addition to the ecological receptors that could be connected to and subsequently impacted by the project through abiotic and biotic vectors outside the boundary of the AoI.

The proximity of the SI works to European sites, and more importantly, proximity of the SI works to QIs and SCIs of the European sites, are of importance when identifying potential likely significant effects. In accordance with the OPR AA Screening Guidelines (2021), the S-P-R model has been used to identify the ZoI to ensure that relevant European sites are identified. The S-P-R model minimises the risk of overlooking distant or obscure effect pathways, while also avoiding an over reliance on arbitrary buffer zones within which all European sites should be considered, and which may be unsupported by scientific evidence (e.g., 15 km). This approach follows the DoEHLG 2009 guidance on AA which states that:

> “*For projects, the distance could be much less than 15 km, and in some cases less than 100m, but this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects” (DoEHLG, 2009; p.32, para 1).*

The ZoI of the SI works on mobile species (e.g., birds, mammals, and fish), and static species and habitats (e.g., saltmarshes, woodlands, and flora) is considered differently. Mobile species have ‘range’ outside of the European sites in which they are QI. The range of mobile QI species varies considerably, from several metres (e.g., in the case of whorl snails *Vertigo* spp.), to hundreds of kilometres (in the case of migratory wetland birds). A project’s ZoI may extend well beyond the project boundary and can impact or have an effect on static species and habitats remote from the SI works; for example, where an aquatic QI habitat or plant is located many kilometres downstream from a pollution source. In particular, hydrological linkages between the SI works and European sites (and their QIs) can occur over significant distances; however, any effect will be site-specific depending on the receiving water environment and nature of the potential impact.

To this end, the ZoI for this project extends outside of the immediate SI works AoI to include ecological receptors connected to the project through proximity and connectivity through features such as watercourses and waterbodies in addition to potential connectivity through land and air. See Section 4.1 for the identification of relevant European sites.

3.3.3 Adverse effects on the integrity of European sites

The European Commission’s 2018 Notice (EC, 2019) advises that the purpose of the AA is to assess the implications of the plan or project in respect of the site’s COs, either individually or in-combination with other plans or projects. The conclusions should enable the competent authorities to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus of the AA is therefore specifically on the species and/or the habitats for which the European sites is designated.

EC (2019) also emphasises the importance of using the best scientific knowledge when carrying out the AA in order to enable the competent authority to conclude with certainty that there will be no adverse effects on the integrity of the site. This guidance notes that it is at the time of adoption of the decision authorising implementation of the project that there must be no reasonable scientific doubt remaining as to the absence of adverse effects on the integrity of the site in question.

As regards the meaning of ‘integrity,’ this relates to ecological integrity. This can be considered as a quality or condition of being whole or complete. In a dynamic ecological context, it can also be considered as having the sense of resilience and ability to evolve in ways that are favourable to conservation.

The ‘integrity of the site’ can be usefully defined as (EC, 2019):

"The coherent sum of the site's ecological structure, function and ecological processes, across its whole area, which enables it to sustain the habitats, complex of habitats and/or populations of species for which the site is designated."

EC (2019) notes that if the competent authority considers the mitigation measures are sufficient to avoid the adverse effects on site integrity identified in the AA, they will become an integral part of the specification of the final plan or project or may be listed as a condition for project approval.

EC (2019) advises that it is for the competent authority, in the light of the conclusions made in the appropriate assessment on the implications of a plan or project for the European sites concerned, to approve the plan or project. This decision can only be taken after they have made certain that the plan or project will not adversely affect the integrity of the site. That is the case where no reasonable scientific doubt remains as to the absence of such effects.

EC (2019) also reaffirms that the authorisation criterion laid down in the second sentence of Article 6(3) of the Habitats Directive integrates the precautionary principle and makes it possible effectively to prevent the protected sites from suffering adverse effects on their integrity as the result of the plans or projects. A less stringent authorisation criterion could not as effectively ensure the fulfilment of the objective of site protection intended under that provision. The onus is therefore on demonstrating the absence of adverse effects rather than their presence, reflecting the precautionary principle. It follows that the appropriate assessment must be sufficiently detailed and reasoned to demonstrate the absence of adverse effects, in light of the best scientific knowledge in the field.

3.3.4 Consideration of ex-situ effects

EC (2019) advises that Member States, both in their legislation and in their practice, allow for the Article 6(3) safeguards to be applied to any development pressures, including those which are external to European sites, but which are likely to have significant effects on any of them.

The CJEU developed this point when it issued a ruling in case C-461/17 Holohan v. An Bord Pleanála, that determined *inter alia* that Article 6(3) of the Habitats Directive must be interpreted as meaning that an appropriate assessment must on the one hand, catalogue the entirety of habitat types and species for which a site is protected, and, on the other, identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitat types and species to be found outside the boundaries of that site, provided that those implications are liable to affect the COs of the site.

In that regard, consideration has been given in this NIS to inform AA to implications for habitats and species located both inside and outside of the European sites considered in the SISAA with reference to those sites' COs where effects upon those habitats and/or species are liable to affect the COs of the sites concerned.

3.3.5 Conservation objectives

The COs for each European site are to maintain or restore the favourable conservation condition of the qualifying interest (QI) habitat(s) and/or the QI (or special conservation interest (SCI) for SPAs) species for which the site has been selected.

The favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, are stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- The conservation status of its typical species is favourable.

The favourable conservation status (or condition, at a site level) of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and

- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The COs of European sites published by the National Parks and Wildlife Service (NPWS) note that an AA based on the most up to date COs (which are defined by a list of attributes and targets) will remain valid even if the targets are subsequently updated, providing they were the most recent objectives available when the assessment was carried out.

The most up-to-date COs for the European sites being considered have been used in this NIS.

3.3.6 In-combination effects

Article 6(3) of the Habitats Directive requires that in-combination effects with other plans or projects are also considered. As set out in EC (2018), significance will vary depending on factors such as magnitude of impact, type, extent, duration, intensity, timing, probability, cumulative effects and the vulnerability of the habitats and species concerned.

EC (2021) notes that cumulative environmental effects can be defined as effects on the environment caused by the combined action of past, current, and future activities. Although the effects of one development may not be significant, the combined effects of several developments together can be significant.

EC (p.14, 2021) also notes that the “in-combination provision concerns other plans or projects that have been already completed, approved but uncompleted, or proposed (i.e., for which an application for approval or consent has been submitted).” And furthermore (p.31, ibid): “In addition to the effects of the plans or projects that are the main subject of the assessment, it may be appropriate to consider the effects of already completed plans and projects, including those preceding the date of transposition of the directive or the date of designation of the site. The effects of such completed plans and projects would typically form part of the site's baseline conditions which are considered at this stage.”

Plans and projects that have been approved in the past but have not yet been implemented or completed should be included in the in-combination provision. As regards other proposed plans or projects, on grounds of legal certainty it would seem appropriate to restrict the ‘in-combination’ provision to plans that have been proposed, (i.e., for which an application for approval or consent has been submitted) (EC, 2021).

This mirrors the advice contained in EC (2018) which advises that other plans or projects which are completed, approved but uncompleted, or proposed should be considered. EC (2018) specifically advises that “as regards other proposed plans or projects (i.e., other projects not proposed by the Applicant), on grounds of legal certainty it would seem appropriate to restrict the in-combination provision to those which have been actually proposed, i.e., for which an application for approval or consent has been introduced”.

The ability for impacts arising from the proposed project to overlap with those from other projects, plans and activities to result in adverse effects are considered. This means that, in most examples, an overlap of the physical extents of the impacts arising from the two (or more) projects, plans or activities must be established for an in-combination effect to arise. For example, for a cumulative sedimentation effect to be established between the proposed project and another project, it must be established that the extent of sediment release from both projects has the potential to overlap and may affect a receptor at the same location.

Exceptions to this exist for certain mobile receptors that may move between, and be subject to, two or more separate physical extents of impact from two or more projects. For example, species such as otter may be affected by water quality impacts from the project, as well as those from other projects where the extent of another area affecting water quality does not directly overlap with that of the project. Where relevant, mitigation will be imposed as necessary to prevent adverse in-combination effects.

3.4 Ecological Desk Study

The SISAA (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006) details the results of the ecological desk study undertaken to describe the receiving environment of the SI works. Those details are not reiterated here to avoid repetition. A description of each European site is provided in Section 5.

4 STAGE 1 SCREENING FOR APPROPRIATE ASSESSMENT

4.1 SISAA Report

Through an assessment of the S-P-R model, which considered the ZoI of effects from the SI works, the following findings were reported by RPS in the SISAA report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006):

The SI works are not connected with or necessary to the management of the nature conservation interest of any European site.

The SI works, in the absence of mitigation, have the potential to contribute to habitat loss, alteration, and/or fragmentation of QI habitats in:

- Bannow Bay SAC
- River Barrow and River Nore SAC
- Hook Head SAC.

In the absence of mitigation, the coastal and marine geophysical, geotechnical and metocean surveys will introduce subsea noise that has the potential to impact on otter, migratory fish species, bottlenose dolphin, harbour porpoise, harbour seal (*Phoca vitulina*) and grey seal (*Halichoerus grypus*) at the following European sites:

- Hook Head SAC (bottlenose dolphin and harbour porpoise)
- River Barrow and River Nore SAC (otter and migratory fish)
- Saltee Islands SAC (grey seal)
- Blackwater River (Cork/Waterford) SAC (otter and migratory fish)
- Lower River Suir SAC (otter and migratory fish)
- Slaney River Valley SAC (harbour seal, otter and migratory fish)
- Carnsore Point SAC (harbour porpoise)
- Blackwater Bank SAC (harbour porpoise)
- Roaringwater Bay and Islands SAC (grey seal and harbour porpoise)
- Glengarriff Harbour and Woodland SAC (harbour seal)
- Pembrokeshire Marine/ Sir Benfro Forol SAC (grey seal)
- West Wales Marine / Gorllewin Cymru Forol SAC (harbour porpoise)

As a result of above-water noise, vibration, lighting, and human presence associated with the SI works, disturbance of QI species is possible at the following European sites:

- Bannow Bay SPA (wintering waterbirds)
- Ballycotton Bay SPA (wintering waterbirds and gull species)
- Ballyteige Burrow SPA (wintering geese/swans)
- Tramore Back Strand SPA (wintering geese/swans)
- Dungarvan Harbour SPA (wintering geese/swans)
- Tacumshin Lake SPA (wintering geese/swans)
- Wexford Harbour and Slobs SPA (wintering geese/swans)
- Mid Waterford Coast SPA (breeding birds at the nest)
- Keeragh Islands SPA (breeding birds at the nest)

In the absence of mitigation measures, there is the potential for there to be in-combination effects with other projects and therefore in-combination effects are screened in for further assessment.

The SISAA report concludes that it cannot be excluded, on the basis of objective information, that the SI works, individually or in combination with other plans or projects, will have a significant effect(s) on European sites. It is recommended that an NIS be prepared to assist MARA in conducting an Appropriate Assessment should they agree with the findings of the SISAA.

4.2 MARA Screening Determination

MARA in their Screening for Appropriate Assessment for a Maritime Usage Licence Application dated 1st May 2025 (MUL240036) also determined that an AA was required. MARA identified the following potential impacts from the proposed SI works:

- Direct habitat damage (loss) or habitat degradation.
- Water quality deterioration (increase in suspended sediments or water pollution) from survey activities or survey vessels leading to habitat degradation or impacts on migratory fish species, birds and marine mammals, or their prey species.
- Disturbance and displacement from underwater noise to marine mammals (including seals), otter, migratory fish and seabirds.
- Disturbance and displacement from above water noise, vibration, lighting and human presence to bird populations, marine mammals and otter.
- Potential collision risk to marine mammals from survey vessels.

Based on the above list of potential impacts, MARA screened in additional European sites and/or additional qualifying interests (QI) and species of conservation interest (SCI) that were screened out in the SISAA report.

This finalised NIS takes into consideration the findings of MARA's Screening for Appropriate Assessment for a Maritime Usage Licence Application.

For completeness, the list of European sites and the relevant QI, SCI, and site-specific conservation objectives (SSCO) screened in by MARA are listed in Table 4.1 (SACs) and Table 4.2 (SPAs) below.

MARAs screening determination identified 11 projects and four plans as having the potential to act in-combination with the proposed SI works. In-combination effects are considered in Section 5.8 of this NIS Report.

Table 4.1 Special Area of Conservation (SAC) and relevant QIs screened in by MARA Screening Determination (01/05/2025)

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
Bannow Bay SAC [000697]	SAC within MUL area	**Estuaries [1130]** **Mudflats and sandflats not covered by seawater at low tide [1140]** **Annual vegetation of drift lines [1210] Perennial vegetation of stony banks [1220]** **Salicornia and other annuals colonising mud and sand [1310]** **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]** **Mediterranean salt meadows (*Juncetalia maritimi*) [1410]** **Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [1420]** **Embryonic shifting dunes [2110]** **Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]** **Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]**	Yes. Potential for direct habitat damage (habitat loss) or habitat degradation from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation.	Yes	Yes	NPWS (2012) Conservation Objectives: Bannow Bay SPA 004033. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
Hook Head SAC [000764]	SAC within MUL area	**Large shallow inlets and bays [1160]** **Reefs [1170]** **Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]** ***Tursiops truncatus* (Common Bottlenose Dolphin) [1349]** ***Phocoena phocoena* (Harbour Porpoise) [1351]**	Yes. Potential for direct habitat damage (habitat loss) or habitat degradation from survey activities. Water quality deterioration from survey activity or survey vessels, leading to habitat degradation or impacts on marine mammals. Potential for disturbance and	Yes	Yes	NPWS (2025) Conservation Objectives: Hook Head SAC 000764. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
			displacement of marine mammals from underwater noise from survey activities. Potential collision risk to marine mammals from survey vessels.			
River Barrow and River Nore SAC [002162]	SAC Adjacent to MUL area	**Estuaries [1130]** **Mudflats and sandflats not covered by seawater at low tide [1140]** **Reefs [1170]** **Salicornia and other annuals colonising mud and sand [1310]** **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]** **Mediterranean salt meadows (*Juncetalia maritimi*) [1410]** ***Petromyzon marinus* (Sea Lamprey) [1095]** ***Lampetra fluviatilis* (River Lamprey) [1099]** ***Alosa fallax fallax* (Twaite Shad) [1103]** ***Salmo salar* (Salmon) [1106]** ***Lutra lutra* (Otter) [1355]**	Yes. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation, or impacts on migratory fish and otter. Potential for disturbance and displacement of migratory fish and otter from underwater and above water noise from the survey activities.	Yes	Yes	NPWS (2011) Conservation Objectives: River Barrow and River Nore SAC 002162. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
		Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] European dry heaths [4030] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Petrifying springs with tufa formation (Cratoneurion) [7220] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Vertigo moulinsiana* (Desmoulin's Whorl Snail) [1016]	No	No		

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
		Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Trichomanes speciosum* (Killarney Fern) [1421] *Lampetra planeri* (Brook Lamprey) [1096]				
Lower River Suir SAC [002137]	12 km (upstream from MUL area)	***Petromyzon marinus* (Sea Lamprey) [1095]** ***Lampetra fluviatilis* (River Lamprey) [1099]** ***Alosa fallax fallax* (Twaite Shad) [1103]** ***Salmo salar* (Salmon) [1106]** ***Lutra lutra* (Otter) [1355]**	Yes Water quality deterioration from survey activities or survey vessels, leading to impacts on migratory fish and on otter prey species. Potential for disturbance and displacement of otter and migratory fish from above water and underwater noise from survey activities.	Yes	Yes	NPWS (2017) Conservation Objectives: Lower River Suir SAC 002137. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
		Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus* excelsior (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) [91E0] *Taxus baccata* woods of the British Isles [91J0] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Austropotamobius pallipes* (White-clawed Crayfish) [1092]	No	No		

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
		Lampetra planeri (Brook Lamprey) [1096]				
Ballyteige Burrow SAC [000696]	Adjacent to MUL area	**Estuaries [1130]** **Mudflats and sandflats not covered by seawater at low tide [1140]** **Coastal lagoons [1150]** **Salicornia and other annuals colonising mud and sand [1310]** **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]** **Mediterranean salt meadows (*Juncetalia maritimi*) [1410]** **Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [1420]**	Yes Water quality deterioration from survey activity or survey vessels, leading to habitat degradation.	Yes	Yes	NPWS (2014) Conservation Objectives: Ballyteige Burrow SAC 000696. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
		Annual vegetation of drift lines [1210] Perennial vegetation of stony banks [1220] Embryonic shifting dunes [2110] Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120] Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] Atlantic decalcified fixed dunes (*Calluno-Ulicetea*) [2150] Humid dune slacks [2190]	No	No		
Saltee Islands SAC	3 km	**Mudflats and sandflats not covered by seawater at low tide [1140]** **Large shallow inlets and bays [1160]** **Reefs [1170]** **Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]** **Submerged or partially submerged sea caves [8330]** ***Halichoerus grypus* (Grey Seal) [1364]**	Yes Water quality deterioration from survey activities or survey vessels, leading to habitat degradation, or impacts on seals. Potential for disturbance and displacement of seals from underwater and above water noise from the survey activities.	Yes	Yes	NPWS (2011) Conservation Objectives: Saltee Islands SAC 000707 and Saltee Islands SPA 004002. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
			Potential collision risk to marine mammals from survey vessels.			
Carnsore Point SAC	20 km	***Phocoena phocoena* (Harbour Porpoise) [1351]**	Yes Potential for disturbance and displacement of Harbour porpoise from underwater noise from the survey activities. Water quality deterioration from survey activities or survey vessels, leading to impacts on Harbour porpoise or their prey. Potential collision risk to marine mammals from survey vessels.	Yes	Yes	NPWS (2024) Conservation Objectives: Carnsore Point SAC 002269. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170]	No	No		
Blackwater River (Cork/Waterford) SAC [002170]	8.5	***Petromyzon marinus* (Sea Lamprey) [1095]** ***Lampetra fluviatilis* (River Lamprey) [1099]** ***Alosa fallax fallax* (Twaite Shad) [1103]** ***Salmo salar* (Salmon) [1106]** ***Lutra lutra* (Otter) [1355]**	Yes. Potential for disturbance and displacement of migratory fish and otter from underwater and above water noise from the survey activities.	Yes	Yes	NPWS (2012) Conservation Objectives: Blackwater River (Cork/Waterford) SAC 002170. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
		Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Perennial vegetation of stony banks [1220] Salicornia and other annuals colonising mud and sand [1310]	No	No		

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
		Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Trichomanes speciosum* (Killarney Fern) [1421] *Lampetra planeri* (Brook Lamprey) [1096]				
Blackwater Bank SAC [002953]	37	***Phocoena phocoena* (Harbour Porpoise) [1351]**	Yes Potential for disturbance and displacement of Harbour porpoise from underwater noise from the survey activities. Water quality deterioration from survey activities or survey vessels, leading to impacts on Harbour porpoise or their prey. Potential collision risk to marine mammals from survey vessels.	Yes	Yes	NPWS (2024) Conservation Objectives: Blackwater Bank SAC 002953. Version 3. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
		Sandbanks which are slightly covered by sea water all the time [1110]	No	No	No	

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
Roaringwater Bay and Islands SAC [000101]	80	***Phocoena phocoena* (Harbour Porpoise) [1351]** ***Halichoerus grypus* (Grey Seal) [1364]**	Yes Potential for disturbance and displacement of Harbour porpoise from underwater noise from the survey activities. Water quality deterioration from survey activities or survey vessels, leading to impacts on Harbour porpoise or their prey. Potential collision risk to marine mammals from survey vessels.	Yes	Yes	NPWS (2011) Conservation Objectives: Roaringwater Bay and Islands SAC 000101. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
		Large shallow inlets and bays [1160] Reefs [1170] Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] European dry heaths [4030] Submerged or partially submerged sea caves [8330] *Lutra lutra* (Otter) [1355]	No	No		
Slaney River Valley SAC [000781]	17	***Petromyzon marinus* (Sea Lamprey) [1095]** ***Lampetra fluviatilis* (River Lamprey) [1099]** ***Alosa fallax fallax* (Twaite Shad) [1103]** ***Salmo salar* (Salmon) [1106]** ***Lutra lutra* (Otter) [1355]** ***Phoca vitulina* (Harbour Seal) [1365]**	Yes Water quality deterioration from survey activities or survey vessels, leading to impacts on migratory fish and on seal and otter prey species. Potential for disturbance and displacement of otter, seals and migratory fish from above water and	Yes	Yes	NPWS (2011) Conservation Objectives: Slaney River Valley SAC 000781. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
			underwater noise from survey activities. Potential collision risk to marine mammals from survey vessels.			
		Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* Alno-Padion, *Alnion incanae, Salicion albae*) [91E0] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Lampetra planeri* (Brook Lamprey) [1096]	No	No		

Table 4.2 Special Protection Area (SPA) and relevant SCIs screened in by MARA Screening Determination (01/05/2025)

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
Keeragh Islands SPA [004118]	SPA within MUL area	**Cormorant (*Phalacrocorax carbo*) [A017]**	Yes Disturbance and displacement from underwater noise from survey activities Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.	Yes	Yes	NPWS (2022) Conservation objectives for Keeragh Islands SPA [004118]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage. As only first order SSCOs are available for this site, the detailed SSCOs for the Sovereign Islands SPA, also protected for cormorant, have been considered. NPWS (2025) Conservation Objectives: Sovereign Islands SPA 004124. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
Seas off Wexford Coast SPA [004237]	SPA partly Within MUL area	**Red-throated Diver (*Gavia stellata*) [A001]** **Fulmar (*Fulmarus glacialis*) [A009]** **Manx Shearwater (*Puffinus puffinus*) [A013]**	Yes Disturbance and displacement from underwater noise from survey activities.	Yes	Yes	NPWS (2024) Conservation Objectives: Seas off Wexford SPA 004237. Version 1.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
		Gannet (*Morus bassanus*) [A016] **Cormorant (*Phalacrocorax carbo*) [A017]** **Shag (*Phalacrocorax aristotelis*) [A018]** **Common Scoter (*Melanitta nigra*) [A065]** **Mediterranean Gull (*Larus melanocephalus*) [A176]** **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Herring Gull (*Larus argentatus*) [A184]** **Kittiwake (*Rissa tridactyla*) [A188]** **Sandwich Tern (*Sterna sandvicensis*) [A191]** **Roseate Tern (*Sterna dougallii*) [A192]** **Common Tern (*Sterna hirundo*) [A193]** **Arctic Tern (*Sterna paradisaea*) [A194]** **Little Tern (*Sterna albifrons*) [A195] Guillemot (*Uria aalge*) [A199]** **Razorbill (*Alca torda*) [A200]** **Puffin (*Fratercula arctica*) [A204]**	Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.			National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
Bannow Bay SPA [004033]	SPA partly Within MUL area	**Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]** **Shelduck (*Tadorna tadorna*) [A048]** **Pintail (*Anas acuta*) [A054]** **Oystercatcher (*Haematopus ostralegus*) [A130]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Knot (*Calidris canutus*) [A143]** **Dunlin (*Calidris alpina*) [A149]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Curlew (*Numenius arquata*) [A160]** **Redshank (*Tringa totanus*) [A162]** **Wetland and Waterbirds [A999]**	Yes Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.	Yes	Yes	NPWS (2012) Conservation Objectives: Bannow Bay SPA 004033. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
Mid-Waterford Coast SPA [004193]	SPA partly Within MUL area	**Cormorant (*Phalacrocorax carbo*) [A017]** **Peregrine (*Falco peregrinus*) [A103]** **Herring Gull (*Larus argentatus*) [A184]** **Chough (*Pyrrhocorax pyrrhocorax*) [A346]**	Yes Disturbance and displacement from underwater noise from survey activities. Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.	Yes	Yes	NPWS (2024) Conservation Objectives: Mid-Waterford Coast SPA 004193. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
Ballycotton Bay SPA [004022]	SPA partly Within MUL area	**Teal (*Anas crecca*) [A052]** **Ringed Plover (*Charadrius hiaticula*) [A137]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Curlew (*Numenius arquata*) [A160]** **Turnstone (*Arenaria interpres*) [A169]** **Common Gull (*Larus canus*) [A182]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Wetland and Waterbirds [A999]**	Yes Disturbance and displacement from underwater noise from survey activities. Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.	Yes	Yes	NPWS (2014) Conservation Objectives: Ballycotton Bay SPA 004022. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
Ballyteige Burrow SPA [004020]	1	**Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]** **Shelduck (*Tadorna tadorna*) [A048]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Wetland and Waterbirds [A999]**	Yes Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.	Yes	Yes	NPWS (2014) Conservation Objectives: Ballyteige Burrow SPA 004020. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
Tramore Back Strand SPA [004027]	1	**Light-bellied Brent Goose (*Branta bernicla hrota) [A046]*** **Golden Plover *(Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Dunlin (*Calidris alpina*) [A149]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Curlew (*Numenius arquata*) [A160]** **Wetland and Waterbirds [A999]**	Yes Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.	Yes	Yes	NPWS (2013) Conservation Objectives: Tramore Back Strand SPA 004027. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
Cork Harbour SPA [00430]	1	**Little Grebe (*Tachybaptus ruficollis*) [A004]** **Great Crested Grebe (*Podiceps cristatus*) [A005]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Grey Heron (*Ardea cinerea*) [A028]**	Yes Disturbance and displacement from underwater noise from survey activities.	Yes	Yes	NPWS (2014) Conservation Objectives: Cork Harbour SPA 004030. Version 1.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
		Shelduck (*Tadorna tadorna*) [A048] **Wigeon (*Anas penelope*) [A050]** **Teal (*Anas crecca*) [A052]** **Pintail (*Anas acuta*) [A054]** **Shoveler (*Anas clypeata*) [A056]** **Red-breasted Merganser (*Mergus serrator*) [A069]** **Oystercatcher (*Haematopus ostralegus*) [A130]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Dunlin (*Calidris alpina*) [A149]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Curlew (*Numenius arquata*) [A160]** **Redshank (*Tringa totanus*) [A162]** **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]** **Common Gull (*Larus canus*) [A182]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Common Tern (*Sterna hirundo*) [A193]** **Wetland and Waterbirds [A999]**	Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.			National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
Ballymacoda Bay SPA [004023]	4	**Wigeon (*Anas penelope*) [A050]** **Teal (*Anas crecca*) [A052]** **Ringed Plover (*Charadrius hiaticula*) [A137]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Sanderling (*Calidris alba*) [A144]** **Dunlin (*Calidris alpina*) [A149]** **Black-tailed Godwit (*Limosa limosa*) [A156]**	Yes Disturbance and displacement from underwater noise from survey activities. Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel	Yes	Yes	NPWS (2015) Conservation Objectives: Ballymacoda Bay SPA 004023. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
		Bar-tailed Godwit (*Limosa lapponica*) [A157] **Curlew (*Numenius arquata*) [A160]** **Redshank (*Tringa totanus*) [A162]** **Turnstone (*Arenaria interpres*) [A169]** **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]** **Common Gull (*Larus canus*) [A182]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Wetland and Waterbirds [A999]**	activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.			
Helvick Head to Ballyquin SPA [004192]	5	**Cormorant (*Phalacrocorax carbo*) [A017]** **Herring Gull (*Larus argentatus*) [A184]** **Kittiwake (*Rissa tridactyla*) [A188]**	Yes Disturbance and displacement from underwater noise from survey activities. Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species	Yes	Yes	NPWS (2022) Conservation objectives for Helvick Head to Ballyquin SPA [004192]. First Order Site-specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage. As only first order SSCOs are available for this site, the detailed SSCOs for the Mid-Waterford Coast SPA have been considered. NPWS (2024) Conservation Objectives: Mid-Waterford Coast SPA 004193. Version
		Chough (*Pyrrhocorax pyrrhocorax*) [A346] Peregrine (*Falco peregrinus*) [A103]	No	No		

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
						1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
Dungarvan Harbour SPA [004032]	6	**Great Crested Grebe (*Podiceps cristatus*) [A005]** **Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]** **Shelduck (*Tadorna tadorna*) [A048]** **Red-breasted Merganser (*Mergus serrator*) [A069]** **Oystercatcher (*Haematopus ostralegus*) [A130]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Knot (*Calidris canutus*) [A143]** **Dunlin (*Calidris alpina*) [A149]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Curlew (*Numenius arquata*) [A160]** **Redshank (*Tringa totanus*) [A162]** **Turnstone (*Arenaria interpres*) [A169]** **Wetland and Waterbirds [A999]**	Yes Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.	Yes	Yes	NPWS (2012) Conservation Objectives: Dungarvan Harbour SPA 004032. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
Sovereign Islands SPA [004124]	7	**Cormorant (*Phalacrocorax carbo*) [A017]**	Yes Disturbance and displacement from underwater noise from survey activities. Water quality deterioration from survey activities or survey vessels, leading to a reduction in prey	Yes	Yes	NPWS (2025) Conservation Objectives: Sovereign Islands SPA 004124. Version 1. National Parks and Wildlife Service, Department of Housing, Local

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
			species			Government and Heritage.
Saltee Islands SPA [0040002]	8	**Fulmar (*Fulmarus glacialis*) [A009]** **Gannet (*Morus bassanus*) [A016]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Shag (*Phalacrocorax aristotelis*) [A018]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Herring Gull (*Larus argentatus*) [A184]** **Kittiwake (*Rissa tridactyla*) [A188]** **Guillemot (*Uria aalge*) [A199]** **Razorbill (*Alca torda*) [A200]** **Puffin (*Fratercula arctica*) [A204]**	Yes Disturbance and displacement from underwater noise from survey activities. Water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.	Yes	Yes	NPWS (2011) Conservation Objectives: Saltee Islands SAC 000707 and Saltee Islands SPA 004002. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
Blackwater Estuary SPA [004028]	9	**Wigeon (*Anas penelope*) [A050]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Lapwing (*Vanellus vanellus*) [A142]** **Dunlin (*Calidris alpina*) [A149]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Curlew (*Numenius arquata*) [A160]** **Redshank (*Tringa totanus*) [A162]** **Wetland and Waterbirds [A999]**	Yes Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species	Yes	Yes	NPWS (2012) Conservation Objectives: Blackwater Estuary SPA 004028. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
Tacumshin Lake SPA [004092]	16	**Little Grebe (*Tachybaptus ruficollis*) [A004]** **Bewick's Swan (*Cygnus columbianus bewickii*) [A037]** **Whooper Swan (*Cygnus cygnus*) [A038]** **Wigeon (*Anas penelope*) [A050] Gadwall (*Anas strepera*) [A051]** **Teal (*Anas crecca*) [A052]** **Pintail (*Anas acuta*) [A054]** **Shoveler (*Anas clypeata*) [A056]** **Tufted Duck (*Aythya fuligula*) [A061]** **Coot (*Fulica atra*) [A125]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Wetland and Waterbirds [A999]**	Yes Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities. Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.			NPWS (2025) Conservation Objectives: Tacumshin Lake SPA 004092. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
Wexford Harbour and Slobs SPA [004076]	17	**Little Grebe (*Tachybaptus ruficollis*) [A004]** **Great Crested Grebe (*Podiceps cristatus*) [A005]** **Cormorant (*Phalacrocorax carbo*) [A017]** **Bewick's Swan (*Cygnus columbianus bewickii*) [A037]** **Whooper Swan (*Cygnus cygnus*) [A038]** **Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]** **Shelduck (*Tadorna tadorna*) [A048]** **Wigeon (*Anas penelope*) [A050]** **Teal (*Anas crecca*) [A052]** **Mallard (*Anas platyrhynchos*) [A053]**	Yes Disturbance and displacement from underwater noise from survey activities. Disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities.	Yes	Yes	NPWS (2012) Conservation Objectives: Wexford Harbour and Slobs SPA 004076. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
		Pintail (*Anas acuta*) [A054] **Scaup (*Aythya marila*) [A062]** **Goldeneye (*Bucephala clangula*) [A067]** **Red-breasted Merganser (*Mergus serrator*) [A069]** **Coot (*Fulica atra*) [A125]** **Oystercatcher (*Haematopus ostralegus*) [A130]** **Golden Plover (*Pluvialis apricaria*) [A140]** **Grey Plover (*Pluvialis squatarola*) [A141]** **Lapwing (*Vanellus vanellus*) [A142]** **Knot (*Calidris canutus*) [A143]** **Sanderling (*Calidris alba*) [A144]** **Dunlin (*Calidris alpina*) [A149]** **Black-tailed Godwit (*Limosa limosa*) [A156]** **Bar-tailed Godwit (*Limosa lapponica*) [A157]** **Curlew (*Numenius arquata*) [A160]** **Redshank (*Tringa totanus*) [A162]** **Black-headed Gull (*Chroicocephalus ridibundus*) [A179]** **Lesser Black-backed Gull (*Larus fuscus*) [A183]** **Little Tern (*Sterna albifrons*) [A195]** **Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]** **Wetland and Waterbirds [A999]**	Water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.			
		Hen Harrier (*Circus cyaneus*) [A082]	No	No		
Old Head of Kinsale SPA [001021]	18	**Kittiwake (*Rissa tridactyla*) [A188]** **Guillemot (*Uria aalge*) [A199]**	Yes Disturbance and displacement from underwater noise from survey activities. Water quality deterioration from survey	Yes	Yes	NPWS (2025) Conservation Objectives: Old Head of Kinsale SPA 004021. Version 1. National Parks and Wildlife Service,

European Site & site code	Approx. distance from MUL application area (km)	List of Qualifying Interests	Connections (Source-pathway- receptor)	Qualifying Interests screened in	European Site screened in	Site-specific conservation objectives
			activities or survey vessels, leading to a reduction in prey species.			Department of Housing, Local Government and Heritage.

5 ASSESSMENT OF ADVERSE EFFECTS

5.1 Introduction

The connectivity between the proposed SI works and the relevant European sites has been assessed in the SISAA Report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006). Thirteen SACs and nine SPAs have been identified as relevant European sites for this NIS (see Section 4). This NIS only assesses QIs and SCIs in relation to which it could not be excluded based on objective information following screening that the proposed SI works, either alone or in combination with other projects, would have a likely significant effect. This analysis is set out in the SISAA Report and the relevant QIs and SCIs and associated European sites are summarised in Section 4 of this NIS report.

As the SISAA considered likely significant effects in line with the precautionary principle, interactions between the proposed SI works and the European sites identified in the SISAA will be investigated in more detail to establish whether there is a credible risk of interaction with the proposed SI works. Where no such interaction with a European site (or relevant QIs) occurs, no further assessment will be undertaken. Where there is a credible interaction between the SI works and a European site, an assessment against the site's Conservation Objectives (COs) will be undertaken. Where appropriate, mitigation measures will also be considered.

5.2 MARA Screening Determination Update

MARA in their Screening for Appropriate Assessment for a Maritime Usage Licence Application dated 1st May 2025 (MUL240036) screened in one additional SAC and eight additional SPAs (and relevant QIs / SCIs only), and these have been considered in this NIS. Additional QIs / SCIs for sites already screened in will also be considered, where relevant. Updates based on MARA's screening determination have been added to the end of each section, where appropriate.

5.3 Habitats

5.3.1 Overview of impacts to habitats (Habitat loss, alteration or fragmentation, including increased SSC/ smothering)

In line with the precautionary principle, intertidal and subtidal QI habitats at the following SACs were screened in for AA, as likely significant effects due to habitat loss, alteration or fragmentation, including increased SSC/ smothering caused by extractive/ intrusive survey techniques (e.g. benthic grab sampling, boreholes, vibrocores and CPTs) could not be excluded at the screening stage:

- Bannow Bay SAC
- River Barrow and Nore SAC
- Hook Head SAC

The interaction between the proposed SI works and the above SACs will be investigated in more detail to establish whether there is a credible risk of interaction with the QI habitats from the proposed SI works. Where no such risk of interaction with a European site occurs, no further assessment will be undertaken. Where there is a risk of interaction between the SI works to QI habitats, an assessment against the conservation objectives will be undertaken.

Intrusive or extractive SI works (e.g. grab samples, boreholes, etc.) can potentially damage habitats if undertaken directly on or through that habitat. Where a Jack-up Barge (JUB) is used as a platform to undertake the coastal geotechnical surveys, the legs will result in the disturbance to sediments during the placement operations (i.e. "spudding"). Table 5.1 outlines the maximum quantities of each sampling activity type, area per sample and maximum area to be removed or disturbed. Summing the areas equates to a total area of impact of 345 m^2 which is 0.000015% of the AoI (2,336 km^2).

The sensitivity of a habitat will depend on the likelihood of damage (or tolerance/ resistance) and the rate of recovery (or resilience) once the pressure has abated (Tyler-Walters et al., 2023). In general, sedimentary habitats are considered to be less sensitive to damage from sampling as they have higher resistance and

resilience to pressures such as removal and damage than more complex, hard substrate habitats like reefs. Intrusive/ extractive sampling associated with the SI works will be limited in scale, and consists of very small, discrete sampling areas within a much wider marine environment. Given the dynamic marine environment within the AoI, the limited scale and temporary nature of sampling to be undertaken, it is anticipated that there will be rapid recovery of sedimentary habitats over a number of tidal cycles and therefore, any impact to sedimentary habitats is fully reversible.

SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column, which has the potential to smother nearby sensitive community types or habitats. However, given the relatively limited scale and temporary nature of sampling within the AoI, it is anticipated that any suspended sediments will settle out of suspension rapidly, and that habitats in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

Although it is unlikely that intrusive sampling of hard substrates such as reef would be successful due to operational constraints of the equipment, attempts to sample over hard substrates likely to be reef could damage such habitats.

Table 5.1 Summary of Intrusive/Extractive Sampling Quantities and Areas

Activity	Maximum Quantity	Unit Area m^2	Total % of AoI Area (2,336 km^2)	Maximum Area Removed/Disturbed m^2
Benthic Grab Sampling (Subtidal)	420	0.100	0.000002%	42.0
Intertidal Core Sampling	126	0.010	0.00000005%	1.3
Vibrocore (120 mm dia. x 6 m deep)	276	0.011	0.0000001%	3.0
Inshore/onshore borehole (250 mm dia. x 15 m deep)	21	0.049	0.00000004%	1.0
Offshore borehole (250 mm dia. x 100 m deep)	8	0.049	0.0000002%	0.4
Shallow CPT (10 cm^2 x 6 m deep) - no material removed	276	0.010	0.0000001%	2.8
Deep drive CPT (10 cm^2 x 15 m deep) - no material removed	16	0.010	0.00000001%	0.2
Trial pit (1 m^2 x 2 m deep) - excavated material backfilled.	42	1.000	0.000002%	42.0
Jack-up barge (4 legs x max 3m^2 each)	21	12.000	0.00001%	252.0
Total	**1206**	**13.24**	**0.000015%**	**345**

5.3.2 Bannow Bay SAC

Bannow Bay SAC is a large sheltered estuarine site, with large areas of mud and sand, and narrow access to the sea at its mouth, due to the presence of two areas of sand dunes: Bannow Island to the east and Grange to the west (DHLGH, 2014a). Coastal habitat QIs are: Annual vegetation of drift lines, Perennial vegetation of stony banks [1220], *Salicornia* and other annuals colonizing mud and sand [1310], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [1420], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') [2120] and *Fixed coastal dunes with herbaceous vegetation ('grey dunes') [2130] (for which the '*' indicates the Priority status of the QI)

Although the AoI boundary includes the enclosed estuarine system of Bannow Bay, coastal surveys will take place only at the potential landfall zones, none of which are within the boundary of the SAC. The closest landfall zone (Zone F) is approximately 1 km east of Bannow Bay SAC. Therefore, there will be no interaction between the intertidal and coastal habitats of Bannow Bay SAC and the proposed SI works, and no further assessment of the above-listed coastal habitats is considered necessary.

Marine QI habitats at Bannow Bay SAC are: Estuaries and Mudflats and sandflats not covered by sea water at low tide (shortened to 'mudflats' in the following text for brevity). The inner bay is navigable by small

vessels with local knowledge only, because the sandbanks across the tidal inlet are prone to shifting (NPWS, 2012d). Intrusive marine sampling will be focused along the seven potential offshore transmission cable corridors for the PUOSC project and as there are no landfall locations within Bannow Bay, no intrusive sampling will be undertaken in the inner bay. The Estuaries QI covers 34 ha and is located to the north of the SAC, at the mouth of the River Owenduff (NPWS, 2012a). Therefore, there will be no interaction between the QI Estuaries habitat of Bannow Bay SAC and the proposed SI works, and no further assessment of this QI habitat is considered necessary.

The Mudflats QI is more widespread and covers 893 ha, extending out of the estuary and west towards Fethard (NPWS, 2012a). Although only a narrow band of mudflat habitat extends beyond the narrow estuary mouth, there is potential for interaction between the marine surveys and this area of mudflat habitat. Intrusive/ extractive survey methodologies (e.g. boreholes, grab sampling) could, in theory, lead to habitat loss and/ or disturbance on a limited scale. The impacts associated with the SI works will be considered against the detailed conservation objectives and attributes for Mudflats and sandflats not covered by seawater at low tide at Bannow Bay SAC below.

Table 5.2 Assessment of the potential for Adverse Effects on the Integrity of Bannow Bay SAC

Relevant Qualifying Interests	Impact	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Bannow Bay SAC (IE000697) (NPWS, 2012a; Version 1, 09/07/2012)			
Mudflats and sandflats not covered by seawater at low tide [1140]	Habitat loss, alteration and fragmentation	To maintain the favourable conservation condition	Habitat area Community distribution (*Zostera*-dominated and *Barnea candida* communities) *Zostera* shoot density *Barnea candida* density Community distribution (community complexes)

5.3.2.1 Assessment against conservation objectives

Habitat area – The habitat area was estimated as 893 ha (8,960,000 m^2) across the SAC (NPWS, 2012a). The target for this attribute is that the permanent habitat area is stable and increasing, subject to natural processes, and refers to activities or operations that propose to permanently remove habitat and does not refer to long- or short-term disturbance of the biology of the site (NPWS, 2012a).

Marine SI works capable of removing and/ or disturbing subtidal sediment are benthic grab sampling (0.1 m^2 per sample), vibrocore (0.011 m^2 per sample), borehole (0.049 m^2 per sample), CPTs (no sediment removed) and JUB legs (12 m^2 footprint). Due to the restricted nature of the estuarine system at Bannow Bay, and survey vessel draft restrictions, marine surveys will not coincide with the vast majority of the extent of the mudflat habitat within the SAC. Although sampling locations have not yet been finalised, sampling efforts will focus on the approach to landfall zone F, approximately 1 km east of the SAC, and it is therefore unlikely that any sampling will occur on the mudflats QI of Bannow Bay SAC. In the unlikely event that a small number of samples are undertaken on the QI mudflats habitat, the limited scale and temporary nature of the sediment sampling means that only a very small proportion of the mudflat habitat will be removed or disturbed leading to increased SSC, with mudflats known to have natural resilience and good recoverability from physical disturbances (OSPAR, 2023). Therefore, no permanent removal of habitat or continuous disturbance will occur.

Community distribution (*Zostera*-dominated and *Barnea candida* communities) – Maintain the extent of the *Zostera*-dominated and *B. candida* communities. The *Zostera*-dominated community complex within the SAC is estimated to be 19 ha and is considered to be a keystone community, important for overall ecology and biodiversity due to its physical complexity, i.e. an important nursery ground for commercial and non-commercial species. The extent of the *Zostera*-dominated community complex at Bannow Bay has been mapped by NPWS and is located in the inner estuary close to Saltmills. There will be no SI activities undertaken at this location and therefore no interaction with the *Zostera*-dominated community.

B. candida, or white piddock, is rarely reported in Ireland and this record represents a westerly extension of its range. The extent of *B. candida* communities is reported as 0.2 ha by NPWS (2012a), although this is likely to be an underestimation. *B. candida* is a species of bivalve mollusc, found burrowing into wood, peat

and soft rocks on the lower shore and sublittoral (Ballerstedt, 2006). NPWS (2012a) have recorded the *B. candida* community in the inner estuary only, where no SI works will take place. The outer reaches of the Bannow Bay SAC (which overlap with the AoI) have been mapped by NPWS (2012a) as Coarse sediment with *Pisidia longicornis* & epibenthic fauna community complex and Fine sands with *Pygospio elegans* and *Corophium volutator*. Therefore, there will be no interaction with the *B. candida* community.

Zostera shoot density – As above, no interaction will occur between SI activities and *Zostera*-dominated habitats.

Barnea candida density – As above, no interaction will occur between SI activities and *B. candida* communities.

Conserve the following community types in a natural condition: Fine sands with *Pygospio elegans* and *Corophium volutator* community complex and Intertidal sand dominated by polychaetes community complex – There will be no overlap with the Intertidal sand dominated by polychaetes community complex as mapped by NPWS (2012a). There is potential for a very limited amount of sampling to occur within the Fine sands with *P. elegans* and *C. volutator* community complex (as discussed above for the Habitat area attribute), although, if sampling overlaps with this habitat, this would be very limited in scale and would not represent a continuous or ongoing loss of habitat or significant disturbance to the community complex.

Therefore, it can be concluded that the favourable conservation condition of Mudflats will be maintained at Bannow Bay SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.3.2.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following QIs at Bannow Bay SAC for potential direct habitat damage (habitat loss) or habitat degradation from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation:

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140].
- Annual vegetation of drift lines [1210]
- Perennial vegetation of stony banks [1220]
- Salicornia and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [1420]
- Embryonic shifting dunes [2110]
- Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) [2120]
- Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]

As stated above in Section 5.3.2, the proposed SI works will not overlap with the following coastal habitat QIs: Annual vegetation of drift lines, Perennial vegetation of stony banks [1220], *Salicornia* and other annuals colonizing mud and sand [1310], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [1420], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') [2120] and *Fixed coastal dunes with herbaceous vegetation ('grey dunes') [2130] (for which the '*' indicates the Priority status of the QI). The coastal surveys will take place only at the potential landfall zones (closest landfall Zone F, approx. 1 km from SAC boundary), none of which are within the boundary of the SAC, therefore there is no potential for direct habitat damage (habitat loss) or habitat degradation to coastal QIs of Bannow Bay SAC from the coastal survey activities. Therefore, there will be no interaction between the above listed coastal habitats of Bannow Bay SAC and the proposed SI works, and no further assessment of the above-listed coastal habitats is considered necessary.

Assessment of the potential for habitat loss, alteration and fragmentation of the marine QI habitats (Estuaries [1130] and Mudflats and sandflats not covered by seawater at low tide [1140]) of Bannow Bay SAC is undertaken above in Section 5.3.2.

MARA also screened in the above QIs due to potential impacts from *"water quality deterioration from survey activities or survey vessels, leading to habitat degradation".* MARA consider in Table 4 of their Screening

Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types or habitats. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI habitats will be maintained at Bannow Bay SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.3.3 River Barrow and River Nore SAC

The River Barrow and River Nore SAC extends along the freshwater stretches of the Barrow and Nore Rivers from the Slieve Bloom Mountains to the estuary at Creadun Head in Co. Waterford (DHLGH, 2024a). This site was screened in for AA in the SISAA Report as the AoI boundary was found to overlap the SAC boundary, and impacts associated with intrusive sampling were considered possible. A close inspection of the boundaries of the SAC and the AoI shows that there will be no spatial overlap of the two boundaries, rather that one borders the other. Marine surveys will not take place within the SAC; therefore, direct impacts to QI marine habitats as a result of intrusive sampling can be excluded.

There remains a possibility for indirect effects due to increased suspended sediment concentrations (SSC) and associated smothering of QI habitats, if intrusive/extractive sampling was to take place close to the boundary of the River Barrow and River Nore SAC and SSC settled on QI habitats within the SAC.

There are three marine QI habitats for which the SAC is designated: Estuaries, Mudflats and sandflats not covered by seawater at low tide (shortened to ‘mudflats’ in subsequent text for brevity) and Reefs. *Sabellaria alveolata* reef occurs intertidally in Duncannon Bay, over 2 km upstream of the AoI boundary, therefore no sampling will take place within this habitat. The Estuaries QI extends throughout Waterford Harbour to the southern boundary of the SAC, while the Mudflats QI occurs primarily as narrow bands along the shores of the estuary. There are no potential landfall zones within Waterford Harbour. As intrusive sampling will be focused along the seven potential offshore transmission cable corridors for the PUOSC project, it is not predicted that intrusive sampling will occur in this location close to Waterford Harbour. In addition, any SSC are expected to settle out of suspension rapidly and the QI habitats close to the boundary of the SAC (Estuaries and Mudflats) are composed of sedimentary community types (NPWS, 2011a) which are not considered sensitive to smothering (see Section 5.3.1). On this basis, there will no indirect impacts due to increased SSC/smothering leading to effects on the QI habitats within the River Barrow and River Nore SAC, and no further assessment is considered necessary.

5.3.3.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following QIs at River Barrow and River Nore SAC for potential water quality deterioration from survey activities or survey vessels, leading to habitat degradation.

- Estuaries [1130]

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Reefs [1170]
- Salicornia and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]

MARA consider in Table 4 of their Screening Determination that water deterioration impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column, which has the potential to smother nearby sensitive community types or habitats, given the relatively limited scale and temporary nature of sampling within the AoI, it is anticipated that any suspended sediments will settle out of suspension rapidly, and that habitats in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI habitats will be maintained at River Barrow and River Nore SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.3.4 Hook Head SAC

Hook Head SAC is located to the south and east of Hook Head Peninsula in Co. Wexford, extending from the eastern side of Waterford Harbour around to the estuary mouth of Bannow Bay (DHLGH, 2024b). QI habitats at Hook Head SAC are: Vegetated sea cliffs, Large shallow inlets and bays, and Reefs. The AoI overlaps with the full extent of Hook Head SAC, and three of the landfall zones or their approaches (Zones E, F and G) are within or are close to the boundary of Hook Head SAC. Landfall Zone E is located within the extent of QI Vegetated sea cliffs, while landfall zone F is approximately 200 m from the SAC boundary at Bannow Bay. The entire extent of the Large shallow inlets and bays and Reefs QIs are covered by the AoI.

As Hook Head SAC is entirely within the AoI and includes landfall zones and/ or the offshore transmission cable corridors to the landfall zones, there is a risk that intrusive/ extractive survey methodologies (e.g. boreholes, grab sampling) could lead to habitat loss and/ or disturbance. The impacts associated with the SI works have been considered below against the detailed conservation objectives and attributes for the following QI habitats at Hook Head SAC:

- Large shallow inlets and bays;
- Reefs; and,
- Vegetated sea cliffs of the Atlantic and Baltic coasts.

Table 5.3 Site-specific conservation objectives for relevant qualifying interest habitats

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Hook Head SAC (IE000764) (NPWS, 2011b; Version 1, 21/10/2011)		
Large shallow inlets and bays [1160]	To maintain the favourable conservation condition	Habitat area Community extent
Reefs [1170]	To maintain the favourable conservation condition	Distribution Habitat area Community structure (reef community complexes) Community extent Community structure (*Laminaria* community)
Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]	To maintain the favourable conservation condition	Habitat length Habitat distribution Physical structure: functionality and hydrological regime Vegetation structure: zonation Vegetation structure: vegetation eight Vegetation composition: typical species and sub-communities Vegetation composition: negative indicator species Vegetation composition: bracken and woody species

5.3.4.1 Assessment against conservation objectives

Qualifying Interest: Large shallow inlets and bays

Habitat area

The habitat area for large shallow inlets and bays at Hook Head SAC was estimated as 5,244 ha (52,440,000 m^2) (NPWS, 2011b). It should be noted that this habitat encompasses the QI habitats Reefs and Vegetated sea cliffs, but assessment of these habitats has been carried out in their own right, in keeping with NPWS (2011b). The remainder of the large shallow inlets and bays QI habitat comprises sedimentary communities; 'Sand with *Chaetozone christiei* and *Tellina* sp. Community' and 'Coarse sediment with *Pisidia longicornis* and epibenthic fauna community complex'. The target for this attribute is that the permanent habitat area is stable and increasing, subject to natural processes, and refers to activities or operations that propose to permanently remove habitat and does not refer to long- or short-term disturbance of the biology of the site (NPWS, 2011c).

Marine SI works capable of removing and/or disturbing subtidal sediment are benthic grab sampling (0.1 m^2 per sample), vibrocore (0.011 m^2 per sample), borehole (0.049 m^2 per sample), CPTs (0.01 m^2 footprint) and JUB legs (12 m^2 footprint). Even if all intrusive/extractive sampling was to occur within this QI habitat at Hook Head SAC (a total area to be removed/disturbed of 345 m^2 across the entire AoI), this would equate to just 0.0007% of the large shallow inlets and bays QI habitat within Hook Head SAC. In reality, this percentage will be lower as only a small proportion of samples will be taken at this location. Given the small and localised areas of sediment affected, the temporary nature of the surveys and the resilience of the sedimentary habitats to recover, the proposed marine survey activities will not have an adverse effect on the overall area of this qualifying interest will not prevent the conservation objectives from being achieved.

Community extent

The 'Sand with *Chaetozone christiei* and *Tellina* sp. Community' and 'Coarse sediment with *Pisidia longicornis* and epibenthic fauna community complex' are both recorded within the QI habitat of 'Large shallow inlets and bays'. As outlined above, given the small and localised areas of sediment affected, the temporary nature of the surveys and the resilience of the sedimentary habitats to recover, the proposed

marine survey activities will not affect the distribution or extent of these community types will not prevent the conservation objectives from being achieved.

Qualifying Interest: Reefs

Distribution

Habitat mapping in the marine environment has inherent limitations, for example, habitat maps may only represent a snapshot in time and the reliability of their representation of the distribution of habitats at any subsequent time will depend on the degree of natural variability present in the area (MESH Project, 2008). NPWS (2011c) provides the likely distribution of reef habitats within Hook Head SAC (based on one survey undertaken in 2010), which should remain stable, subject to natural processes. NPWS note that "extensive areas of reef occur within this SAC. Intertidally they generally occur as vertical rock faces or inclined bedrock with large boulders whilst to the west of Hook Head at Doonoge Point the reef forms a series of gullies. Subtidally, the reefs are aligned in a north-east/south-west orientation. They are largely cobbles and boulders on bedrock with some smaller areas of cobble/boulder fields recorded towards the north-east of the site."

Due to the spatial overlap between Hook Head SAC and the AoI, there is potential for permanent removal of or damage to reef habitat, albeit on a small scale relative to the size of the habitat within the SAC. The delineation of subtidal habitats within the SAC is based on one survey undertaken in 2010, and the habitat area was estimated as 10,534 ha (105,340,000 m^2). To add context, if all intrusive/extractive sampling was to occur within this QI habitat at Hook Head SAC, this would equate to just 0.0003% of the reefs QI habitat. In reality, that percentage will be lower as only a small proportion of samples will be taken within this part of the AoI. Due to the uncertainty associated with broadscale habitat mapping in the marine environment, it may also be the case that reef is not as ubiquitous as is presented in NPWS (2011c).

Despite the relatively limited area of reef that could potentially by damaged or removed; in order to avoid adverse effects, mitigation will be implemented in order to avoid reef habitat during intrusive or extractive sampling. See Chapter 6 for full details of this mitigation. In summary, prior to the commencement of any intrusive or extractive marine SI works within Hook Head SAC, the outputs of the geophysical surveys will be reviewed to identify any areas which may correspond with subtidal reef habitats. Boreholes, vibrocores, CPT, grab sampling, anchoring/mooring and JUB legs will all be microsited away from potential reef habitat. As an additional layer of protection, prior to the above-listed intrusive works, drop-down video (DDV) will be deployed and reviewed to confirm that QI reef habitat is not present at the location. This will be undertaken by a suitably qualified and experienced marine ecologist. Due to uncertainty surrounding the exact extent and distribution of intertidal QI reef habitats within Hook Head SAC at landfall zone E in NPWS (2011c), a walkover survey will be undertaken by a suitably qualified and experienced marine ecologist prior to intrusive or extractive SI works to identify and delineate areas of intertidal QI reef habitat. Any areas identified as QI reef habitat will be avoided by micrositing intrusive/extractive survey locations (e.g. boreholes, vibrocores, CPT, intertidal cores) to only occur in areas of sedimentary habitat. See Section 6.1.1 for full details of mitigation measures.

The avoidance of reef habitats means that only sedimentary habitats will be sampled using intrusive/ extractive methods within Hook Head SAC. As such, there will be no reduction in the distribution of reef habitat and no adverse effects will occur.

Habitat area

As outlined above for habitat distribution, there is potential for removal of or damage to reef habitat within Hook Head SAC due to intrusive/extractive sampling. The application of mitigation measures (outlined in full in Chapter 6) to avoid reef habitats means that only sedimentary habitats will be sampled using intrusive/ extractive methods within Hook Head SAC. As such, there will be no reduction in the permanent area of reef habitat and no adverse effects will occur

Community structure (reef community complexes)

As outlined above, the application of mitigation to avoid reef habitats means that only sedimentary habitats will be sampled using intrusive/ extractive methods within Hook Head SAC. As such, there will be no direct impacts to the structure and function of the reef community complexes (Exposed to moderately exposed intertidal reef community complex and Echinoderm and sponge dominated community complex). It is possible that small amounts of sediment will be suspended during subtidal sampling operations, however, considering the small and localised areas of sediment affected, sediment is likely to fall out of suspension rapidly after sampling. In addition, the exposure regimes of these reef community complexes are described as exposed, and exposed to moderately exposed (NPWS, 2011c), therefore they are likely to be well

adapted to naturally occurring turbidity due to their location off the south coast in an exposed location. As such, there will be no change in the natural condition of reef community complexes and no adverse effects will occur.

Community extent – The extent of *Laminaria*-dominated community should be conserved, subject to natural processes

The *Laminaria*-dominated community occurs in waters less than 15 m deep and is physically composed of bedrock and boulders (NPWS, 2011c). As described previously, the application of mitigation to avoid reef habitats means that only sedimentary habitats will be sampled using intrusive/extractive methods within Hook Head SAC. No intrusive or extractive sampling will occur within this community type and as such, there will be no reduction in the extent of the *Laminaria*-dominated community and no adverse effects will occur.

Community structure (Laminaria community)

As described previously, the application of mitigation to avoid reef habitats means that only sedimentary habitats will be sampled using intrusive/extractive methods within Hook Head SAC. No intrusive or extractive sampling will occur within this community type and as such, there will be no change to the structure of the *Laminaria*-dominated community and no adverse effects will occur.

Vegetated sea cliffs of the Atlantic and Baltic coasts

Habitat length

There are three sub-sites for vegetated sea cliffs within Hook Head SAC. As cliffs are linear features on maps, their extent is measured in kilometres rather than hectares (NPWS, 2011d). The SI works have the potential to overlap with this habitat at landfall zone E at Carnivan Beach on Hook Head, which coincides with the Baginbun Head sub-site of vegetated sea cliffs.

In order to avoid adverse effects on the vegetated sea cliffs QI habitat, mitigation will be implemented to ensure that only no intrusive or extractive SI works will be carried out within the habitats as delineated by NPWS (2011c). Access to landfall zone E for onshore works (below the HWM) will be via existing land access routes. As such, there will be no reduction in the extent or length of vegetated sea cliff habitat.

Habitat distribution

As above, no intrusive/ extractive methods will be used within the vegetated sea cliffs habitat at Hook Head, and access to landfall zone E for onshore works (below the HWM) will be via existing land access routes. Therefore, there will be no change in habitat distribution due to the SI works.

Physical structure: functionality and hydrological regime

As above, no intrusive/ extractive methods will be used within the vegetated sea cliffs habitat at Hook Head, and access to landfall zone E for onshore works (below the HWM) will be via existing land access routes. Therefore, there will be no changes to the structure and function due to the SI works.

Vegetation structure: zonation, vegetation height

As above, no intrusive/ extractive methods will be used within the vegetated sea cliffs habitat at Hook Head, therefore there will be no changes to the structure and function due to the SI works. Access to landfall zone E for onshore works (below the HWM) will be via existing land access routes. Therefore, there will be no changes to vegetation structure due to the SI works.

Vegetation composition: typical species and sub-communities, negative indicator species, bracken and wooden species

As above, no intrusive/extractive methods will be used within the vegetated sea cliffs habitat at Hook Head, therefore there will be no changes to the structure and function due to the SI works. Access to landfall zone E for onshore works (below the HWM) will be via existing land access routes. Therefore, there will be no changes to vegetation composition due to the SI works.

5.3.4.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following habitat QIs at Hook Head SAC for potential direct habitat damage (habitat loss) or habitat degradation from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation.

- Large shallow inlets and bays [1160]

- Reefs [1170]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]

Potential impacts due to habitat loss or degradation from survey vessels are considered above in Section 5.3.4.1. MARA consider in Table 4 of their Screening Determination that water deterioration impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column, which has the potential to smother nearby sensitive community types or habitats, given the relatively limited scale and temporary nature of sampling within the AoI, it is anticipated that any suspended sediments will settle out of suspension rapidly, and that habitats in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column, which has the potential I

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI habitats will be maintained at Hook Head SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.3.5 Saltee Islands SAC

In their screening determination (01/05/2025), MARA screened in the following QIs at the Saltee Island SAC for potential water quality deterioration from survey activities or survey vessels, leading to habitat degradation:

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Large shallow inlets and bays [1160]
- Reefs [1170]
- Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
- Submerged or partially submerged sea caves [8330]

The Saltee Islands SAC is located 3 km from the AoI, therefore, it is considered highly unlikely that any sediment suspended due to intrusive sampling would remain in suspension long enough to reach the SAC, particularly given the exposed, dynamic marine environment off the south coast of Ireland.

As outlined previously, given the standard legal and regulatory pollution control requirements that apply to all vessels, the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures, including oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI habitats will be maintained at Saltee Islands SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.3.6 Ballyteige Burrow SAC

In their screening determination (01/05/2025), MARA screened in the following QIs at Ballyteige Burrow SAC for potential water quality deterioration from survey activities or survey vessels, leading to habitat degradation:

- Estuaries [1130]
- Mudflats and sandflats not covered by seawater at low tide [1140]
- Coastal lagoons [1150]
- Salicornia and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]
- Mediterranean salt meadows (Juncetalia maritimi) [1410]
- Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [1420]

While Ballyteigue Burrow SAC is adjacent to the AoI, it does not overlap with the proposed SI works area, therefore, it is considered highly unlikely that any sediment suspended due to intrusive sampling would remain in suspension long enough to reach the SAC, particularly given the exposed, dynamic marine environment off the south coast of Ireland.

As outlined previously, given the standard legal and regulatory pollution control requirements that apply to all vessels, the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures, including oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI habitats will be maintained at Ballyteige Burrow SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.4 Otter

5.4.1 Overview of impacts to Otter (underwater noise)

Otter at the following SACs were screened in for AA due to the potential for significant effects as a result of underwater noise:

- River Barrow and Nore SAC
- Blackwater River (Cork/Waterford) SAC
- Lower River Suir SAC
- Slaney River Valley SAC

In line with the precautionary principle, the SISAA Report concluded that there was potential for likely significant effects to otters at the above SACs as a result of underwater noise generated during the geophysical and geotechnical surveys. The interaction between the proposed SI works and the above SACs will be investigated in more detail to establish whether there is a credible risk to otter from the proposed SI works. Where no such risk exists, no further assessment will be undertaken. Where there is a risk of adverse effects from the SI works to otter an assessment against the conservation objectives will be undertaken. Site-specific conservation objectives for otter at the four relevant SACs are provided in Table 5.4.

As otter tend to forage within 80 m of the shoreline (NPWS, 2009), there is potential for interaction between otters foraging from shore and underwater noise generated during geophysical and geotechnical surveys being undertaken within this zone. While there are no published underwear noise injury criteria for Eurasian otter, Southall et al. (2019) has provided injury criteria for the 'Other marine carnivores in water (OCW)' hearing group, which includes sea otters. The OCW criteria is extended to Eurasian otter in the current assessment in the absence of more suitable criteria.

A subsea noise assessment was undertaken to inform this NIS. To assess the impacts of the geophysical survey, each type of sub-bottom profiler (SBP) was modelled as a different scenario. Each scenario assumed that the vessel, SSS, USBL and MBES sources were active, with only the type of SBP changing between the scenarios modelled. The results have been summarised below to present the 'worst-case scenario' with respect to injury and/or disturbance to OCW:

- In the absence of mitigation, geophysical sound sources have the potential to cause auditory injury to OCW within 30 m of the sound source and temporary threshold shift (TTS) within 800 m.
- In the absence of mitigation, geotechnical sound sources have the potential to cause auditory injury to OCW within 10 m of the sound source and TTS within 170 m.
- The deployment of the ADCPs will not be within 80 m of the HWM and therefore it is outside of the zone of influence for otter.

Therefore, in the absence of mitigation, underwater noise generated by geophysical surveys could lead to auditory injury in otters within 30 m of the geophysical survey, and within 10 m of the geotechnical survey. TTS could occur within 800 m of the geophysical survey and within 170 m of the geotechnical survey. Any interaction between otters and geophysical and geotechnical surveys will be within 80m of the shoreline at the seven landfall zones. There will be no interaction between foraging otters and the placement of ADCPs offshore.

As is standard practise, the Department of Arts, Heritage and the Gaeltacht (DAHG) 'Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters' (DAHG, 2014) will be followed during the geophysical and geotechnical surveys. The guidance refers to "ramp-up procedures" or "soft starts", "*whereby sound energy input to the marine environment is gradually or incrementally increased from levels unlikely to cause significant behavioural impact on marine mammals to the full output necessary for completion of the activity".* This will ensure that initial noise emissions are at a level below that where permanent injury can occur, allowing time for animals (or in this case otter) to move outside the area of ensonification before noise levels reach a level where they may cause injury. While these guidelines do not mention otters, the principles of the soft start are still applicable, in the unlikely event of an interaction between swimming otters and survey vessels.

Taking into account soft starts, the subsea noise assessment concluded the following with respect to injury and/ or disturbance to OCW:

- When soft start mitigation is applied to all geophysical survey types, risk ranges for OCW are reduced to <10 m for both auditory injury and TTS.
- When soft start mitigation is applied to geotechnical survey, risk ranges for OCW are reduced to <10 m for both auditory injury and TTS.

Therefore, the inclusion of the soft-start measures for geophysical and geotechnical surveys will reduce the zone within which otters could experience both auditory injury and TTS to <10 m from the sound source. It is

predicted that, in addition to this much reduced risk range, the physical presence of a survey vessel or JUB will cause otters to avoid the immediate vicinity of the surveys, and therefore, they will not come within 10 m of the sound source.

The requirement for soft-starts as laid out in DAHG (2014) is included in Chapter 6 Schedule of Mitigation Measures.

Table 5.4 Site-specific conservation objectives for relevant qualifying interests of SACs

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
River Barrow and Nore SAC (IE002162) (NPWS, 2011e; Version 1, 19/07/2011)		
Otter [1355]	To restore the favourable conservation condition	Distribution Extent of terrestrial habitat Extent of marine habitat Extent of freshwater (river) habitat Extent of freshwater (lake) habitat Couching sites and holts Fish biomass available
Blackwater River (Cork/Waterford) SAC (IE002170) (NPWS, 2012b, Version 1, 31/07/2012)		
Otter [1355]	To restore the favourable conservation condition	Distribution Extent of terrestrial habitat Extent of marine habitat Extent of freshwater (river) habitat Extent of freshwater (lake) habitat Couching sites and holts Fish biomass available Barriers to connectivity
Lower River Suir SAC (IE002137) (NPWS, 2017, Version 1, 28/03/2017)		
Otter [1355]	To restore the favourable conservation condition	Distribution Extent of terrestrial habitat Extent of marine habitat Extent of freshwater (river) habitat Couching sites and holts Fish biomass available Barriers to connectivity
Slaney River Valley SAC (IE000781) (NPWS, 2011f, Version 1, 21/10/2011)		
Otter [1355]	To restore the favourable conservation condition	Distribution Extent of terrestrial habitat Extent of marine habitat Extent of freshwater (river) habitat Extent of freshwater (lake/lagoon) habitat Couching sites and holts Fish biomass available Barriers to connectivity

5.4.2 River Barrow and Nore SAC

The River Barrow and Nore SAC consists of freshwater stretches upstream and tidal elements and estuary downstream at Creadan Head in Co. Waterford, where the AoI boundary borders the boundary of the SAC. The site is designated for a number of QI animal species including otter (DHLGH, 2024a). The SI works have the potential to emit underwater noise due to the coastal and marine geophysical and geotechnical works and in turn displace and/or disturb foraging otter that may utilise the marine/coastal environment of the AoI. However as stated above, with the inclusion of soft start measures as is standard practise, risk ranges for all geophysical and geotechnical survey scenarios are reduced to <10 m for auditory injury and TTS. Otters are known not to forage beyond 80 m from the coast (NPWS, 2009), and studies have shown that otter's diets in coastal areas tend to be dominated by rockling and wrasse, with eel, sea scorpion, blenny and molluscs also important (Kingston et al., 1999 in NPWS, 2009). In general, these prey species tend to be found around rocks, reef and in rockpools (Ager, 2008 and Neal, 2007 in Tyler-Walters and Hiscock, 2024). Otters foraging at the coast may have flexible foraging times linked to tides and that otters hunt at low tide in the exposed rock pools and seaweed covered rocks for fish and invertebrates (Lundy and Montgomery, 2010). These prey preferences suggest that otters do not hunt in open water at sea, and therefore, it is considered highly unlikely that foraging otters will overlap spatially with the geophysical and geotechnical survey vessels, which will be operating in waters deep enough to accommodate the vessel (i.e. not within the intertidal zone during

low tide) and without obstructions such as rocks and wrecks. It is also predicted that the physical presence of the survey vessels will temporarily displace foraging otters from the vicinity of the vessel. It is therefore predicted that there will be no interaction between geophysical and geotechnical underwater noise sources and foraging otters from the River Barrow and Nore SAC, and therefore, there will be no adverse effects. No further assessment is considered necessary.

5.4.2.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in otter at River Barrow and River Nore SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts on otter and potential for disturbance and displacement of otter from underwater and above water noise from the survey activities. Underwater noise impacts to otter are considered above.

Above water noise

As stated in the SISAA report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006), with the exception of the coastal geotechnical surveys (trial pits), intertidal core sampling and archaeological sampling (if required), the coastal surveys will involve a small team of surveyors walking along the beach or intertidal zone (below the HWM) using non-intrusive hand-held equipment or minimally intrusive equipment such as pole-mounted devices or GPR and magnetometer equipment. During these non-intrusive surveys, and access for same, no above-water noise, vibration or light will be emitted beyond baseline levels (all potential landfall zones are accessible beaches where human recreational activities regularly occur). As otter are typically most active at night, it is considered unlikely that otter will be present during coastal surveys which will take place during daylight hours. Coastal geotechnical surveys (excavation of trial pits) have the potential to emit above-water noise and vibration beyond baseline levels on land, while above-water noise from geotechnical sampling (borehole and vibrocore drilling from a JUB) in the marine environment close to shore (<15 m LAT) also have the potential to disturb otters from nearby SACs using the area. However, given the limited number of samples to be retrieved (up to six trial pits at each potential landfall zone and three boreholes on the seaward side of each landfall zone), any disturbance caused is likely to be temporary and limited in nature. While the precise sampling locations are not known, they will be within or adjacent to the seven landfall zones, and regardless of the location of sampling within these areas, the conclusion remains that any above water disturbance is likely to be temporary and limited in nature.Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or otter prey species. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on otter or otter prey species. Given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and it can be assumed that marine habitats and species, including otter prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of QI otter will be maintained at River Barrow and River Nore SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.4.3 Blackwater River (Cork/Waterford) SAC

The Blackwater River (Cork/ Waterford) SAC is one of the largest river systems in Ireland which contains freshwater stretches upstream and tidal stretches as far as Youghal Harbour, Co. Cork. Although the AoI does not overlap with the SAC (the SAC boundary is 8 km north of the AoI), underwater noise has the potential to disturb foraging otters that may utilise the marine/coastal environment of the AoI as it is within the coastal foraging range of otter. As outlined above for River Barrow and Nore SAC, due to the inclusion of soft-starts as standard practise (which reduce the risk ranges of underwater noise) and as the coastal foraging habitat of otter is not predicted to overlap with the geophysical and geotechnical marine surveys, there will be no adverse effects to otters from the Blackwater River (Cork/Waterford) SAC. No further assessment is considered necessary.

5.4.3.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in otter at Blackwater River (Cork/Waterford) SAC for potential for disturbance and displacement of otter from underwater and above water noise from the survey activities. We have assumed that water deterioration impacts are also considered relevant and have added these here. Underwater noise impacts to otter are considered above.

Above water noise

As stated in the SISAA report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006), with the exception of the coastal geotechnical surveys (trial pits), intertidal core sampling and archaeological sampling (if required), the coastal surveys will involve a small team of surveyors walking along the beach or intertidal zone (below the HWM) using non-intrusive hand-held equipment or minimally intrusive equipment such as pole-mounted devices or GPR and magnetometer equipment. During these non-intrusive surveys, and access for same, no above-water noise, vibration or light will be emitted beyond baseline levels (all potential landfall zones are accessible beaches where human recreational activities regularly occur). As otter are typically most active at night, it is considered unlikely that otter will be present during coastal surveys which will take place during daylight hours. Coastal geotechnical surveys (excavation of trial pits) have the potential to emit above-water noise and vibration beyond baseline levels on land, while above-water noise from geotechnical sampling (borehole and vibrocore drilling from a JUB) in the marine environment close to shore (<15 m LAT) also have the potential to disturb otters from nearby SACs using the area. However, given the limited number of samples to be retrieved (up to six trial pits at each potential landfall zone and three boreholes on the seaward side of each landfall zone), any disturbance caused is likely to be temporary and limited in nature. While the precise sampling locations are not known, they will be within or adjacent to the seven landfall zones, and regardless of the location of sampling within these areas, the conclusion remains that any above water disturbance is likely to be temporary and limited in nature.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or otter prey species. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on otter or otter prey species. Given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and it can be assumed that marine habitats and species, including otter prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels

relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI otter will be maintained at Blackwater River SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.4.4 Lower River Suir SAC

The Lower River Suir SAC tidal confluence stretches to as far as Cheekpoint in Co. Waterford, which is within the Waterford Estuary to the north (DHLGH, 2023). The AoI does not border or overlap this SAC, however, the QI otters for which the SAC is designated may utilise the estuary of the neighbouring River Barrow and Nore SAC. The boundary of the AoI is 8 km from the Lower River Suir SAC. Although the AoI does not overlap with the SAC, underwater noise has the potential to disturb foraging otters that may utilise the marine/coastal environment of the AoI as it is within the coastal foraging range of otter. As outlined above for River Barrow and Nore SAC, due to the inclusion of soft-starts as standard practise (which reduce the risk ranges of underwater noise) and as the coastal foraging habitat of otter is not predicted to overlap with the geophysical and geotechnical marine surveys, there will be no adverse effects to otters from the Lower River Suir SAC. No further assessment is considered necessary.

5.4.4.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in otter at Lower River Suir SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts on otter prey species and potential for disturbance and displacement of otter from above water and underwater noise from survey activities. Underwater noise impacts to otter are considered above.

Above water noise

As stated in the SISAA report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006), with the exception of the coastal geotechnical surveys (trial pits), intertidal core sampling and archaeological sampling (if required), the coastal surveys will involve a small team of surveyors walking along the beach or intertidal zone (below the HWM) using non-intrusive hand-held equipment or minimally intrusive equipment such as pole-mounted devices or GPR and magnetometer equipment. During these non-intrusive surveys, and access for same, no above-water noise, vibration or light will be emitted beyond baseline levels (all potential landfall zones are accessible beaches where human recreational activities regularly occur). As otter are typically most active at night, it is considered unlikely that otter will be present during coastal surveys which will take place during daylight hours. Coastal geotechnical surveys (excavation of trial pits) have the potential to emit above-water noise and vibration beyond baseline levels on land, while above-water noise from geotechnical sampling (borehole and vibrocore drilling from a JUB) in the marine environment close to shore (<15 m LAT) also have the potential to disturb otters from nearby SACs using the area. However, given the limited number of samples to be retrieved (up to six trial pits at each potential landfall zone and three boreholes on the seaward side of each landfall zone), any disturbance caused is likely to be temporary and limited in nature. While the precise sampling locations are not known, they will be within or adjacent to the seven landfall zones, and regardless of the location of sampling within these areas, the conclusion remains that any above water disturbance is likely to be temporary and limited in nature.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or otter prey species. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on otter or otter prey species. Given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and it can be assumed that marine habitats and species, including otter prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI otter will be maintained at Lower River Suir SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.4.5 Slaney River Valley SAC

The Slaney River Valley SAC estuary elements are present at Ferrycarrig in Co. Wexford and Wexford Harbour. The Slaney River Valley at its closest point is 17 km north-west of the AoI. Although the AoI does not overlap with the SAC, underwater noise has the potential to disturb foraging otters that may utilise the marine/coastal environment of the AoI as it is within the coastal foraging range of otter. As outlined above for River Barrow and Nore SAC, due to the inclusion of soft-starts as standard practise (which reduce the risk ranges of underwater noise) and as the coastal foraging habitat of otter is not predicted to overlap with the geophysical and geotechnical marine surveys, there will be no adverse effects to otters from the Slaney River Valley SAC. No further assessment is considered necessary.

5.4.5.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in otter at Slaney River Valley SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts on otter prey species and potential for disturbance and displacement of otter from above water and underwater noise from survey activities. Underwater noise impacts to otter are considered above.

Above water noise

As stated in the SISAA report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006), with the exception of the coastal geotechnical surveys (trial pits), intertidal core sampling and archaeological sampling (if required), the coastal surveys will involve a small team of surveyors walking along the beach or intertidal zone (below the HWM) using non-intrusive hand-held equipment or minimally intrusive equipment such as pole-mounted devices or GPR and magnetometer equipment. During these non-intrusive surveys, and access for same, no above-water noise, vibration or light will be emitted beyond baseline levels (all potential landfall zones are accessible beaches where human recreational activities regularly occur). As otter are typically most active at night, it is considered unlikely that otter will be present during coastal surveys which will take place during daylight hours. Coastal geotechnical surveys (excavation of trial pits) have the potential to emit above-water noise and vibration beyond baseline levels on land, while above-water noise from geotechnical sampling (borehole and vibrocore drilling from a JUB) in the marine environment close to shore (<15 m LAT) also have the potential to disturb otters from nearby SACs using the area. However, given the limited number of samples to be retrieved (up to six trial pits at each potential landfall zone and three boreholes on the seaward side of each landfall zone), any disturbance caused is likely to be temporary and limited in nature. While the precise sampling locations are not known, they will be within or adjacent to the seven landfall zones, and regardless of the location of sampling within these areas, the conclusion remains that any above water disturbance is likely to be temporary and limited in nature.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended

in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or otter prey species. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on otter or otter prey species. Given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and it can be assumed that marine habitats and species, including otter prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI otter will be maintained at Slaney River Valley SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.5 Marine Mammals

5.5.1 Overview of impacts to Marine Mammals (underwater noise)

In line with the precautionary principle, marine mammals at the following SACs were screened in for AA, due to the likelihood for significant effects as a result of underwater noise:

- Hook Head SAC (bottlenose dolphin and harbour porpoise)
- Saltee Islands SAC (grey seal)
- Slaney River Valley SAC (harbour seal)
- Carnsore Point SAC (harbour porpoise)
- Blackwater Bank SAC (harbour porpoise)
- Roaringwater Bay and Islands SAC (grey seal and harbour porpoise)
- Glengarriff Harbour and Woodland SAC (harbour seal)
- Pembrokeshire Marine/ Sir Benfro Forol SAC (grey seal)
- West Wales Marine / Gorllewin Cymru Forol SAC (harbour porpoise)

The interaction between the proposed SI works and the above SACs will be investigated in more detail to establish whether there is a credible risk to marine mammals from the proposed SI works. Where no such risk exists, no further assessment will be undertaken. Where there is a risk of impact from the SI works to marine mammals, an assessment against the conservation objectives will be undertaken. Site-specific conservation objectives for relevant marine mammal species at the above SACs are provided in Table 5.5.

As is standard practise, the DAHG (2014) “Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters” will be followed during the geophysical and geotechnical surveys. The guidance refers to “ramp-up procedures” or “soft starts”, “*whereby sound energy input to the marine environment is gradually or incrementally increased from levels unlikely to cause significant behavioural impact on marine mammals to the full output necessary for completion of the activity”.* This will ensure that initial noise emissions are at a level below that below that where permanent injury can occur, allowing time for marine mammals to move outside the area of ensonification before noise levels reach a level where they

may cause injury. Full details on the implementation of soft starts, as laid out in DAHG (2014) is provided in Section 6.1.4 in Chapter 6 Schedule of Mitigation Measures.

A subsea noise assessment was undertaken to inform this NIS. To assess the impacts of the geophysical survey, each type of sub-bottom profiler (SBP) was modelled as a different scenario. Each scenario assumed that the vessel, SSS, USBL and MBES sources were active, with only the type of SBP changing between the scenarios modelled. The results have been summarised below to present the 'worst-case scenario' with respect to injury and/or disturbance to harbour seal and grey seal, bottlenose dolphin and harbour porpoise, and the results when an appropriate soft-start has been included.

Harbour seal and grey seal

- In the absence of mitigation, parametric SBP and chirper/pinger (geophysical sound sources) have the potential to cause auditory injury to both species of seals (classed as the Phocid carnivores in water (PCW); Southall et al., 2019) within 20 m of the sound source, and TTS could occur within 690 m. When a soft start is applied, these risk ranges are reduced to <10 m for both auditory injury and TTS.
- In the absence of mitigation, sparker/boomer has the potential to cause auditory injury to the PCW group within 70 m of the sound source, and TTS could occur within 1,500 m. When a soft start is applied, these risk ranges are reduced to <10 m for both auditory injury and TTS.
- In the absence of mitigation, geotechnical survey has the potential to cause auditory injury to the PCW group within 20 m of the sound source, and TTS could occur within 550 m. When a soft start is applied, these risk ranges are reduced to <10 m for both auditory injury and TTS.
- With respect to the ADCP, risk ranges for the PCW group for auditory injury and TTS are less than 10 m of the sound source.

Bottlenose dolphin

- In the absence of mitigation, parametric SBP and chirper/pinger (geophysical sound sources) have the potential to cause auditory injury to bottlenose dolphin (classed as high frequency cetaceans (HF); Southall et al., 2019) within 20 m of the sound source, and TTS could occur within 200 m. When a soft start is applied, these risk ranges are reduced to <10 m for both auditory injury and TTS.
- In the absence of mitigation, sparker/boomer has the potential to cause auditory injury to the HF group within 10 m of the sound source, and TTS could occur within 90 m. When a soft start is applied, these risk ranges are reduced to <10 m for both auditory injury and TTS.
- In the absence of mitigation, geotechnical survey has the potential to cause auditory injury to the HF group within 10 m of the sound source, and TTS could occur within 130 m. When a soft start is applied, these risk ranges are reduced to <10 m for both auditory injury and TTS.
- With respect to the ADCP, risk ranges for the HF group for auditory injury and TTS are less than 10 m of the sound source.

Harbour porpoise

- In the absence of mitigation, parametric SBP and chirper/pinger (geophysical sound sources) have the potential to cause auditory injury to harbour porpoise (classed as very high frequency cetaceans (VHF); Southall et al., 2019) within 250 m of the sound source, while TTS could occur within 4,100 m. When a soft start is applied, these risk ranges are reduced to <10 m for auditory injury and within 2,300 for TTS.
- In the absence of mitigation, sparker/boomer has the potential to cause auditory injury to the VHF group within 2,200 m of the sound source, and TTS could occur within 4,300 m. When a soft start is applied, these risk ranges are reduced to 390 m for both auditory injury and 2,500 m for TTS.
- In the absence of mitigation, geotechnical survey has the potential to cause auditory injury to the VHF group within 180 m of the sound source, while TTS could occur within 3,800 m. When a soft start is applied, these risk ranges are reduced < 10 m for auditory injury and within 2,000 m for TTS.
- With respect to the ADCP, risk ranges for the VHF group are 40 m for auditory injury and 100 m for TTS.

For all marine mammals, risk ranges for behavioural disturbance were modelled applying the criterion strictly (unweighted for marine mammal hearing frequency). This means that, while risk ranges appear large in some instances (up to a maximum 19 km for operation of sparker and boomer), the main energy will often be outside of the hearing range of the receiving marine mammal. In their guidance document for assessing

noise disturbance against the conservation objectives of harbour porpoise SACs, JNCC (2020) advises that fixed distances should be applied to assess behavioural disturbance, based on empirical evidence. For geophysical surveys, the JNCC's 'effective deterrence range' is 5 km. While the JNCC document focuses on harbour porpoise, this is precautionary for all other marine mammal hearing groups, as harbour porpoise is considered to be the most sensitive. Behavioural disturbance includes avoidance and changes in behaviour, and will be temporary and short term in duration, with rapid recovery once the survey vessel has left the area. No adverse effects due to behavioural disturbance are predicted.

As part of the standard application of DAHG (2014) guidance a qualified and experienced MMO will be appointed during geophysical and geotechnical surveys. The MMO will search for marine mammals within the monitored zone, which is a 500 m radial distance of the sound source intended for use. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the monitored zone (500 m) by the MMO. In commencing sound producing activities using the equipment listed above, a "Ramp Up" (i.e. soft-start) procedure (i.e. 20 or 40 minute soft-start depending on the activity) must be used. Once the Ramp-Up (i.e. soft-start) procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within a 500 m radial distance, of the sound source. If there is a break in sound output for a period greater than 30 minutes (e.g., due to equipment failure, shut-down, survey line or station change) then all Pre-Start Monitoring and a subsequent Ramp-up (i.e. soft-start) Procedure (where appropriate following Pre-Start Monitoring) must be undertaken (DAHG Guidance, 2014). Full details on the implementation of soft starts, as laid out in DAHG (2014) is provided in Section 6.1.4 in Chapter 6 Schedule of Mitigation Measures.

For all survey equipment, the application of soft start procedures reduces the risk range of auditory injury and TTS to within the 500 m monitored zone for all hearing groups except the risk range for VHF cetaceans (i.e. harbour porpoise) during sparker/boomer surveys. During these surveys, with the application of a soft start, the risk range for TTS is 2,500 m from the sound source. While there is potential for harbour porpoise to occur within the risk range for TTS, it is highly likely that the presence of vessels will disturb individuals away from the zone of impact. Further, the equipment is generally narrowband and thus only affects a small portion of the frequency range audible by the VHF species, meaning it has little or no overlap with biologically relevant sounds. The risk of biologically relevant TTS in harbour porpoise is therefore considered to be low.

Table 5.5 Site-specific conservation objectives for relevant qualifying interests of SACs

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Hook Head SAC (IE000764) (Conservation objectives for harbour porpoise and bottlenose dolphin not available, NPWS, 2011g, Version 1, 19/07/2011 and NPWS 2012c, Version 1, 07/09/2012)		
Harbour porpoise [1351][1]	To maintain the favourable conservation condition	Access to suitable habitat Disturbance
Bottlenose dolphin [1349][2]	To maintain the favourable conservation condition	Access to suitable habitat Habitat use: critical areas Disturbance
Saltee Island SAC (IE000707) (NPWS, 2011h, Version 1, 21/10/2011)		
Grey seal [1364]	To maintain the favourable conservation condition	Access to suitable habitat Breeding behaviour Moulting behaviour Resting behaviour Population composition Disturbance
Slaney River Valley SAC (IE000781, NPWS, 2011f, Version 1, 21/10/2011)		
Harbour seal [1365]	To maintain the favourable conservation condition	Access to suitable habitat Breeding behaviour

[1] No site specific QIs, COs or attributes were available at the time of writing therefore Roaringwater Bay and Islands SAC (NPWS, 2011g) was used.

[2] No site specific QIs, COs or attributes were available at the time of writing therefore the Lower River Shannon SAC (NPWS, 2012c) was used.

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
		Moulting behaviour Resting behaviour Disturbance
Carnsore Point SAC (IE002269 (Conservation objectives for harbour porpoise and bottlenose dolphin not available, NPWS, 2011g, Version 1, 19/07/2011)		
Harbour porpoise [1351][11]	To maintain the favourable conservation condition	Access to suitable habitat Disturbance
Blackwater Bank SAC (IE002953) (Conservation objectives for harbour porpoise not available, NPWS, 2013a, Version 1, 07/05/2013)		
Harbour porpoise [1351][3]	To maintain the favourable conservation condition	Access to suitable habitat Disturbance
Roaringwater Bay and Islands SAC (IE000101) (NPWS, 2011g, Version 1, 19/07/2011)		
Harbour porpoise [1351]	To maintain the favourable conservation condition	Access to suitable habitat Disturbance
Grey seal [1364]	To maintain the favourable conservation condition	Access to suitable habitat Breeding behaviour Moulting behaviour Resting behaviour Population composition Disturbance
Glengarriff Harbour and Woodland SAC (IE000090) (NPWS, 2015a, Version 1, 11/05/2015)		
Harbour seal [1365]	To maintain the favourable conservation condition	Access to suitable habitat Breeding behaviour Moulting behaviour Resting behaviour Disturbance
Pembrokeshire Marine/ Sir Benfro Forol SAC (UK0013116) (NRW, 2018)		
Grey seal [1364]	To achieve favourable conservation status, subject to natural processes, need to be fulfilled and maintained in the long-term	<u>Populations:</u> Population size Structure, production Condition of the species within the site <u>Range:</u> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing <u>Supporting habitats and species:</u> Distribution Extent Structure Function and quality of habitat Prey availability and quality.
West Wales Marine / Gorllewin Cymru Forol SAC (UK0030397) (NRW, 2019).		
Harbour porpoise [1351]	To ensure that the integrity of the site is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for Harbour porpoise in UK waters	Harbour porpoise is a viable component of the site There is no significant disturbance of the species The condition of supporting habitats and processes, and the availability of prey is maintained

[3] No site specific QIs, COs or attributes were available at the time of writing therefore the Rockabill to Dalkey Island SAC (NPWS, 2013a) was used.

5.5.2 Hook Head SAC

Hook Head SAC is designated for bottlenose dolphin (*Tursiops truncatus*) and harbour porpoise. The SAC forms the eastern side of Waterford Harbour, while to the east it joins the estuary mouth of Bannow Bay (DHLGH, 2024b). The AoI overlaps Hook Head SAC and also overlaps landfall Zone E. The underwater noise produced from the coastal and marine geophysical, geotechnical and metocean SI works have the potential to interact with bottlenose dolphin and harbour propose for which the SAC is designated. Therefore, these species will be assessed in more detail against the conservation objectives below.

5.5.2.1 Assessment against conservation objectives

Qualifying Interest: Harbour porpoise

Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict harbour porpoises' access to suitable habitat.

Disturbance: The proposed SI works have the potential to introduce underwater noise from the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to harbour porpoise while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury to < 10 m of the sound source and TTS to within 2.5 km for harbour porpoise. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. Given the nature of the surveys and limited scale and duration and that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, the proposed SI works will not adversely affect the harbour porpoise community at the site.

Qualifying Interest: Bottlenose dolphin
Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict bottlenose dolphin access to suitable habitat.

Habitat use: critical areas: The proposed SI works with the inclusion of mitigation measures stated above, will reduce underwater noise to below thresholds for bottlenose dolphin. Therefore, critical areas for bottlenose dolphin will be maintained in a natural state.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to bottlenose dolphin while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury and TTS to < 10 m of the sound source for bottlenose dolphin. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. Given the nature of the surveys and limited scale and duration and that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, the proposed SI works will not adversely affect the bottlenose dolphin community at the site.

5.5.2.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following marine mammal QIs at Hook Head SAC for water quality deterioration from survey activities or survey vessels, leading to impacts on marine mammals or their prey, potential for disturbance and displacement of marine mammals from underwater noise from survey activities and potential collision risk to marine mammals from survey vessels.

- *Tursiops truncatus* (Common Bottlenose Dolphin) [1349]
- *Phocoena phocoena* (Harbour Porpoise) [1351]

Underwater noise impacts to marine mammals have been considered previously.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on marine mammals or their prey. In turn, suspended sediments could smother nearby sensitive community types, habitats or marine mammal prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including marine mammal prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

Collision risk

Vessel strikes are a known cause of mortality in marine mammals (Laist et al., 2001). Non-lethal collisions have also been documented (Laist et al., 2001; Van Waerebeek et al., 2007). Injuries from such collisions can be divided into two broad categories: blunt trauma from impact and lacerations from propellers. Injuries may result in individuals becoming vulnerable to secondary infections or predation.

It has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid collisions. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions.

Other survey vessels (i.e. benthic survey vessels, geotechnical survey vessel and metocean equipment deployment vessels) will be stationary for extended periods throughout their operations, which will reduce the potential for collision with these vessels.

As documented in the accompanying Assessment of Impact on the Maritime Usage (AIMU) Report, the area supports reasonably high levels of baseline marine traffic, with cargo vessels, fishing boats and pleasure craft traversing the AoI to access commercial and fishing ports and harbours in the region. It is, therefore, reasonable to assume that marine mammals in the area are exposed to vessel traffic on a regular basis and may exhibit some habituation. In addition, the increase in vessel traffic at any one time during the duration of the MUL is considered to be very low, given the small number of vessels to be mobilised in the context of existing vessel activity. On this basis it is predicted that collisions between survey vessels and marine mammals originating from all relevant SACs, including Hook Head SAC will be extremely unlikely. As such, there will be no adverse effects on European site integrity arising from this potential impact pathway.

It can be concluded that the favourable conservation condition of all QI species will be maintained at Hook Head SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.5.3 Saltee Islands SAC

Saltee Island SAC consists of the Saltee Islands and a large area of the surrounding seas. The islands are situated between 4 km and 5 km off the south Wexford coast. One of the islands, Great Saltee is designated for a breeding population of grey seal. The breeding population was estimated at 571-744 individuals in 2005. A one-off moult count in 2007 gave a figure of 246 individuals (DHGLH, 2013a). The AoI does not spatially overlap Saltee Island SAC, and is over 3 km from the AoI boundary, with the islands themselves approximately 8 km away. The nearest landfall zone at Blackhall Beach (Zone G) is 10 km north-west of the SAC. The underwater noise produced from the coastal and marine geophysical, geotechnical and metocean SI works have the potential to interact with grey seals that may utilise the waters off Saltee and within the AoI for foraging. However, with the inclusion of the mitigation measures stated above, risk ranges for auditory injury and TTS will be significantly reduced. For seals, auditory injury and TTS will be reduced to < 10 m of the source. Therefore, seals utilising the nearby waters of the SAC and even those within the immediate boundary of the AoI will not be adversely affected by underwater noise.

5.5.3.1 Assessment against conservation objectives

Qualifying Interest: grey seal

Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict grey seal access to suitable habitat.

Breeding behaviour: The proposed SI works will not alter breeding sites of grey seal at Saltee Islands. As stated above, the islands themselves are over 8 km from the AoI and with the inclusion of mitigation measures stated above auditory injury and TTS will be reduced to < 10 m of the sound source. Therefore, breeding behaviour and breeding sites will be maintained in a natural condition.

Moulting behaviour: The proposed SI works do not overlap the Saltee Islands SAC or associated moulting haul-out sites forgery seal therefore no interaction will occur, and haul-out sites will be maintained in a natural condition.

Resting behaviour: As stated above, the AoI does not spatially overlap the Saltee Island SAC, and is over 3 km from the AoI boundary, with the islands themselves approximately 8 km away. Therefore, the proposed SI works will not interact with the resting haul-out sites and these will be maintained in a natural condition.

Population composition: The proposed SI works will not affect the population composition of the Saltee Island SAC, the proposed SI works have the potential to cause low levels of disturbance to grey seal resulting in potential avoidance behaviour. However, the proposed SI works will be temporary and given that there is no direct overlap with the SAC and no implications for the populations of grey seals. The surveys will not result in the permanent exclusion of individuals from part of their range within the site or will permanently prevent access for the species to suitable habitat therein.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to grey seals while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented during the geophysical and geotechnical surveys which will reduce auditory injury and TTS to < 10 m of the sound source for grey seal. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. Given the nature of the surveys and limited scale and duration and that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, the proposed SI works will not adversely affect the grey seal community at the site.

5.5.3.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in grey seal at Saltee Islands SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts on seals, potential for disturbance and displacement of seals from underwater and above water noise from survey activities and potential collision risk to marine mammals from survey vessels.

Underwater noise impacts to marine mammals have been considered previously.

Above water noise

There is no spatial overlap between the coastal surveys at the potential landfall zones and the Saltee Islands SAC, as the AoI is 3 km from the SAC. As outlined in the SISAA Report, the closest known grey seal haul-out site at the Saltee Islands is located approximately 9 km east of the AoI. There is therefore no interaction between hauled out grey seals from the Saltee Islands SAC and the proposed surveys. While it is possible that grey seals will be swimming or foraging in the vicinity of survey vessels within the AoI, the presence of survey vessels will alert seals to potential disturbance, allowing them to move away. It is also reasonable to assume, given the existing baseline of vessel traffic in the area (see AIMU Report), that grey seals within the AoI are relatively well habituated to vessel activity and above water noise.

Furthermore, it has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid disturbance. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions. On this basis, there will be no adverse disturbance and displacement effects due to above water noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on marine mammals or their prey. In turn, suspended sediments could smother nearby sensitive community types, habitats or marine mammal prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including marine mammal prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

Collision risk

Vessel strikes are a known cause of mortality in marine mammals (Laist et al., 2001). Non-lethal collisions have also been documented (Laist et al., 2001; Van Waerebeek et al., 2007). Injuries from such collisions can be divided into two broad categories: blunt trauma from impact and lacerations from propellers. Injuries may result in individuals becoming vulnerable to secondary infections or predation.

It has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid collisions. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions.

Other survey vessels (i.e. benthic survey vessels, geotechnical survey vessel and metocean equipment deployment vessels) will be stationary for extended periods throughout their operations, which will reduce the potential for collision with these vessels.

As documented in the accompanying Assessment of Impact on the Maritime Usage (AIMU) Report, the area supports reasonably high levels of baseline marine traffic, with cargo vessels, fishing boats and pleasure craft traversing the AoI to access commercial and fishing ports and harbours in the region. It is, therefore, reasonable to assume that marine mammals in the area are exposed to vessel traffic on a regular basis and may exhibit some habituation. In addition, the increase in vessel traffic at any one time during the duration of the MUL is considered to be very low, given the small number of vessels to be mobilised in the context of existing vessel activity. On this basis it is predicted that collisions between survey vessels and marine mammals originating from all relevant SACs, including Hook Head SAC will be extremely unlikely. As such, there will be no adverse effects on European site integrity arising from this potential impact pathway.

It can be concluded that the favourable conservation condition of all QI species will be maintained at Saltee Islands SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.5.4 Slaney River Valley SAC

The Slaney River Valley SAC estuary elements are present at Ferrycarrig in Co. Wexford and Wexford Harbour. This SAC was screened in for AA on the basis that there is potential for harbour seal to be impacted by the underwater noise produced by the geophysical, geotechnical SI surveys. The site supports regionally significant numbers of harbour seal. This Annex II species occurs year-round in Wexford Harbour where several sandbanks are used for breeding, moulting and resting activity. At least 27 harbour seal regularly occur within the site (DHLGH, 2015). The Slaney River Valley at its closest point is 17 km north-west of the AoI, it is reasonable to assume that harbour seal may utilise neighbouring SACs and those surrounding waters of the AoI to forage/ feed and commute. However as stated above the maximum range for auditory disturbance for harbour seal is 70 m, while TTS is 1,500 m in the absence of mitigation. With the inclusion of a soft start auditory injury and TTS is < 10 m from the sound source for harbour seal. It is unlikely the underwater noise produced by the SI works will interact with harbour seal from the Slaney River Valley SAC which is 17 km away.

5.5.4.1 Assessment against conservation objectives

Qualifying Interest: harbour seal

Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict harbour seal access to suitable habitat.

Breeding behaviour: The proposed SI works will not alter breeding sites of harbour seal at Slaney River Valley SAC. As stated above, the AoI does not overlap spatially with the SAC which is located 17 km away. Therefore, breeding behaviour and breeding sites will be maintained in a natural condition.

Moulting behaviour: The proposed SI works do not overlap the Slaney River Valley SAC or associated moulting haul-out sites for harbour seal therefore no interaction will occur, and haul-out sites will be maintained in a natural condition.

Resting behaviour: As stated above, the AoI does not spatially overlap Slaney River Valley SAC. Therefore, the proposed SI works will not interact with the resting haul-out sites, and these will be maintained in a natural condition.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to harbour seals while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury and TTS to < 10 m of the sound source for harbour seal. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. However, given the limited scale and duration of the surveys and given that the seas off the south coast have a baseline level of activity due to commercial,

recreational and fishing vessels, and given the SAC is located 17 km from the AoI, the proposed SI works will not adversely affect the harbour seal community at the site.

5.5.4.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in harbour seal at Slaney River Valley SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts on seals., potential for disturbance and displacement of seals from above water and underwater noise from survey activities and potential collision risk to marine mammals from survey vessels.

Underwater noise impacts to marine mammals have been considered previously.

Above water noise

There is no spatial overlap between the coastal surveys at the potential landfall zones and the Slaney River Valley SAC, as the AoI is 17 km from the SAC. As outlined in the SISAA Report, the closest known harbour seal haul-out site is at Wexford Harbour, located approximately 38 km north-east of the AoI overland. There is therefore no interaction between hauled out harbour seals from the Slaney River Valley SAC and the proposed surveys. While it is possible that harbour seals will be swimming or foraging in the vicinity of survey vessels within the AoI, the presence of survey vessels will alert seals to potential disturbance, allowing them to move away. It is also assumed, given the existing baseline of vessel traffic in the area (see AIMU Report), that harbour seals within the AoI are relatively well habituated to vessel activity and above water noise.

Furthermore, it has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid disturbance. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions. On this basis, there will be no adverse disturbance and displacement effects due to above water noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on marine mammals or their prey. In turn, suspended sediments could smother nearby sensitive community types, habitats or marine mammal prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including marine mammal prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

Collision risk

Vessel strikes are a known cause of mortality in marine mammals (Laist et al., 2001). Non-lethal collisions have also been documented (Laist et al., 2001; Van Waerebeek et al., 2007). Injuries from such collisions

can be divided into two broad categories: blunt trauma from impact and lacerations from propellers. Injuries may result in individuals becoming vulnerable to secondary infections or predation.

It has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid collisions. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions.

Other survey vessels (i.e. benthic survey vessels, geotechnical survey vessel and metocean equipment deployment vessels) will be stationary for extended periods throughout their operations, which will reduce the potential for collision with these vessels.

As documented in the accompanying Assessment of Impact on the Maritime Usage (AIMU) Report, the area supports reasonably high levels of baseline marine traffic, with cargo vessels, fishing boats and pleasure craft traversing the AoI to access commercial and fishing ports and harbours in the region. It is, therefore, reasonable to assume that marine mammals in the area are exposed to vessel traffic on a regular basis and may exhibit some habituation. In addition, the increase in vessel traffic at any one time during the duration of the MUL is considered to be very low, given the small number of vessels to be mobilised in the context of existing vessel activity. On this basis it is predicted that collisions between survey vessels and marine mammals originating from all relevant SACs, including Hook Head SAC will be extremely unlikely. As such, there will be no adverse effects on European site integrity arising from this potential impact pathway.

It can be concluded that the favourable conservation condition of all QI species will be maintained at Slaney River Valley SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.5.5 Carnsore Point SAC

Carnsore Point SAC is situated in the south-east of Co. Wexford. Carnsore Point SAC is designated for harbour porpoise. Although the AoI does not spatially overlap the SAC (located 20 km east), it is reasonable to assume that harbour porpoise may utilise the surrounding waters of the AoI for foraging/ feeding or commuting purposes.

5.5.5.1 Assessment against conservation objectives

Qualifying Interest: harbour porpoise

Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict harbour porpoise access to suitable habitat.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to harbour porpoise while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury to 390 m of the source and TTS within 2,500 m of the sound source for harbour porpoise. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. As harbour porpoise, similar to other marine mammals, are transient there is a possibility that they could be utilising the AoI. However, given the nature of the surveys and limited scale and duration and that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, the proposed SI works will not adversely affect the harbour porpoise community at the site.

5.5.5.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in harbour porpoise at Carnsore Point SAC for potential disturbance and displacement of harbour porpoise from underwater noise from the survey activities, water quality deterioration from survey activities or survey vessels, leading to impacts on harbour porpoise or their prey and potential collision risk to marine mammals from survey vessels.

Underwater noise impacts to marine mammals have been considered previously.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on marine mammals or their prey. In turn, suspended sediments could smother nearby sensitive community types, habitats or marine mammal prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including marine mammal prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

Collision risk

Vessel strikes are a known cause of mortality in marine mammals (Laist et al., 2001). Non-lethal collisions have also been documented (Laist et al., 2001; Van Waerebeek et al., 2007). Injuries from such collisions can be divided into two broad categories: blunt trauma from impact and lacerations from propellers. Injuries may result in individuals becoming vulnerable to secondary infections or predation.

It has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid collisions. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions.

Other survey vessels (i.e. benthic survey vessels, geotechnical survey vessel and metocean equipment deployment vessels) will be stationary for extended periods throughout their operations, which will reduce the potential for collision with these vessels.

As documented in the accompanying Assessment of Impact on the Maritime Usage (AIMU) Report, the area supports reasonably high levels of baseline marine traffic, with cargo vessels, fishing boats and pleasure craft traversing the AoI to access commercial and fishing ports and harbours in the region. It is, therefore, reasonable to assume that marine mammals in the area are exposed to vessel traffic on a regular basis and may exhibit some habituation. In addition, the increase in vessel traffic at any one time during the duration of the MUL is considered to be very low, given the small number of vessels to be mobilised in the context of existing vessel activity. On this basis it is predicted that collisions between survey vessels and marine mammals originating from all relevant SACs, including Hook Head SAC will be extremely unlikely. As such, there will be no adverse effects on European site integrity arising from this potential impact pathway.

It can be concluded that the favourable conservation condition of all QI species will be maintained at Carnsore Point SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.5.6 Blackwater Bank SAC

Blackwater Bank SAC is located off the coast of Co. Wexford and is designated for harbour porpoise. The AoI does not spatially overlap the SAC (located 32 km east), although it is reasonable to assume that harbour porpoise may utilise neighbouring SACs and those surrounding waters to forage/ feed and commute.

5.5.6.1 Assessment against conservation objectives

Qualifying Interest: harbour porpoise

Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict harbour porpoise access to suitable habitat.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to harbour porpoise while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury to 390 m of the source and TTS within 2,500 m of the sound source for harbour porpoise. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. As Blackwater Bank SAC is 32 km away it is unlikely the underwater noise produced by the SI works will interact with harbour porpoise from the Blackwater Bank SAC. As harbour porpoise, similar to other marine mammals, are transient there is a possibility that they could be utilising the AoI. However, given the nature of the surveys and limited scale and duration and that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, the proposed SI works will not adversely affect the harbour porpoise community at the site.

5.5.6.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in harbour porpoise at Blackwater Bank SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts harbour porpoise or their prey, potential for disturbance and displacement of harbour porpoise from underwater noise from survey activities and potential collision risk to marine mammals from survey vessels.

Underwater noise impacts to marine mammals have been considered previously.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on marine mammals or their prey. In turn, suspended sediments could smother nearby sensitive community types, habitats or marine mammal prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including marine mammal prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to

ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

Collision risk

Vessel strikes are a known cause of mortality in marine mammals (Laist et al., 2001). Non-lethal collisions have also been documented (Laist et al., 2001; Van Waerebeek et al., 2007). Injuries from such collisions can be divided into two broad categories: blunt trauma from impact and lacerations from propellers. Injuries may result in individuals becoming vulnerable to secondary infections or predation.

It has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid collisions. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions.

Other survey vessels (i.e. benthic survey vessels, geotechnical survey vessel and metocean equipment deployment vessels) will be stationary for extended periods throughout their operations, which will reduce the potential for collision with these vessels.

As documented in the accompanying Assessment of Impact on the Maritime Usage (AIMU) Report, the area supports reasonably high levels of baseline marine traffic, with cargo vessels, fishing boats and pleasure craft traversing the AoI to access commercial and fishing ports and harbours in the region. It is, therefore, reasonable to assume that marine mammals in the area are exposed to vessel traffic on a regular basis and may exhibit some habituation. In addition, the increase in vessel traffic at any one time during the duration of the MUL is considered to be very low, given the small number of vessels to be mobilised in the context of existing vessel activity. On this basis it is predicted that collisions between survey vessels and marine mammals originating from all relevant SACs, including Hook Head SAC will be extremely unlikely. As such, there will be no adverse effects on European site integrity arising from this potential impact pathway.

It can be concluded that the favourable conservation condition of all QI species will be maintained at Blackwater Bank SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.5.7 Roaringwater Bay and Islands SAC

Roaringwater Bay and Islands SAC is located 75 km west of the AoI. Grey seal is present at the site throughout the year during all aspects of its annual life cycle which includes breeding, moulting, non-breeding, foraging and resting phases. A minimum population for all ages was estimated at 116-149 in 2005 (DHLGH, 2014b). Roaringwater Bay may also be one of the most important sites in Ireland for harbour porpoise. Harbour porpoise in Irish waters are largely resident, and observations have shown that they are regular in the waters of Roaringwater Bay. Most observations are in the autumn, when more than 100 individuals have been recorded in a day. The population has been estimated (in 2008) to be 117-201 individuals (DHLGH, 2014b). It is reasonable to assume that harbour porpoise and grey seal may utilise neighbouring SACs and those surrounding waters of the AoI to forage/ feed and commute.

5.5.7.1 Assessment against conservation objectives

Qualifying Interests: harbour porpoise and grey seal

Harbour porpoise:
Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict harbour porpoise access to suitable habitat.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to harbour porpoise while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury to 390 m of the source and TTS within 2,500 m of the sound source for harbour porpoise. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. As Roaringwater Bay and Islands SAC is 75 km away it is unlikely the underwater noise produced by the SI works will interact with

harbour porpoise from the Roaringwater Bay and Islands SAC. As harbour porpoise, similar to other marine mammals, are transient there is a possibility that they could be utilising the AoI. However, given the nature of the surveys and limited scale and duration and that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, the proposed SI works will not adversely affect the harbour porpoise community at the site.

Grey seal:
Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict grey seal access to suitable habitat.

Breeding behaviour: The proposed SI works will not alter breeding sites of grey seal at Roaringwater Bay and Islands SAC. As stated above, the AoI does not overlap spatially with the SAC which is located 75 km away. Therefore, breeding behaviour and breeding sites will be maintained in a natural condition.

Moulting behaviour: The proposed SI works do not overlap the Saltee Islands SAC or associated moulting haul-out sites for grey seal therefore no interaction will occur, and haul-out sites will be maintained in a natural condition.

Resting behaviour: As stated above, the AoI does not spatially overlap Roaringwater Bay and Islands SAC. Therefore, the proposed SI works will not interact with the resting haul-out sites and these will be maintained in a natural condition.

Population composition: The proposed SI works will not affect the population composition of the Roaringwater Bay and Islands SAC, the proposed SI works have the potential to cause low levels of disturbance to grey seal resulting in potential avoidance behaviour. However, the proposed SI works will be temporary, will not result in the permanent exclusion of individuals from part of their range within the site and will not permanently prevent access for the species to suitable habitat therein.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to grey seals while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury and TTS to < 10 m of the sound source for grey seal. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. However, given the limited scale and duration of the surveys and given that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, and given the SAC is 75 km west of the AoI, the proposed SI works will not adversely affect the grey seal community at the site.

5.5.7.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following QIs at Roaringwater Bay and Islands SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts to harbour porpoise or their prey, potential for disturbance and displacement of harbour porpoise from underwater noise from survey activities and potential collision risk to marine mammals from survey vessels. Impacts to grey seal have also been considered here.

- *Phocoena phocoena* (Harbour Porpoise) [1351]
- *Halichoerus grypus* (Grey Seal) [1364]

Underwater noise impacts to marine mammals have been considered previously.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on marine mammals or their prey. In turn, suspended sediments could smother nearby sensitive community types, habitats or marine mammal prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including marine mammal prey species in the

region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

Collision risk

Vessel strikes are a known cause of mortality in marine mammals (Laist et al., 2001). Non-lethal collisions have also been documented (Laist et al., 2001; Van Waerebeek et al., 2007). Injuries from such collisions can be divided into two broad categories: blunt trauma from impact and lacerations from propellers. Injuries may result in individuals becoming vulnerable to secondary infections or predation.

It has been calculated on a highly precautionary basis that a maximum of eight vessels could be operating at any one time within the AoI (see Section 2.1.1 for details), however, due to logistical survey constraints, it is highly unlikely that this many vessels will operate simultaneously. During the geophysical surveys, the vessels will be travelling in a predefined trajectory. It is considered that this will allow animals to predict the movement of the vessels and therefore avoid collisions. Survey vessels are expected to move at a speed of 4 knots (2.1 m/s) during survey operations. This will allow marine mammal species sufficient time to move away from the vessel should they be disturbed by vessel presence or above water noise emissions.

Other survey vessels (i.e. benthic survey vessels, geotechnical survey vessel and metocean equipment deployment vessels) will be stationary for extended periods throughout their operations, which will reduce the potential for collision with these vessels.

As documented in the accompanying Assessment of Impact on the Maritime Usage (AIMU) Report, the area supports reasonably high levels of baseline marine traffic, with cargo vessels, fishing boats and pleasure craft traversing the AoI to access commercial and fishing ports and harbours in the region. It is, therefore, reasonable to assume that marine mammals in the area are exposed to vessel traffic on a regular basis and may exhibit some habituation. In addition, the increase in vessel traffic at any one time during the duration of the MUL is considered to be very low, given the small number of vessels to be mobilised in the context of existing vessel activity. On this basis it is predicted that collisions between survey vessels and marine mammals originating from all relevant SACs, including Hook Head SAC will be extremely unlikely. As such, there will be no adverse effects on European site integrity arising from this potential impact pathway.

It can be concluded that the favourable conservation condition of all QI species will be maintained at Roaringwater Bay and Islands SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.5.8 Glengarriff Harbour and Woodland SAC

The Glengarriff Harbour and Woodland SAC is located in west Cork and 81 km west of the AoI. The site supports a diversity of fauna, the rocky islets in the harbour support the largest colony of harbour seals in the south-west of Ireland (maximum count of 151 in the all-Ireland survey of 2003) (DHLGH, 2013b). It is reasonable to assume that harbour seal may utilise neighbouring SACs and those surrounding waters of the AoI to forage/ feed and commute. However, as stated above the maximum range for auditory disturbance for harbour seal is 70 m, while TTS is 1,500 m in the absence of mitigation. With the inclusion of a soft start auditory injury and TTS is < 10 m from the sound source for harbour seal. It is unlikely the underwater noise produced by the SI works will interact with harbour seal from the Glengarriff Harbour and Woodland SAC which is 81 km away.

5.5.8.1 Assessment against conservation objectives

Qualifying Interest: harbour seal

Access to suitable habitat: The proposed SI works will not introduce any artificial barriers within the AoI which would restrict harbour seal access to suitable habitat.

Breeding behaviour: The proposed SI works will not alter breeding sites of harbour seal at Glengarriff Harbour and Woodland SAC. As stated above, the AoI does not overlap spatially with the SAC which is located 81 km away. Therefore, breeding behaviour and breeding sites will be maintained in a natural condition.

Moulting behaviour: The proposed SI works do not overlap the Glengarriff Harbour and Woodland SAC. or associated moulting haul-out sites for harbour seal therefore no interaction will occur, and haul-out sites will be maintained in a natural condition.

Resting behaviour: As stated above, the AoI does not spatially overlap Glengarriff Harbour and Woodland SAC. Therefore, the proposed SI works will not interact with the resting haul-out sites, and these will be maintained in a natural condition.

Disturbance: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to harbour seals while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury and TTS to < 10 m of the sound source for harbour seal. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. However, given the limited scale and duration of the surveys and given that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, and given tthe SAC is located 81 km from the AoI, the proposed SI works will not adversely affect the harbour seal community at the site.

5.5.9 Pembrokeshire Marine/ Sir Benfro Forol SAC

Pembrokeshire in south-west Wales is representative of grey seal colonies in the south-western part of the breeding range in the UK. It is the largest breeding colony on the west coast south of the Solway Firth, representing over 2% of annual UK pup production (NRW, 2018). The Pembrokeshire Marine/ Sir Benfro Forol SAC is located 75 km east of the AoI. As stated above the maximum range for auditory disturbance for grey seal is 70 m, while TTS is 1,500 m in the absence of mitigation. With the inclusion of a soft start auditory injury and TTS is < 10 m from the sound source for grey seal. It is unlikely the underwater noise produced by the SI works will interact with grey seal from the Pembrokeshire Marine/ Sir Benfro Forol SAC which is 75 km away.

5.5.9.1 Assessment against conservation objectives

Qualifying Interests: grey seal

Populations:
Population size: The proposed SI works do not spatially overlap the Pembrokeshire Marine SAC. The proposed SI works have the potential to cause low levels of disturbance to grey seal resulting in potential avoidance behaviour. However, the proposed SI works will be temporary and given that there is no spatial overlap with the SAC, there will be no implications for the populations of grey seals at this site. The SI works will not result in the permanent exclusion of individuals from part of their range within the site or will permanently prevent access for the species to suitable habitat.

Structure, production: The proposed SI works will not interact with the SAC or disturb grey seals which utilise the SAC for reproduction purposes. The proposed SI works will not disturb the habitat found at the SAC which forms a suitable long-term maintenance of the grey seal population.

Condition of the species within the site: As the proposed SI works are located 75 km from the SAC, the proposed SI works will have no direct impact on the condition of the species at the SAC. The underwater

noise produced from the SI works have the potential to cause auditory injury and TTS to < 10 m of the sound source when mitigation is applied. Therefore, the proposed SI will not adversely affect the condition of grey seals at the SAC.

Range:
Their range within the SAC and adjacent inter-connected areas is not constrained or hindered: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low-level disturbance to grey seal that may utilise the waters off the south coast of Ireland and those within the AoI while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury and TTS to < 10 m of the sound source. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. Therefore, as the Pembrokeshire Marine SAC is 75 km east of the AoI, the proposed SI works will not constrain or hinder grey seals' range within the SAC or adjacent interconnected areas.

There are appropriate and sufficient food resources within the SAC and beyond: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys which may impact fish prey species. However as stated above with the inclusion of mitigation measures the maximum range of impact for auditory injury and TTS is < 10 m of the sound source for fish species. Therefore, the proposed SI works will not impact food resources within the Pembrokeshire Marine SAC and beyond.

The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing: The proposed SI works will not involve any the removal of any habitat of the SAC, as the AoI does not overlap the SAC and is located 75 km the supporting habitat used by grey seal will be accessible with no impact to their extent or quality.

Supporting habitats and species:
Distribution: The proposed SI works do not spatially overlap the SAC, therefore pupping, moulting and resting haul-out areas will not be impacted. It is possible for grey seals from the Pembrokeshire Marine SAC do utilise the Celtic Sea, however given the wider foraging areas readily available and the nature and scale of the proposed SI works there will be no impact on the distribution of grey seal from the Pembrokeshire Marine SAC.

Extent: The proposed SI works do not overlap the Pembrokeshire Marine SAC, the potential extent of disturbance due to the proposed SI works due to the underwater noise produced for grey seals including mitigation measures for auditory injury and TTS is < 10 m of the sound source.

Structure: The proposed SI works will not interact with the SAC or disturb grey seals which utilise the SAC for reproduction purposes. The proposed SI works will not disturb the habitat found at the SAC which forms a suitable long-term maintenance of the grey seal population.

Function and quality of habitat: As the proposed SI works do not spatially overlap the SAC, and the underwater noise produced due to the proposed SI works has a maximum impact range of < 10 m of the sound source once mitigation is applied, there will be no impact to the function and quality of habitat for grey seals found within the Pembrokeshire Marine SAC.

Prey availability and quality: The proposed SI works do not spatially overlap the SAC, however there is potential for impact to fish prey species due to the underwater noise produced by the proposed SI works. As stated above, with the inclusion of mitigation measures the maximum range for auditory injury and TTS is < 10 m of the sound source for all geotechnical and geophysical survey scenarios to fish species. Given the limited nature and scale of the SI works and the wider Celtic Sea area for foraging, the proposed SI works will not impact prey availability or quality to grey seals of the Pembrokeshire Marine SAC.

5.5.10 West Wales Marine / Gorllewin Cymru Forol SAC

The West Wales Marine SAC is located off the coast of Wales, from the Llŷn peninsula in the north, to Pembrokeshire in the south-west, and has been identified as an area of importance for harbour porpoise. West Wales Marine SAC is designated for the protection of harbour porpoise, supporting an estimated 5.4% of the UK Celtic and Irish Seas Management Unit (MU) population. This SAC spans an area of 7,376 km^2.

The whole SAC has been identified as an important summer area for harbour porpoise, and a smaller section to the south of the site, around Cardigan Bay, has also been identified as winter habitat for this species. Along the westward boundary, water depths of up to 100 m are reached, though much of the site is 50 m or shallower. The area included within the site covers important summer habitat for harbour porpoise, while part of the site in Cardigan Bay was also identified as important during the winter. This SAC overlaps a number of other SACs including parts of the Pembrokeshire Marine SAC and the Pen Llŷn a'r Sarnau SAC, and encompasses the entire Cardigan Bay SAC (JNCC, 2023). The West Wales Marine SAC is 81 km east of the AoI.

5.5.10.1 Assessment against conservation objectives

Qualifying Interest: harbour porpoise

Harbour porpoise is a viable component of the site: The AoI does not spatially overlap the West Wales Marine SAC. The proposed SI works will not interact with the harbour porpoise directly at the site or cause injury, killing or other factors that would restrict the survivability and reproductive potential of harbour porpoise using the SAC. No unacceptable levels of impacts on harbour porpoise within their natural range will occur as stated above the maximum range for auditory injury with the inclusion of the mitigation measures set out above is 390 m from the sound source and within 2,500 m for TTS. As the proposed SI works are 81 km east of the SAC, there is no likelihood of the proposed SI works contributing to unacceptable levels of impacts to harbour porpoise which use the SAC.

There is no significant disturbance of the species: The proposed SI works have the potential to introduce underwater noise due to the coastal and marine geophysical, geotechnical and metocean surveys. There may be some low level disturbance to harbour porpoise while the surveys are ongoing resulting in potential avoidance behaviour. However, as stated above, project specific mitigation will be implemented which will reduce auditory injury to 390 m of the source and TTS within 2,500 m of the sound source for harbour porpoise. The metocean surveys have the potential to cause auditory injury and TTS at a distance of < 10 m of the sound source. As West Wales Marine SAC is 81 km away it is unlikely the underwater noise produced by the SI works will interact with harbour porpoise from the West Wales Marine SAC. As harbour porpoise, similar to other marine mammals, are transient there is a possibility that they could be utilising the AoI. However, given the nature of the surveys and limited scale and duration and that the seas off the south coast have a baseline level of activity due to commercial, recreational and fishing vessels, the proposed SI works will not adversely affect the harbour porpoise community at the site.

The condition of supporting habitats and processes, and the availability of prey is maintained: As stated above the AoI does not spatially overlap with the West Wales SAC. The underwater noise produced by the proposed SI works will not affect the characteristics of the seabed or water column of the SAC. The underwater noise produced by the proposed SI works have the potential to disturb fish species, however with the inclusion of mitigation measures stated above the maximum range of auditory injury and TTS is < 10 m of the sound source for all geophysical and geotechnical survey scenarios for fish species. Therefore, there will be no impact to prey species for harbour porpoise at the SAC.

5.6 Migratory Fish

5.6.1 Overview of impacts to Fish (underwater noise)

In line with the precautionary principle, migratory fish at the following SACs were screened in for AA, due to the likelihood for significant effects as a result of underwater noise:

- River Barrow and River Nore SAC
- Blackwater River (Cork/Waterford) SAC
- Lower River Suir SAC
- Slaney River Valley SAC

The interaction between the proposed SI works and the above SACs will be investigated in more detail to establish whether there is a credible risk to migratory fish from the proposed SI works. Where no such risk

exists, no further assessment will be undertaken. Where there is a risk of impact from the SI works to migratory fish, an assessment against the conservation objectives will be undertaken.

Table 5.6 Site-specific conservation objectives for relevant qualifying interests of SACs

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
River Barrow and Nore SAC (IE002162) (NPWS, 2011e; Version 1, 19/07/2011)		
Sea lamprey [1095]	To restore the favourable conservation condition	Distribution: extent of anadromy Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
River lamprey [1099]		Distribution: extent of anadromy Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
Twaite shad [1103]		Distribution: extent of anadromy Population structure: age classes Extent and distribution of spawning habitat Water quality: oxygen levels Spawning habitat quality: Filamentous algae; macrophytes; sediment
Atlantic salmon [1106]		Distribution: extent of anadromy Adult spawning fish Salmon fry abundance Out-migrating smolt abundance Number and distribution of redds Water quality
Blackwater River (Cork/Waterford) SAC (IE002170) (NPWS, 2012b, Version 1, 31/07/2012)		
Sea lamprey [1095]	To restore the favourable conservation condition	Distribution: extent of anadromy Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
River lamprey [1099]		Distribution Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
Twaite shad [1103]		Distribution: extent of anadromy Population structure: age classes Extent and distribution of spawning habitat Water quality: oxygen levels Spawning habitat quality: Filamentous algae; macrophytes; sediment
Atlantic salmon [1106]		Distribution: extent of anadromy Adult spawning fish Salmon fry abundance Out-migrating smolt abundance Number and distribution of redds Water quality
Lower River Suir SAC (IE002137) (NPWS, 2017, Version 1, 28/03/2017)		
Sea lamprey [1095]	To restore the favourable conservation condition	Distribution: extent of anadromy Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
River lamprey [1099]		Distribution Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
Twaite shad [1103]		Distribution: extent of anadromy Population structure: age classes

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
		Extent and distribution of spawning habitat Water quality: oxygen levels Spawning habitat quality: Filamentous algae; macrophytes; sediment
Atlantic salmon [1106]		Distribution: extent of anadromy Adult spawning fish Salmon fry abundance Out-migrating smolt abundance Number and distribution of redds Water quality
Slaney River Valley SAC (IE000781) (NPWS, 2011f, Version 1.0, 21/10/2011)		
Sea lamprey [1095]	To restore the favourable conservation condition	Distribution: extent of anadromy Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
River lamprey [1099]		Distribution: extent of anadromy Population structure of juveniles Juvenile density in fine sediment Extent and distribution of spawning habitat Availability of juvenile habitat
Twaite shad [1103]		Distribution: extent of anadromy Population structure: age classes Extent and distribution of spawning habitat Water quality: oxygen levels Spawning habitat quality: Filamentous algae; macrophytes; sediment
Atlantic salmon [1106]		Distribution: extent of anadromy Adult spawning fish Salmon fry abundance Out-migrating smolt abundance Number and distribution of redds Water quality

As can be seen from the information presented in the table above, the Site Specific Conservation Objective and the Site Specific Attributes for each species are the same for each of the four European sites. In addition Sea Lamprey and River Lamprey share the same Site Specific Attributes.

The proposed coastal and marine geophysical and geotechnical surveys will produce underwater noise which has the potential to impact QI migratory fish. As no European sites designated for migratory fish overlap with the AoI, the risk is that fish could experience adverse effects as they migrate to/ from their natal rivers and transit through the AoI.

Taking the above into account, the conservation objectives for all four SACs were assessed together in Section 5.6.2 below, as they equally apply to each species within the four European sites screened in for AA.

To assess the impacts of the geophysical survey, each type of sub-bottom profiler (SBP) was modelled as a different scenario. Each scenario assumed that the vessel, SSS, USBL and MBES sources were active, with only the type of SBP changing between the scenarios modelled. The results have been summarised below to present the ‘worst-case scenario’.

5.6.2 Assessment against conservation objectives

Qualifying Interests: Sea lamprey, river lamprey, twaite shad and Atlantic salmon,

Sea and River Lamprey[4]:

Distribution: extent of anadromy: The proposed SI works will not introduce any artificial barriers that may block or interfere with upstream migration of either sea lamprey (*Petromyzon marinus*) and river lamprey (*Lampetra fluviatilis*).

Population structure of juveniles: The proposed SI works will not interfere with the population structure of juvenile sea lamprey. Juvenile lamprey species are typically found burrowed into muddy or silty riverbeds[5]. As the proposed SI works are entirely within the maritime area the population structure of juveniles will not be impacted.

Juvenile density in fine sediment: Juvenile sea lamprey typically burrow in fine sediment in still water. As the proposed SI works are entirely within the maritime area there is unlikely to be an impact on juvenile density in fine sediment.

Extent and distribution of spawning habitat: The proposed SI works will not interact with sea and river lamprey nests (redds). Sea and river lamprey spawning nests are typically within stony river banks, and then after hatching drift downstream and burrow into muddy or silty riverbeds for several years. The proposed SI works will be conducted wholly within the AoI and will not interact with riverbeds. Therefore, there will be no decline in the extent and distribution of spawning beds.

Availability of juvenile habitat: The proposed SI works will not remove suitable habitat for juvenile sea and river lamprey. The proposed SI works will be conducted wholly within the AoI and will not interact with riverbeds. Therefore, there will be no reduction in the availability of juvenile habitat.

Twaite shad:

Distribution: extent of anadromy: As stated above, the proposed SI works will not introduce any artificial barriers, therefore distribution of twaite shad will not be impacted.

Population structure: age classes: Regular breeding has been confirmed in River Barrow and River Blackwater in recent years (King and Linnane, 2004; King and Roche, 2008). In 2019, an Inland Fisheries Ireland survey was conducted and twaite shad were noted in low numbers through capture numbers but were dispersed throughout the estuary (Ryan et al., 2020). The AoI overlaps the River Barrow and River Nore SAC tidal reaches at Creedan Head in the Waterford Estuary. In the River Blackwater, twaite shad have been recorded in the Hut Pool, upstream of Cappoquin and in the most upstream freshwater areas of the tidal channel of the River Blackwater. As the AoI is 8 km from the boundary of the SAC, it is unlikely that the proposed SI works will impact on the population structure of twaite shad within the Blackwater River (Cork/Waterford) SAC. The Lower River Suir is located 8 km from the AoI within the Waterford Estuary, the proposed SI works do not overlap the SAC and as the maximum range of impact on migratory fish is < 10 m when mitigation is applied, the proposed SI works will not impact the population structure of twaite shad in the Lower River Suir SAC. Regular breeding has not been confirmed in the River Slaney in recent years (King and Roche, 2008), as the River Slaney is 17 km from the AoI and as the underwater noise from the SI works has a maximum impact range for fish of < 10 of the sound sources with the inclusion of soft-start. The population structure of twaite shad across its age classes at the aforementioned SACs will not be impacted.

Extent and distribution of spawning habitat: The proposed SI works will not overlap twaite shad spawning grounds.

Water quality: oxygen levels: The SI works will not impact water quality or oxygen levels.

Spawning habitat quality: Filamentous algae; macrophytes; sediment: The underwater noise produced by the proposed SI works will not interact with the substrate.

[4] As sea and river lamprey contained the same attributes for their CO's they were dealt with together throughout this document

[5] https://www.fisheriesireland.ie/species/sea-lamprey-petromyzon-marinus Accessed 15/11/2024.

Atlantic salmon:

Distribution: extent of anadromy: The proposed SI works will take place within the AoI and will not overlap river channels used by Atlantic salmon. No artificial barriers will be erected within the AoI that may block or interfere with Atlantic salmon (Salmo salar) migration upstream.

Adult spawning fish: The proposed SI works will not directly interact with adult spawning fish, however the underwater noise produced due to the proposed SI works could impact Atlantic salmon as they transit to their migratory rivers or the AoI. However, after the application of soft-starts (see Section 5.5.1), risk ranges for auditory injury and TTS are < 10 m of the sound source. Therefore, there will be no impact on adult spawning fish.

Salmon fry abundance: As stated above the underwater noise produced due to the proposed SI works have the potential to impact fish species within the AoI. However, after the application of soft-starts (see Section 5.5.1), auditory injury and TTS will be < 10 of the sound source for all survey scenarios. Therefore, there will be no impact to salmon fry abundance.

Out-migrating smolt abundance: The SI works will not introduce estuarine pollution, predators or sea lice. Therefore, there will be no decline in out-migrating smolt abundance.

Number and distribution of redds: The proposed SI works will not interact with any salmon redd beds. No artificial barriers will be erected in the AoI which may prevent salmon from accessing suitable habitat.

Water quality: The proposed SI works will not contribute to a deterioration in EPA Q values within the SAC. The proposed SI works will not affect water quality of the SAC.

5.6.3 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following migratory fish QIs at River Barrow and River Nore SAC, Lower River Suir SAC, Blackwater River (Cork/Waterford) SAC and Slaney River Valley SAC for potential water quality deterioration from survey activities or survey vessels, leading to impacts on migratory fish and potential for disturbance and displacement of migratory fish from underwater and above water noise from the survey activities.

- Sea lamprey (*Petromyzon marinus*) [1095]
- River lamprey (*Lampetra fluviatilis*) [1099]
- Twaite shad (*Alosa fallax fallax*) [1103]
- Atlantic Salmon (*Salmo salar*) [1106]

Underwater noise impacts to marine mammals are considered above.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that water quality impacts could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, while SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types or habitats. It is anticipated that any suspended sediments will settle out of suspension rapidly and therefore will not impact on migratory fish species, or their prey species. Given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and migratory fish species in the region are expected to be adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels

relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, the mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all QI migratory fish species will be maintained at the River Barrow and Nore SAC, Blackwater River (Cork/Waterford) SAC, Lower River Suir SAC and the Slaney River Valley SAC, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7 Birds

5.7.1 Overview of impacts to Birds (above-water disturbance)

In line with the precautionary principle, the following SPAs were screened in for AA, as likely significant effects due to disturbance could not be excluded at screening stage:

- Bannow Bay SPA (wintering waterbirds)
- Ballycotton Bay SPA (wintering waterbirds and gull species)
- Ballyteige Burrow SPA (wintering geese/swans)
- Tramore Back Strand SPA (wintering geese/swans)
- Dungarvan Harbour SPA (wintering geese/swans)
- Tacumshin Lake SPA (wintering geese/swans)
- Wexford Harbour and Slobs SPA (wintering geese/swans)
- Mid Waterford Coast SPA (breeding birds at the nest)
- Keeragh Islands SPA (breeding birds at the nest)

The interaction between the proposed SI works and the above SPAs will be investigated in more detail to establish whether there is a credible risk from the proposed SI works. Where no such risk to a European site exists, no further assessment will be undertaken. Where there is a risk of impact from the SI works to QI birds, an assessment against the conservation objectives will be undertaken.

5.7.2 MARA Screening Determination Update

MARA's Screening Determination (issued on 01/05/2025) screened in eight additional SPAs (relevant SCIs only), and these previously screened in from the SISAA Report. MARA also identified additional SCIs to be considered for sites already screened in by RPS in the SISAA. Updates based on MARA's screening determination have been added to the end of each site section, where appropriate.

5.7.3 Bannow Bay SPA

Bannow Bay SPA is a large sheltered estuarine system with a narrow outlet to the sea on the south coast of Co. Wexford. The site supports an excellent diversity of wintering waterfowl and is one of the most important sites in the south-east (NPWS, 2014a). The site is of special conservation interest for the following wintering species: light-bellied Brent goose (*Branta bernicla hrota*), shelduck (*Tadorna tadorna*), pintail (*Anas acuta*), oystercatcher (*Haematopus ostralegus*), golden plover (*Pluvialis apricaria*), grey plover (*Pluvialis squatarola*), lapwing (*Vanellus vanellus*), knot (*Calidris canutus*), dunlin (*Calidris alpina*), black-tailed godwit (*Limosa limosa*), bar-tailed godwit (*Limosa lapponica*), curlew (*Numenius arquata*) and redshank (*Tringa totanus*). The intertidal sand and mud flats provide excellent feeding for these species, while suitable high tide roosts are provided by the salt marshes and other shoreline habitats (NPWS, 2014a). The conservation objectives for Bannow Bay SPA are provided in Table 5.7.

Although the AoI boundary includes Bannow Bay, coastal surveys will take place only at the potential landfall zones, none of which are within the boundary of the SPA. The closest landfall zone (Zone F) is approximately 1 km east of Bannow Bay SPA. Due to the restricted access to the estuarine system, vessels will not have access to the sheltered estuarine system of Bannow Bay. Therefore, there will be no interaction

between the proposed SI works and the habitats of Bannow Bay SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA.

Although some waterbird species will be faithful to specific habitats within the SPA, many will at times also use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA (NPWS, 2012d). There is therefore a potential pathway for ex-situ effects as several bird species may at times use habitats outside of but ecologically connected to the SPA. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species and/or a reduction on their numbers (NPWS, 2012d).

NPWS (2012d) provides an assessment of the ecological characteristics, requirements and specialities of the SCI species. Light-bellied Brent goose, dunlin, black-tailed godwit, shelduck, oystercatcher, grey plover and curlew display high site fidelity on non-breeding grounds, bar-tailed godwit, golden plover, lapwing, knot and redshank exhibit moderate site fidelity, while pintail displays weak site fidelity. Those species with high site fidelity are generally considered to be more reliant on the habitats of the SPA and less likely to utilise alternative habitats. The principal supporting habitat within Bannow Bay SPA for all species except pintail is intertidal mud and sand flats. The conservation objectives supporting document (NPWS, 2012d) notes that pintail was not recorded during the NPWS 2009/10 Waterbird Survey programme. The closest landfall zones, Zone F (approximately 1 km east of Bannow Bay SPA) and Zone G (approximately 2 km east) are located at sandy beaches with exposed rocky outcrops, with no extensive mud/flats exposed at low tide, therefore, these locations are unlikely to be ecologically connected to the SPA and used by foraging waterbirds.

Existing activities causing disturbance in and around Bannow Bay SPA have been identified as dog walking, aquaculture activities, aircraft, shooting and motorised vehicles (NPWS, 2012d). SI works at the landfall zones will consist of the excavation of six trial pits, drilling of one borehole using a vehicle mounted drilling spread and associated support vehicles, and walkover surveys (geophysical, environmental and archaeological). Existing land access routes will be used. The marine survey activities, including borehole drilling from the JUB, will be located too far from intertidal habitats to interact with wading waterbirds.

It is possible that species such as light-bellied Brent goose, black-tailed godwit, golden plover, curlew, which are known to utilise grassland habitats for feeding, may be present on the agricultural grasslands around the landfall zones. However, given existing activity levels in and around Bannow Bay SPA, the availability of extensive alternative grassland habitat in the region and the temporary nature and short duration of the works at landfall zones, it is considered highly unlikely that the SI works will lead to levels of disturbance capable of resulting in long-term displacement or a reduction in population of any bird species.

There will be no change in the long-term population trend or distribution of any species and no reduction in wetland habitat area due to the proposed temporary SI works, therefore favourable conservation condition will be maintained and there will be no adverse effect on the integrity of Bannow Bay SPA.

Table 5.7 Site-specific conservation objectives for Bannow Bay SPA

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Bannow Bay SPA (IE004033) (NPWS, 2012e; Version 1, 17/05/2012)		
Light-bellied Brent goose (*Branta bernicla hrota*) Shelduck (*Tadorna tadorna*) Pintail (*Anas acuta*) Oystercatcher (*Haematopus ostralegus*) Golden plover (*Pluvialis apricaria*) Grey plover (*Pluvialis squatarola*) Lapwing (*Vanellus vanellus*) Knot (*Calidris canutus*) Dunlin (*Calidris alpina*) Black-tailed godwit (*Limosa limosa*) Bar-tailed godwit (*Limosa lapponica*) Curlew (*Numenius arquata*) Redshank (*Tringa totanus*)	To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Bannow Bay SPA	Population trend Distribution

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Wetland and Waterbirds	To maintain the favourable conservation condition of the wetland habitat at Bannow Bay SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.	Wetland habitat area

5.7.3.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Bannow Bay SPA for disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities, and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Shelduck (*Tadorna tadorna*) [A048]
- Pintail (*Anas acuta*) [A054]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Knot (*Calidris canutus*) [A143]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Wetland and Waterbirds [A999]

Above water disturbance and displacement impacts have been considered in Section 5.7.3. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to

ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Bannow Bay SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.4 Ballycotton Bay SPA

Ballycotton Bay SPA is located on the south coast of Co. Cork, stretching approximately 2 km from Ballycotton to Ballynamona. The site comprises two sheltered inlets which receive the flow of several small rivers. The principal habitat within the site is intertidal sand and mudflats, which provide the main feeding habitat for wintering birds, while fringing salt marshes provide high tide roosts (NPWS, 2015b). The site is of special conservation interest for the following wintering species: teal (*Anas crecca*), ringed plover (*Charadrius hiaticula*), golden plover, grey plover, lapwing (*Vanellus vanellus*), black-tailed godwit, bar-tailed godwit, curlew, turnstone (*Arenaria interpres*), common gull (*Larus canus*) and lesser black-backed gull (*Larus fuscus*). Wetland habitats are also a SCI of the site. The conservation objectives for Ballycotton Bay SPA are provided in Table 5.8.

Although the AoI boundary includes Ballycotton Bay, coastal surveys will take place only at the potential landfall zones. The closest landfall zone (Zone C) abuts the north-eastern boundary of the SPA but does not overlap with the site. Therefore, there will be no interaction between the proposed SI works and the habitats of Ballycotton Bay SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA.

Although some waterbird species will be faithful to specific habitats within the SPA, many will at times also use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA (NPWS, 2014b). There is therefore a potential pathway for ex-situ effects as several bird species may at times use habitats outside of but ecologically connected to the SPA. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species and/or a reduction on their numbers (NPWS, 2014b).

As landfall zone C is situated on the same stretch of contiguous beach as the SPA, it is reasonable to assume that all SCI species are likely to be present within the SI works area, and therefore, that the area of survey works is ecologically connected to the SPA.

Existing activities causing disturbance in and around Ballycotton Bay SPA have been identified as general recreational activities which occur year-round, with dog walking identified as particularly common, aircraft, powered watercraft, windsurfing, horse riding, bait-digging and collection of molluscs (NPWS, 2014b). SI works at the landfall zones will consist of the excavation of six trial pits, drilling of one borehole using a vehicle mounted drilling spread and associated support vehicles, and walkover surveys (geophysical, environmental and archaeological). Existing land access routes will be used. The marine survey activities, including borehole drilling from the JUB, will be located too far from intertidal habitats to interact with wading waterbirds.

It is possible that all SCI species may be present on the beach around the landfall zone C. However, given existing activity levels in and around Ballycotton Bay SPA, the availability of extensive alternative foraging and roosting habitat along this stretch of coastline and the temporary nature and short duration of the works at landfall zone C, it is considered highly unlikely that the SI works will lead to levels of disturbance capable of resulting in long-term displacement or a reduction in population of any bird species.

There will be no change in the long-term population trend or distribution of any species and no reduction in wetland habitat area due to the proposed temporary SI works, therefore favourable conservation condition will be maintained and there will be no adverse effect on the integrity of Ballycotton Bay SPA.

Table 5.8 Site-specific conservation objectives for Ballycotton Bay SPA

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Ballycotton Bay SPA (IE004022) (NPWS, 2014c; Version 1, 26/08/2014)		
Teal (*Anas crecca*) Ringed plover (*Charadrius hiaticula*) Golden plover (*Pluvialis apricaria*) Grey plover (*Pluvialis squatarola*) Lapwing (*Vanellus vanellus*) Black-tailed godwit (*Limosa limosa*) Bar-tailed godwit (*Limosa lapponica*) Curlew (*Numenius arquata*) Turnstone (*Arenaria interpres*) Common gull (*Larus canus*) Lesser black-backed gull (*Larus fuscus*)	To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Ballycotton Bay SPA	Population trend Distribution
Wetland and Waterbirds	To maintain the favourable conservation condition of the wetland habitat at Ballycotton Bay SPA as a resource for the regularly occurring migratory waterbirds that utilise it.	Wetland habitat area

5.7.4.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Ballycotton Bay SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Teal (*Anas crecca*) [A052]
- Ringed Plover (*Charadrius hiaticula*) [A137]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Turnstone (*Arenaria interpres*) [A169]
- Common Gull (*Larus canus*) [A182]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Wetland and Waterbirds [A999]

Above water disturbance and displacement impacts have been considered previously.

Underwater noise disturbance

Consideration of underwater noise disturbance is limited only to SCI seabirds likely to dive in the marine environment (common gull, lesser black-backed gull).

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is

very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Ballycotton Bay SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.5 Ballyteige Burrow SPA

Ballyteige Burrow SPA is located on the south coast of Co. Wexford between the towns of Kilmore Quay and Cullenstown. It comprises a sand and shingle barrier beach, approximately 8 km in length, and the estuary of the Duncormick River. The extensive overlying sand spot is known as the Burrow, while the estuary it encloses is known as the Cull (NPWS, 2014d). The site has a range of coastal habitats, including various types of sand dunes, salt meadows, and intertidal sand and mud flats. The SPA is of special conservation interest for the following species: light-bellied Brent goose, shelduck, golden plover, grey plover, lapwing, black-tailed godwit and bar-tailed godwit. Wetland habitats are also a special conservation interest of the site. The conservation objectives for Ballyteige Burrow SPA are provided in Table 5.9.

Ballyteige Burrow SPA is approximately 1 km east of the AoI for the SI works. The closest landfall zone (Zone G) is approximately 2 km west of the SPA. Therefore, there will be no interaction between the proposed SI works and the habitats of Ballyteige Burrow SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA.

Although some waterbird species will be faithful to specific habitats within the SPA, many will at times also use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA (NPWS, 2014e). There is therefore a potential pathway for ex-situ effects as several bird species may at times use habitats outside of but ecologically connected to the SPA. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species and/or a reduction on their numbers (NPWS, 2014e).

NPWS (2014e) provides an assessment of the ecological characteristics, requirements and specialities of the SCI species. Light-bellied Brent goose, shelduck, grey plover and black-tailed godwit display high site fidelity on non-breeding grounds, while golden plover, lapwing and bar-tailed godwit, exhibit moderate site fidelity. Those species with high site fidelity are generally considered to be more reliant on the habitats of the SPA and less likely to utilise alternative habitats. The principal supporting habitat within Ballyteige Burrow SPA for all species is intertidal mud and sand flats, although shelduck also uses the shallow subtidal to forage. The closest landfall zone, Zone G is located approximately 2 km west and comprises a sandy beach with exposed rocky outcrops, with no extensive mud/flats exposed at low tide, therefore, unlikely to be ecologically connected to the SPA and used by foraging waterbirds.

SI works at the landfall zone G will consist of the excavation of six trial pits, drilling of one borehole using a vehicle mounted drilling spread and associated support vehicles, and walkover surveys (geophysical, environmental and archaeological). Existing land access routes will be used. The marine survey activities, including borehole drilling from the JUB, will be located too far from intertidal habitats to interact with wading waterbirds.

It is possible that species such as light-bellied Brent goose, black-tailed godwit and golden plover, which are known to utilise grassland habitats for feeding, may be present on the agricultural grasslands around the landfall zones. However, given the availability of extensive alternative grassland habitat close to Ballyteige Burrow SPA and the temporary nature and short duration of the works at landfall zone G, it is considered highly unlikely that the SI works will lead to levels of disturbance capable of resulting in long-term displacement or a reduction in population of any bird species.

There will be no change in the long-term population trend or distribution of any species and no reduction in wetland habitat area due to the proposed temporary SI works, therefore favourable conservation condition will be maintained and there will be no adverse effect on the integrity of Ballyteige Burrow SPA.

Table 5.9 Site-specific conservation objectives for Ballyteige Burrow SPA

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Ballyteige Burrow SPA (IE004020) (NPWS, 2014f; Version 1, 12/06/2014)		
Light-bellied Brent goose (*Branta bernicla hrota*) Shelduck (*Tadorna tadorna*) Golden plover (*Pluvialis apricaria*) Grey plover (*Pluvialis squatarola*) Lapwing (*Vanellus vanellus*) Black-tailed godwit (*Limosa limosa*) Bar-tailed godwit (*Limosa lapponica*)	To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Ballyteige Burrow SPA	Population trend Distribution
Wetland and Waterbirds	To maintain the favourable conservation condition of the wetland habitat at Ballyteige Burrow SPA as a resource for the regularly occurring migratory waterbirds that utilise it.	Wetland habitat area

5.7.5.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Ballyteige Burrow SPA for disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Shelduck (*Tadorna tadorna*) [A048]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Wetland and Waterbirds [A999]

Above water disturbance and displacement impacts have been considered in previously. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Ballyteige Burrow SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.6 Tramore Back Strand SPA

Tramore Back Strand SPA is located approximately 2 km east of Tramore town in Co. Waterford. It comprises a medium-sized estuary sheltered from the open sea by a long shingle pit, with high dunes (NPWS, 2014g). The site has a range of coastal habitats, including intertidal mud flats and sand flats with well-developed macrofauna. Eelgrass (*Zostera* species), an important food item for herbivorous wildfowl is present. Saltmarsh is well developed and fairly extensive in the sheltered inner part of the site (NPWS, 2014g). The conservation objectives for Tramore Back Strand SPA are provided in Table 5.10.

Tramore Back Strand SPA is approximately 1 km north of the AoI for the SI works. The closest landfall zone (Zone D) is approximately 14 km west of the SPA. Therefore, there will be no interaction between the proposed SI works and the habitats of Tramore Back Strand SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA.

Although some waterbird species will be faithful to specific habitats within the SPA, many will at times also use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA (NPWS, 2014h). There is therefore a potential pathway for ex-situ effects as several bird species may at times use habitats outside of but ecologically connected to the SPA. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species and/or a reduction on their numbers (NPWS, 2014h).

NPWS (2014h) provides an assessment of the ecological characteristics, requirements and specialities of the SCI species. Light-bellied Brent goose, grey plover, dunlin, black-tailed godwit and curlew display high site fidelity on non-breeding grounds, while golden plover, lapwing and bar-tailed godwit, exhibit moderate site fidelity. Those species with high site fidelity are generally considered to be more reliant on the habitats of the SPA and less likely to utilise alternative habitats. The principal supporting habitat within Tramore Back Strand SPA for all species is intertidal mud and sand flats, (with the addition of Zoster beds for light-bellied Brent goose). The closest landfall zone, Zone D is located approximately 14 km west of the SPA and comprises a sandy beach surrounded by cliffs, with no extensive mud/flats exposed at low tide, therefore, unlikely to be ecologically connected to the SPA and used by foraging waterbirds.

SI works at the landfall zone D will consist of the excavation of six trial pits, drilling of one borehole using a vehicle mounted drilling spread and associated support vehicles, and walkover surveys (geophysical, environmental and archaeological). Existing land access routes will be used. The marine survey activities, including borehole drilling from the JUB, will be located too far from intertidal habitats to interact with wading waterbirds.

It is possible that species such as light-bellied Brent goose, black-tailed godwit and golden plover, which are known to utilise grassland habitats for feeding, may be present on the agricultural grasslands around the landfall zones. However, given the availability of extensive alternative grassland habitat close to Tramore Back Strand SPA and the temporary nature and short duration of the works at landfall zone D, it is considered highly unlikely that the SI works will lead to levels of disturbance capable of resulting in long-term displacement or a reduction in population of any bird species.

There will be no change in the long-term population trend or distribution of any species and no reduction in wetland habitat area due to the proposed temporary SI works, therefore favourable conservation condition will be maintained and there will be no adverse effect on the integrity of Tramore Back Strand SPA.

Table 5.10 Site-specific conservation objectives for Tramore Back Strand SPA

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Tramore Back Strand SPA (IE004027) (NPWS, 2013b, Version 1, 03/10/2013)		
Light-bellied Brent goose (*Branta bernicla hrota*) Golden plover (*Pluvialis apricaria*) Grey plover (*Pluvialis squatarola*) Lapwing (*Vanellus vanellus*) Dunlin (*Calidris alpina*) Black-tailed godwit (*Limosa limosa*) Bar-tailed godwit (*Limosa lapponica*) Curlew (Numenius arquata)	To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Tramore Back Strand SPA	Population trend Distribution
Wetland and Waterbirds	To maintain the favourable conservation condition of the wetland habitat at Tramore Back Strand SPA as a resource for the regularly occurring migratory waterbirds that utilise it.	Wetland habitat area

5.7.6.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Tramore Back Strand SPA for disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Light-bellied Brent Goose (*Branta bernicla hrota) [A046]*
- Golden Plover *(Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Wetland and Waterbirds [A999]

Above water disturbance and displacement impacts have been considered in previously. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Tramore Back Strand SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.7 Dungarvan Harbour SPA

Dungarvan Harbour SPA is located in south-west Waterford and lies at the eastern end of the former valley of the River Blackwater. The site includes Dungarvan Harbour as far east as Ballycourty Point and west to include the tidal sections of the River Brickey. The absence of a large river entering the site means that the bay is essentially a marine habitat, drying out at low tide to give extensive mud and sand flats. The inner bay is extremely sheltered, being almost closed off by a linear spit to the east (NPWS, 2014i). The SPA is of special conservation interest for the following species: great crested grebe (*Podiceps cristatus*), light-bellied Brent goose, shelduck, red-breasted merganser (*Mergus serrator*), oystercatcher, golden plover, grey plover, lapwing, knot, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank and turnstone (*Arenaria*

interpres). Wetland habitats are also a special conservation interest of the site. The conservation objectives for Dungarvan Harbour SPA are provided in Table 5.11.

Dungarvan Harbour SPA is approximately 6 km west of the AoI for the SI works. The closest landfall zone (Zone D) is approximately 14 km east of the SPA. Therefore, there will be no interaction between the proposed SI works and the habitats of Dungarvan Harbour SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA.

Although some waterbird species will be faithful to specific habitats within the SPA, many will at times also use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA. There is therefore a potential pathway for ex-situ effects as several bird species may at times use habitats outside of but ecologically connected to the SPA. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species and/or a reduction on their numbers.

NPWS (2011i) provides an assessment of the ecological characteristics, requirements and specialities of the SCI species. Light-bellied Brent goose, great crested grebe, oystercatcher, grey plover, shelduck, black-tailed godwit, turnstone and curlew display high site fidelity on non-breeding grounds, while golden plover, dunlin, bar-tailed godwit, redshank, lapwing and knot exhibit moderate site fidelity. Site fidelity for red-breasted merganser is unknown, however, as a diving species that feeds on fish, it is reasonable to assume that they will forage primarily out to sea and not on sand and mud flats. Those species with high site fidelity are generally considered to be more reliant on the habitats of the SPA and less likely to utilise alternative habitats. The principal supporting habitat within the SPA for the majority of species is intertidal mud and sand flats, with shelduck, re-breasted merganser and great crested grebe utilising the sheltered and shallow subtidal to forage. The closest landfall zone, Zone D is located approximately 13 km east of the SPA and comprises a sandy beach surrounded by cliffs, with no extensive mud/flats exposed at low tide, therefore, unlikely to be ecologically connected to the SPA and used by foraging waterbirds.

SI works at the landfall zone D will consist of the excavation of six trial pits, drilling of one borehole using a vehicle mounted drilling spread and associated support vehicles, and walkover surveys (geophysical, environmental and archaeological). Existing land access routes will be used. The marine survey activities, including borehole drilling from the JUB, will be located too far from intertidal habitats to interact with wading waterbirds.

It is possible that species such as light-bellied Brent goose, black-tailed godwit and golden plover, which are known to utilise grassland habitats for feeding, may be present on the agricultural grasslands around the landfall zones. However, given the availability of extensive alternative grassland habitat close to Dungarvan Harbour SPA, the distance to the closest landfall zone and the temporary nature and short duration of the works at landfall zone D, it is considered highly unlikely that the SI works will lead to levels of disturbance capable of resulting in long-term displacement or a reduction in population of any bird species.

There will be no change in the long-term population trend or distribution of any species and no reduction in wetland habitat area due to the proposed temporary SI works, therefore favourable conservation condition will be maintained and there will be no adverse effect on the integrity of Dungarvan Harbour SPA.

Table 5.11 Site-specific conservation objectives for Dungarvan Harbour SPA

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Dungarvan Harbour SPA (IE004032) (NPWS, 2012f; Version 1, 16/01/2012)		
Great crested grebe (*Podiceps cristatus*) Light-bellied Brent goose (*Branta bernicla hrota*) Shelduck (*Tadorna tadorna*) Red-breasted merganser (*Mergus serrator*) Oystercatcher (*Haematopus ostralegus*) Golden plover (*Pluvialis apricaria*)	To maintain the favourable conservation condition of the waterbird Special Conservation Interest species listed for Dungarvan Harbour SPA	Population trend Distribution

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Grey plover (*Pluvialis squatarola*) Lapwing (*Vanellus vanellus*) Knot (*Calidris canutus*) Dunlin (*Calidris alpina*) Black-tailed godwit (*Limosa limosa*) Bar-tailed godwit (*Limosa lapponica*) Curlew (Numenius arquata) Redshank (*Tringa totanus*) Turnstone (*Arenaria interpres*)		
Wetland and Waterbirds	To maintain the favourable conservation condition of the wetland habitat at Dungarvan Harbour SPA as a resource for the regularly occurring migratory waterbirds that utilise it.	Wetland habitat area

5.7.7.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Dungarvan Harbour SPA for disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Great Crested Grebe (*Podiceps cristatus*) [A005]
- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Shelduck (*Tadorna tadorna*) [A048]
- Red-breasted Merganser (*Mergus serrator*) [A069]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Knot (*Calidris canutus*) [A143]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Great Crested Grebe (*Podiceps cristatus*) [A005]
- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Shelduck (*Tadorna tadorna*) [A048]
- Red-breasted Merganser (*Mergus serrator*) [A069]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Knot (*Calidris canutus*) [A143]

- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Turnstone (*Arenaria interpres*) [A169]
- Wetland and Waterbirds [A999]

Above water disturbance and displacement impacts have been considered in previously. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Dungarvan Harbour SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.8 Tacumshin Lake SPA

Tacumshin Lake is a shallow coastal lagoon situated on the south Co. Wexford coast. The lagoon was formerly a shallow sea bay which, due to longshore drift, has become separated from the sea by a gravel/sand spit that extends across the mouth of the bay from east to west (NPWS, 2014j). The SPA is of special conservation interest for the following species: little grebe (*Tachybaptus ruficollis*), Bewick's swan (*Cygnus columbianus*), whooper swan (*Cygnus cygnus*), wigeon (*Anas Penelope*), gadwall (Anas strepera), teal (*Anas crecca*), pintail (*Anas acuta*), shoveler (Anas clypeata), tufted duck (Aythya fuligula), coot (Fulica atra), golden plover, grey plover, lapwing and black-tailed godwit. Wetland habitats are also a special conservation interest of the site.

Tacumshin Lake SPA is approximately 16 km east of the AoI for the SI works. The closest landfall zone (Zone G) is approximately 17 km west of the SPA. Therefore, there will be no interaction between the proposed SI works and the habitats of Tacumshin Lake SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA.

Site-specific conservation objectives for Tacumshin Lake SPA are not yet available. The overall conservation objective for the site is: To maintain or restore the favourable conservation condition of the bird species listed as special conservation interests for this SPA.

The First Order Site-specific Conservation Objectives (NPWS, 2022a) state that the favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Wintering swans and geese are known to forage up to 20 km from their night roosts (SNH, 2016), therefore there is a potential pathway for ex-situ effects as several bird species may at times use habitats outside of, but ecologically connected to the SPA. However, the closest landfall zone, Zone G is located approximately 17 km west of the SPA and comprises a sandy beach with exposed rocky outcrops, with no extensive mud/flats exposed at low tide, therefore, unlikely to be ecologically connected to the SPA and used by foraging waterbirds.

Given the considerable distance from the SPA to the closest landfall zone, the availability of more suitable foraging habitats close to Tacumshin Lake and the temporary nature and short duration of the works at landfall zone G (six trial pits, one borehole and walkover surveys (geophysical, environmental and archaeological)), it is considered highly unlikely that there will be an interaction between the SI works and species of the SPA capable of leading to levels of disturbance capable of resulting in long-term displacement or a reduction in population of any bird species.

There will be no change in the long-term population trend or distribution of any species and no reduction in wetland habitat area due to the proposed temporary SI works, therefore favourable conservation condition will be maintained and there will be no adverse effect on the integrity of Tacumshin Lake SPA.

5.7.8.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Tacumshin Lake SPA for disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Little Grebe (*Tachybaptus ruficollis*) [A004]
- Bewick's Swan (*Cygnus columbianus bewickii*) [A037]
- Whooper Swan (*Cygnus cygnus*) [A038]
- Wigeon (*Anas penelope*) [A050]
- Gadwall (*Anas strepera*) [A051]
- Teal (*Anas crecca*) [A052]
- Pintail (*Anas acuta*) [A054]
- Shoveler (*Anas clypeata*) [A056]
- Tufted Duck (*Aythya fuligula*) [A061]
- Coot (*Fulica atra*) [A125]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Wetland and Waterbirds [A999]

Above water disturbance and displacement impacts have been considered in previously. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Tacumshin SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.9 Wexford Harbour and Slobs SPA

Wexford Harbour is the lowermost part of the estuary of the River Slaney, the site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South ‘Slobs’, and the tidal section of the River Slaney. The seaward boundary extends from the Rosslare peninsula in the south to the area just west of The Raven Point in the north. Shallow marine water is a principal habitat, but at low tide extensive areas of intertidal flats are exposed (NPWS, 2014k). The SPA is of special conservation interest for the following species: little Grebe, great crested grebe, cormorant (*Phalacrocorax carbo*), grey heron (*Ardea cinerea*), Bewick’s swan, whooper swan, Greenland white-fronted goose (*Anser albifrons flavirostris*), light-bellied Brent goose, shelduck, wigeon, teal, mallard (*Anas platyrhynchos*), pintail, scaup (*Aythya marila*), goldeneye (*Bucephala clangula*), red-breasted merganser, hen harrier (*Circus cyaneus*), coot, oystercatcher, golden plover, grey plover, lapwing, knot, sanderling, dunlin, black-tailed godwit, bar-tailed godwit, curlew, redshank, black-headed gull, lesser black-backed gull and little tern. Wetland habitats are also a special conservation interest of the site. The conservation objectives for Wexford Harbour and Slobs SPA are provided in Table 5.12.

Wexford Harbour and Slobs SPA is 17 km north-east of the AoI for the SI works. The closest landfall zone is (Zone G) is approximately 35 km west of the SPA. Therefore, there will be no interaction between the proposed SI works and the habitats of Wexford Harbour and Slobs SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA.

Although some waterbird species will be faithful to specific habitats within the SPA, many will at times also use habitats situated within the immediate hinterland of the site or in areas ecologically connected to the SPA. There is therefore a potential pathway for ex-situ effects as several bird species may at times use habitats outside of but ecologically connected to the SPA. Significant habitat change or increased levels of disturbance within these areas could result in the displacement of one or more of the listed waterbird species and/or a reduction on their numbers.

NPWS (2011j) provides an assessment of the ecological characteristics, requirements and specialities of the SCI species. Bewicks swan, whooper swan, Greenland white-fronted goose, light-bellied Brent goose, shelduck, oystercatcher, grey plover, sanderling, black-tailed godwit, and curlew display high site fidelity on non-breeding grounds, while cormorant, golden plover, lapwing, bar-tailed godwit and black-headed gull exhibit moderate site fidelity. Teal exhibits weak site fidelity. Site fidelity for scaup, common scoter, red-breasted merganser and red-throated diver is unknown, however, as diving species that feeds on fish, it is reasonable to assume that they will forage primarily out to sea and not on sand and mud flats. Those species with high site fidelity are generally considered to be more reliant on the habitats of the SPA and less likely to utilise alternative habitats. The principal supporting habitat within the SPA for the majority of species is intertidal mud and sand flats, with Bewicks swan whooper swan, Greenland white-fronted goose utilising the polderland of the North Slobs, and red-breasted merganser, red-throated diver, oystercatcher and cormorant utilising the sheltered and shallow subtidal to forage. Teal and scaup utilise the main channel of the north Slobs to forage. The closest landfall zone is (Zone G) is approximately 35 km west of the SPA and comprises a sandy beach surrounded by cliff some of which are rocky with no extensive mud/flats exposed at low tide, therefore, unlikely to be ecologically connected to the SPA and used by foraging waterbirds.

The SI works at landfall zone G will consist of six trial pits, one borehole and walkover surveys (geophysical, environmental and archaeological). Existing land access routes will be used. The marine survey activities, including borehole drilling from the JUB, will be located too far from intertidal habitats to interact with wading waterbirds.

It is possible that species such as light-bellied Brent goose, black-tailed godwit and golden plover, which are known to utilise grassland habitats for feeding, may be present on the agricultural grasslands around the landfall zones. However, given the availability of extensive alternative grassland habitat close to Wexford Harbour and Slobs SPA, the distance to the closest landfall zone and the temporary nature and short duration of the works at landfall zone G, it is considered highly unlikely that the SI works will lead to levels of disturbance capable of resulting in long-term displacement or a reduction in population of any bird species.

As stated in NPWS (2012g), hen harriers are sensitive to disturbance at roost sites during the non-breeding season. As AoI is located at its closest point 17 km southwest of the SPA, the proposed SI works will not disturb hen harrier at roost sites within the SPA. None of the landfall zones represent key habitats for hen harriers i.e. wetlands, scrub, tillage or hedgerow areas. The landfall zones comprise sandy beaches with exposed rocky outcrops with no extensive mud/flats at low tide. Given the relative distance between the landfall zones, AoI and the availability of more suitable habitat within the Wexford Harbour and Slobs SPA and surrounding areas, it is considered highly unlikely that hen harriers will utilise the AoI or landfall zones for roosting or foraging purposes.

According to Woodward et al (2019), the mean max foraging range for little tern is 5 km. The AoI is located 17 km south-west of the SPA therefore it is unlikely that little tern would commute or forage across land to the AoI. Given the considerable distance from the SPA to the closest landfall zone, the availability of more suitable foraging habitats close to Wexford Harbour and Slobs SPA and the temporary nature and short duration of the works at landfall zone G (six trial pits, one borehole and walkover surveys (geophysical, environmental and archaeological)), it is considered highly unlikely that there will be an interaction between the SI works and little tern capable of leading to levels of disturbance capable of resulting in a significant decline of breeding population abundance, productivity rate, distribution and disturbance, prey biomass, and barriers to connectivity.

There will be no change in the long-term population trend or distribution of any species and no reduction in wetland habitat area due to the proposed temporary SI works, therefore favourable conservation condition will be maintained and there will be no adverse effect on the integrity of Wexford Harbour and Slobs SPA.

Table 5.12 Site-specific conservation objectives for Wexford Harbour and Slobs SPA

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Wexford Harbour and Slobs SPA (IE004076) (NPWS, 2012g; Version 1, 21/03/2012)		
Little grebe (*Tachybaptus ruficollis*) Great crested grebe (*Podiceps cristatus*) Cormorant (*Phalacrocorax carbo*) Grey heron (*Ardea cinerea*) Bewick's swan (*Cygnus columbianus*)	To restore the favourable conservation condition of SCI's in Wexford Harbour and Slobs SPA.	Population trend Distribution

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Whooper swan (*Cygnus cygnus*) Light-bellied Brent goose (*Branta bernicla hrota*) Shelduck (*Tadorna tadorna*) Wigeon (*Anas Penelope*) Teal (*Anas crecca*) Mallard (*Anas platyrhynchos*) Pintail (*Anas acuta*) Scaup (*Aythya marila*) Goldeneye (*Bucephala clangula*) Red-breasted merganser (*Mergus serrator*) Coot (*Fulica atra*) Oystercatcher (*Haematopus ostralegus*) Golden plover (*Pluvialis apricaria*) Grey plover (*Pluvialis squatarola*) Lapwing (*Vanellus vanellus*) Knot (*Calidris canutus*) Sanderling (*Calidris alba*) Dunlin (*Calidris alpina*) Black-tailed godwit (*Limosa limosa*) Bar-tailed godwit (*Limosa lapponica*) Curlew (*Numenius arquata*) Redshank (*Tringa tetanus*) Black-headed gull (*Chroicocephalus ridibundus*) Lesser black-backed gull (*Larus fuscus*) Greenland white-fronted goose (*Anser albifrons flavirostris*)		
Hen harrier (*Circus cyaneus*) [A082]	To maintain the favourable conservation condition of Hen Harrier in Wexford Harbour and Slobs SPA	Roost attendance: individual hen harriers Suitable foraging habitat Roost site: condition Disturbance at the roost site
Little tern (*Sterna albifrons*) [A195]	To maintain the favourable conservation condition of Little Tern at Wexford Harbour and Slobs SPA.	Breeding population abundance: apparently occupied nests (AONs) Productivity rate: fledged young per breeding pair Distribution: breeding colonies Prey biomass available Barriers to connectivity Disturbance at the breeding site
Wetland and Waterbirds	To maintain the favourable conservation condition of the wetland habitat at Wexford Harbour and Slobs SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.	Wetland habitat area

5.7.9.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Wexford Harbour and Slobs SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Little Grebe (*Tachybaptus ruficollis*) [A004]
- Great Crested Grebe (*Podiceps cristatus*) [A005]

- Cormorant (*Phalacrocorax carbo*) [A017]
- Bewick's Swan (*Cygnus columbianus bewickii*) [A037]
- Whooper Swan (*Cygnus cygnus*) [A038]
- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Shelduck (*Tadorna tadorna)* [A048]
- Wigeon (*Anas penelope*) [A050]
- Teal (*Anas crecca)* [A052]
- Mallard (*Anas platyrhynchos*) [A053]
- Pintail (*Anas acuta*) [A054]
- Scaup (*Aythya marila*) [A062]
- Goldeneye (*Bucephala clangula)* [A067]
- Red-breasted Merganser (*Mergus serrator*) [A069]
- Coot (*Fulica atra*) [A125]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Knot (*Calidris canutus*) [A143]
- Sanderling (*Calidris alba*) [A144]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Little Tern (*Sterna albifrons*) [A195]
- Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]
- Wetland and Waterbirds [A999]

Above water noise disturbance

Above water disturbance and displacement impacts have been considered previously. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works.

Underwater noise disturbance

Consideration of underwater noise disturbance is limited only to seabirds likely to dive in the marine environment (black headed gull, lesser black-backed gull, little tern).

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is

very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Wexford Harbour and Slobs SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.10 Mid-Waterford Coast SPA

Mid-Waterford Coast SPA is located in Co. Waterford along areas of sea cliffs and coastal land adjacent to the cliff edges between Newtown Cove to the east and Ballyvoyle to the west. Sea cliffs are the predominant habitat of the site, occurring along its length, with areas of heath, improved grassland, unimproved wet and dry grassland and woodland above the cliffs (NPWS, 2015c). The site is of special conservation interest for the following species: breeding cormorant, peregrine (Falco peregrinus), herring gull and chough (*Pyrrhocorax pyrrhocorax*). The conservation objectives for Mid-Waterford Coast SPA are provided in Table 5.14.

The boundary of the Mid-Waterford Coast SPA is split into sections and while it does not include the town and beach at Bunmahon, where landfall zone D is situated, the SPA borders the beach to the east and west.

As stated previously, coastal surveys will take place only at the potential landfall zones. Therefore, there will be no direct overlap between the proposed SI works and the habitats of Mid-Waterford Coast SPA, and there will be no direct impact on the breeding and roosting habitats of the SCI species.

A small number of sampling works capable of disturbing breeding birds will be undertaken adjacent to the SPA. On Bunmahon Beach six trial pits will be excavated, distributed along the width of the beach, one borehole will be drilled using a vehicle mounted drilling spread and associated support vehicles, and walkover surveys will also occur (geophysical, environmental and archaeological). In the marine environment, along the route of the possible offshore transmission cable approaching Bunmahon, geophysical survey, boreholes, shallow CPT, vibrocores and grab samples will be undertaken. While sample locations cannot yet be finalised, as interpretation of geophysical data is required before finalisation, it can be concluded that there will be a number of coastal and marine sampling events within proximity to Mid-Waterford Coast SPA. These sampling events will take place on Bunmahon Beach, from a JUB or survey vessel. There is therefore a risk of disturbance from operational noise and presence of surveyors/equipment/survey vessels/JUB to birds nesting within the SPA.

Flight initiation distance (FID) describes a bird's flush (or escape) response to a stimulus and provides reliable information about the relative susceptibility of different species to human disturbance. Minimum approach distances (MAD), also referred to as setback or buffer distances can be derived from FID data. However, there remains insufficient data available to identify buffer distances to protect individual bird species for individual activities (Goodship and Furness, 2022). In the context of the proposed coastal and marine SI works and the Mid-Waterford Coast SPA, there are no known FID studies for boat-based activities for any of the qualifying species. Well-replicated studies at nests are known for herring gull only (where onshore single pedestrian disturbance caused nesting herring gulls to flush at 5 m (±6 m); Burger and Gochfeld, 1983), and peregrine is the only SCI of the Mid-Waterford Coast SPA included in Goodship and Furness (2022)'s literature review of disturbance distances; assigned an FID of 750 m for response to pedestrians onshore. Although not an FID study, the Marine Management Organisation (MMO)'s study on displacement and habituation of seabirds in response to marine activities (2018) assesses cormorant as having a very high sensitivity to displacement from traffic and transport activities (MMO, 2018). Fleissbach et al (2019) present an escape distance of 258 m (±215 m) for cormorant in response to ship traffic at sea. An FID of 120 m was assigned to breeding chough way from the nest (Jiang and Møller, 2017). As the above studies were either for onshore disturbance from pedestrians to breeding birds away from nests (except for Burger and Gochfeld, 1983) or for seabirds at sea (i.e. not at the nest), there is a clear data gap on the suitability of buffers for the breeding species of the SPA. A suitably conservative buffer for activities capable of disturbing the breeding species of the Mid-Waterford Coast SPA is considered to be 1 km, derived using a precautionary increase to the largest FID/MAD for any SCI species (750 m for peregrine, proposed in Goodship and Furness, 2022).

Activities capable of disturbing breeding birds at the nest are considered to be those that emit noise or present a visual disturbance beyond what could reasonably be expected as baseline conditions during the breeding season. The following SI activities are considered capable of disturbance:

- Coastal geotechnical sampling: excavation of trial pits and onshore borehole drilling (due to presence of equipment and noise)
- Marine geophysical survey (due to presence of vessel and above-water noise)
- Marine geotechnical and environmental grab sampling using JUB and/or vessel (due to presence of JUB/vessel and above-water noise)

Table 5.13 outlines breeding season data for the species of the Mid-Waterford Coast SPA, based on a literature review and professional judgement. The species of special conservation interest at Mid-Waterford Coast begin nest building from March, and young will be generally present in nests until July, with the exception of herring gull, which may potentially still have nests with young present in early August, however, the sensitive period for this species is considered to be March to July inclusive, since this species is considered overall to have a low sensitivity to disturbance, reflected in an FID of 5 m (±6 m) (Burger and Gochfeld, 1983).

Table 5.13 Sensitivity, and typical seasonality of nesting, periods nests contain eggs, and periods nests contain young, for SCIs of Mid-Waterford Coast SPA

Mid-Waterford Coast SPA SCI Species	Overall Sensitvity to Disturbance[6]	Nest Building?	Number of Broods	Nest building	Nests with eggs	Nests with young	Seasonal Restriction
Chough	Medium	Yes	1	March	Early April-Mid May[7]	Early May to Late June[7]	March-June
Cormorant	High	Yes	1	March	Early April-Late June[8]	Early April-Early July[8]	March-July
Herring Gull	Low	Yes	1	March-April	Late April to Late June[8]	Late May to early August[8]	March -July
Peregrine	Medium	No (scrape)	1	None	Early April to Late May[9]	Early June – Late July[9]	April-July

The impacts associated with the SI works have been considered below against the site-specific conservation objectives and attributes for the species of special conservation interest at Mid-Waterford Coast SPA.

Table 5.14 Site-specific conservation objectives for Mid-Waterford Coast SPA

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Mid-Waterford Coast SPA (IE004193) (NPWS, 2024; Version 1, 06/08/2024)		
Cormorant (*Phalacrocorax carbo*)	To restore the favourable conservation condition of cormorant in Mid-Waterford Coast SPA	Breeding population size Productivity rate Distribution: extent of available nesting options within the SPA Forage spatial distribution, extent, abundance and availability Disturbance at the breeding site Disturbance at areas ecologically connected to the colony Barriers to connectivity
Peregrine (*Falco peregrinus*)	To restore the favourable conservation condition of peregrine in Mid-Waterford Coast SPA	Population size Productivity rate Distribution: extent of occupied territories within site Forage spatial distribution, extent, abundance and availability Disturbance to breeding sites

[6]From Goodship and Furness (2022), or using professional judgement based on FID data

[7] Gilbert et al. (1998)

[8] Ferguson-Lees et al. (2011) (in which case data is for >90% of population)– verified using www.bto.org, and Gilbert et al. (1998) where data available

[9] Scottish Natural Heritage (2013) where data is “peak period”

Relevant Qualifying Interests	Site Specific Conservation Objective	Site Specific Attributes Potentially Affected by the Project
Herring gull (*Larus argentatus*)	To restore the favourable conservation condition of herring gull in Mid-Waterford Coast SPA	Breeding population size Productivity rate Distribution: extent of available nesting options within the SPA Forage spatial distribution, extent, abundance and availability Disturbance at the breeding site Disturbance at areas ecologically connected to the colony Barriers to connectivity
Chough (*Pyrrhocorax pyrrhocorax*)	To maintain the favourable conservation condition of chough in Mid-Waterford Coast SPA	Population size Population trend Productivity rate Foraging habitat: quality and quantity Food availability: prey biomass Distribution of roosting sites Disturbance

5.7.10.1 Assessment against conservation objectives

Cormorant (*P. carbo*)

The site-specific conservation objective for cormorant at Mid-Waterford Coast SPA is to restore the favourable conservation condition (NPWS, 2024).

Breeding population size

The most recent population estimate from 2018 (89-117 pairs) is broadly similar to the estimate from 1999-2000 (79-125 pairs) but represents a 55% decline from population counts 1985-88. The trend at this SPA is dissimilar to the national trend which shows a long-term increase of 4% (NPWS, 2024). Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. Cormorant has been assessed as having a very high sensitivity to displacement from traffic and transport activities (MMO, 2018). The intensity and frequency of disturbance as a result of SI works is considered to be low, as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential to disturb breeding cormorants at the nest due to timing of SI works, indirectly contributing to population decline. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the population size of cormorants. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Productivity rate

A minimum productivity rate cannot be identified for Ireland (or this SPA) due to lack of comprehensive data, however, cormorant colonies in the UK fledged approximately 1.84 chicks per nest per year between 1989 and 2019 (JNCC, 2024 in NPWS, 2024). Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. Cormorant has been assessed as having a very high sensitivity to displacement from traffic and transport activities (MMO, 2018). The intensity and frequency of disturbance as a result of SI works is considered to be low, as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential to disturb breeding cormorants at the nest due to timing of SI works, indirectly contributing to productivity rate decline. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the productivity rate of cormorants. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Distribution: extent of available nesting options within the SPA

Exact cormorant nesting locations within Mid-Waterford Coast SPA are not available, however, they are primarily located on islands as well as rocky islets and cliffs such as Ballyvoyle Head and between Bunmahon and Ballydowane (NPWS, 2024). The SI works will not reduce or limit the availability of suitable nesting sites throughout the SPA as there is no spatial overlap or removal of nesting habitat.

Forage: spatial distribution, extent, abundance and availability

Cormorants are pursuit divers, feeding on small benthic and pelagic fish in shallow waters (<10 m) (NPWS, 2024). Cormorant maximum foraging range from the nest during the breeding season has been recorded as 35 km, with 26 km recorded as the mean of maximum distances and 7 km as the mean distance (Woodward et al., 2019). This suggests that cormorants can utilise a wide area for foraging, and therefore, the temporary presence of a survey vessel and/or a JUB will not adversely affect the number or area of suitable foraging locations, or available prey biomass within this relatively wide foraging range.

Disturbance at the breeding site

Disturbance events at the nest site/breeding colony level can result in a reduction of overall productivity and even lead to abandonment of the breeding colony and will therefore affect the achievement of targets for population size and/or spatial distribution (NPWS, 2024). Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. Factors such as intensity, frequency, timing and duration of a disturbance source must be taken into account to determine the potential impact upon the targets for population size and spatial distribution (NPWS, 2024).

There is potential for direct disturbance as a result of survey works taking place close to cormorant nesting sites on the islands, rocky islets and cliffs of the SPA. Cormorant has been assessed as having a very high sensitivity to displacement from traffic and transport activities (MMO, 2018). The intensity and frequency of disturbance as a result of SI works is considered to be low, as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential for timing and duration of surveys to adversely affect breeding cormorants at the nest. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to cormorants at the nest site or breeding colony. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Disturbance at areas ecologically connected to the colony

Cormorants can make extensive use of the marine water adjacent to their breeding colonies for maintenance behaviours (e.g. courtship, bathing, preening), and may engage in wing-spreading out of the water to dry their plumage on sandbanks, small rocks and islets (NPWS, 2024). There is a risk that SI activities may disrupt cormorants engaging in these maintenance activities, although it is considered unlikely that this disturbance would significantly impact the breeding population due to the low intensity and frequency of the surveys and the availability of alternative areas suitable for maintenance behaviours. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will further reduce the likelihood of interaction with cormorants ecologically connected to the colony participating in maintenance behaviour.

Barriers to connectivity

Cormorants will require regular and efficient access to marine waters ecologically connected to the colony during the breeding season in order to forage and engage in maintenance behaviours (NPWS, 2024). As described above, cormorant foraging distances are up to a maximum of 35 km (Woodward et al., 2019). Due to the limited footprint, low intensity and frequency of the SI works, it is considered that there will be no barriers to connectivity to cormorant at Mid-Waterford Coast SPA.

Peregrine (*F. peregrinus*)

Population size

Peregrine numbers along the Waterford coast has fallen from 17 occupied territories in 2002 to just 8 in total in 2017 (NPWS, 2024). Within the Mid-Waterford Coast SPA, there has been a recent decrease in population of 43% (i.e. from 7 occupied territories in 2002 to 3-4 occupied territories in 2017). It is noted that there are cases of deliberate persecution of peregrine in Waterford. The target for this attribute is that the breeding population is increasing, therefore, disturbance events likely to disrupt breeding may in turn lead to a reduction in population size. The implementation of a seasonal restriction (March to July, inclusive) on SI

works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the population size of peregrine falcons. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Productivity rate

For Co. Waterford, the known productivity rate (i.e. the number of fledged young/territorial pair) ranges from 0.58 (1991-1995) to 0.99 (1981-1985). A lack of comprehensive published annual data precludes the identification of a minimum productivity rate for this species at this site and at the national level, however, the target is a sufficient productivity rate to maintain the population size target (NPWS, 2024). Considering the unfavourable condition of peregrine at this SPA, disturbance events capable of disturbing breeding and leading to nest abandonment could indirectly affect the productivity rate. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the productivity rate of peregrine falcons. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Distribution: extent of occupied territories within site

Exact locations of peregrine nesting sites are not known, however, safe, suitable ledges, typically 50 cm by 50 cm or crags along coastal cliffs are available for nesting and levels of disturbance are not limiting occupancy of known sites (NPWS, 2024). The SI works will not reduce or limited the availability of occupied territories within the SPA as there will be no spatial overlap or removal of peregrine nesting habitats.

Forage spatial distribution, extent, abundance and availability

Peregrines have a generalist diet, feeding largely on birds caught in flight, and require sufficient prey populations of small to medium sized birds. Most prey are caught within 2 km, rarely beyond 6 km (NPWS, 2024). The SI works will take place in the marine environment or on the beach at Bunmahon at landfall zone D, therefore, there will be no overlap with peregrine foraging locations and therefore no reduction in number or area of peregrine foraging locations, and no reduction in available prey biomass.

Disturbance to breeding sites

The impact of any significant disturbance at breeding sites will be manifested in the targets that relate to population demographics, (i.e. population trend, productivity rate) and the numbers and distribution of occupied territories across the SPA (NPWS, 2024). Factors such as intensity, frequency, timing and duration of a potentially disturbing activity need to be taken into account to determine its significance on breeding pairs. Pairs in remote locations may be more sensitive to disturbance. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to peregrines at the breeding colony. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Herring gull (*L. argentatus*)

Breeding population size

The most recent population estimate from 2018 (473-532 pairs) is a notable increase since the 1999-2000 estimate of 147-155 pairs, however, when compared to the 1985-1986 estimate of 792-848 pairs, this is a decline in population of 39%. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. The intensity and frequency of disturbance as a result of SI works is considered to be low , as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential to disturb breeding herring gull at the nest due to timing of SI works, indirectly contributing to population decline. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the population size of herring gull. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Productivity rate

A minimum productivity rate cannot be identified for Ireland (or this SPA) due to lack of comprehensive data, however, population viability analyses of a selection of breeding populations in the UK found that herring gull productivity was 0.75, which, if maintained, herring gull populations would decline by 60% over 25 years (NPWS, 2024). For the population to stabilise, breeding success would have to increase to 1.3-1.5 chicks

per nest per year. Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. The intensity and frequency of disturbance as a result of SI works is considered to be low, as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential to disturb breeding herring gulls at the nest due to timing of SI works, indirectly contributing to productivity rate decline. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the productivity rate of herring gull. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Distribution: extent of available nesting options within the SPA

Exact herring gull nesting locations within Mid-Waterford Coast SPA are not known, however, nesting areas are widespread throughout the SPA and have been recorded breeding in most subsites within the SPA since the Seabirds Colony Register 1985 - 1988 (NPWS, 2024). The SI works will not reduce or limited the availability of suitable nesting sites throughout the SPA as there is no spatial overlap or removal of nesting habitat.

Forage spatial distribution, extent, abundance and availability

Herring gulls are generalist and opportunistic feeders and can forage over both terrestrial and aquatic habitats, feeding on a wide range of marine and terrestrial prey species in addition to carrion and human refuse (NPWS, 2024). Herring gull maximum foraging range from the nest during the breeding season has been recorded as 92 km, with 59 km recorded as the mean of maximum distances and 15 km as the mean distance (Woodward et al., 2019). This suggests that herring gull can utilise a wide area for foraging, and therefore, the temporary presence of a survey vessel and/or a JUB will not adversely affect the number or area of suitable foraging locations, or available prey biomass within this wide foraging range.

Disturbance at the breeding site

Disturbance events at the nest site/breeding colony level can result in a reduction of overall productivity and even lead to abandonment of the breeding colony and will therefore affect the achievement of targets for population size and/or spatial distribution (NPWS, 2024). Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. Factors such as intensity, frequency, timing and duration of a disturbance source must be taken into account to determine the potential impact upon the targets for population size and spatial distribution (NPWS, 2024).

There is potential for direct disturbance as a result of survey works taking place close to herring gull nesting sites on the islands, rocky islets and cliffs of the SPA. Herring gull has been assessed with have moderate sensitivity to displacement from traffic and transport activities (MMO, 2018). The intensity and frequency of disturbance as a result of SI works is considered to be low, as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential for timing and duration of surveys to adversely affect breeding herring gull at the nest. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to herring gull at the nest site or breeding colony. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Disturbance at areas ecologically connected to the colony

Seabirds can make extensive use of the marine waters adjacent to their breeding colonies for non site-specific maintenance behaviours. There is a risk that SI activities may disrupt herring gulls engaging in these maintenance activities, although it is considered unlikely that this disturbance would significantly impact the breeding population due to the low intensity and frequency of the surveys and the availability of alternative areas suitable for non site-specific maintenance behaviours. While the implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary will not lead to the avoidance of interaction with herring gulls undertaking maintenance behaviours, it will reduce the likelihood of interaction with herring gulls ecologically connected to the colony. As described above, herring gulls foraging distances are up to a maximum of 92 km (Woodward et al., 2019), therefore, there will be sufficient alternative habitat available beyond the footprint of the SI works.

Barriers to connectivity

Seabirds, particularly during the breeding season, require regular and efficient access to marine waters ecologically connected to the colony during the breeding season in order to forage and engage in maintenance behaviours (NPWS, 2024). As described above, herring gull foraging distances are up to a maximum of 92 km (Woodward et al., 2019). Due to the limited footprint, low intensity and frequency of the SI works, it is considered that there will be no barriers to connectivity to herring gull at Mid-Waterford Coast SPA.

Chough (*P. pyrrhocorax*)

Population size

The target for population size of chough at the Mid-Waterford Coast SPA is no significant decline. An estimated 19-32 pairs were recorded in 2010 (NPWS, 2024). Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. The intensity and frequency of disturbance as a result of SI works is considered to be low, as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential to disturb breeding chough at the nest due to timing of SI works, indirectly contributing to population decline. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the population size of chough. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Population trend

The target for population trend of chough at the Mid-Waterford Coast SPA is “stable or increasing”. The current population trend for the site is considered broadly stable in the short and longer-term (NPWS, 2024). As above, with the implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the population trend of chough. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Productivity rate

The productivity target for chough is that it should be sufficient to maintain population size. Most of the chough population at the site nest along coastal cliffs or in sea caves. Overall, there is a lack of robust representative Irish data to determine a more quantitative target for breeding productivity. As above, with the implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary will avoid disturbance to breeding birds at the nest and therefore will not adversely affect the productivity rate of chough. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

Foraging habitat: quality and quantity

Sufficient quality and quantity of chough foraging habitat should be maintained. As foraging habitat comprises coastal grassland and maritime vegetation on cliffs, there will be no overlap with SI works in the marine environment or on the beach at landfall zone D at Bunmahon and therefore no reduction in quality or quantity of foraging habitats.

Food availability: prey biomass

Chough feeds largely on terrestrial invertebrates, therefore, as there will be no overlap with SI works in the marine environment or on the beach at landfall zone D at Bunmahon and therefore no reduction in levels of prey biomass for chough.

Distribution of roosting sites

Post-breeding flocks of chough can travel several kilometres to feed. Family groups form ‘nursery’ flocks in July, returning to nest sites to roost, but by the end of summer, these flocks begin to converge pre-dusk at communal roost sites (NPWS, 2024). Known roosts are Islandikane East and Ballyvoyle Head, both of which are over 8km east and west, respectively from the landfall zone at Bunmahon therefore there will be no interaction between the SI works (both coastal and marine) and these roost sites, and no potential for adverse effects to chough post-breeding roost sites.

Disturbance

Disturbance contributes to increased energetic expenditure which can result in increased likelihood of mortality or reduced fitness and, in turn, negatively affect population trends. Factors such as intensity, frequency, timing and duration of a disturbance source must be taken into account to determine the potential impact upon the targets for population size and spatial distribution (NPWS, 2024).

There is potential for direct disturbance as a result of survey works taking place close to chough nesting sites on the islands, rocky islets and cliffs of the SPA. Coastal breeding pairs spend up to 80% of their time within 350m of the nest site (Trewby et al., 2006). The intensity and frequency of disturbance as a result of SI works is considered to be low, as surveys will be temporary and of relatively short duration at any given location range across the extensive AoI. In the absence of a defined survey period for SI works, there is potential for timing and duration of surveys to adversely affect breeding choughs at the nest, and within 360m of the nest[10]. The implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance (within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to chough at the nest sites. See Section 6.1.2 for full details on mitigation measures for disturbance to breeding birds.

5.7.10.2 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Mid-Waterford Coast SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.

- Cormorant (*Phalacrocorax carbo*) [A017]
- Peregrine (*Falco peregrinus*) [A103]
- Herring Gull (*Larus argentatus*) [A184]
- Chough (*Pyrrhocorax pyrrhocorax*) [A346]

Above water noise disturbance

Above water disturbance and displacement impacts have been considered previously in detail.

Underwater noise disturbance

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources

[10] Based on a tripling of the only available Flight Initiation Distance (120m; N=2) which relates to pedestrian disturbance of breeding birds away from the nest (Jiang and Moller, 2017)`.

and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Mid-Waterford Coast SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.11 Keeragh Islands SPA

The Keeragh Islands are two low-lying islets located just over 1 km offshore from the south Wexford coastline. The site includes the islets and associated rocky shorelines and reefs, as well as the surrounding marine area to a distance of 200 m. The site is of special conservation interest for breeding cormorant, considered to be one of the largest colonies in Ireland (NPWS, 2014l).

Site-specific conservation objectives for Keeragh Islands SPA are not yet available. The overall conservation objective for the site is: To maintain or restore the favourable conservation condition of the bird species listed as special conservation interests for this SPA. The First Order Site-specific Conservation Objectives (NPWS, 2022b) state that the favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The Keeragh Islands SPA is located within the AoI for the SI works, however, the islands themselves are over 1 km from the closest landfall zone (Zone G) and the marine approach to the landfall. As SI works will focus on the potential offshore transmission cable corridors, it is highly unlikely that SI works will occur within a distance that could disturb cormorants at the nest at Keeragh Islands. As a precautionary measure, and based on the assessment of adverse effects to breeding cormorant at the Mid-Waterford Coast SPA, the implementation of a seasonal restriction (March to July, inclusive) on SI works capable of disturbance within 1 km of the SPA boundary (based on a precautionary increase to the FID for peregrine) will avoid disturbance to breeding cormorants at the nest and will ensure that there are no adverse effects to breeding cormorant at Keeragh Islands SPA.

5.7.11.1 MARA Screening Determination Update

In their screening determination (01/05/2025), MARA screened in the following SCIs at Keeragh Islands SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.

- Cormorant (*Phalacrocorax carbo*) [A017]

Above water noise disturbance and displacement

Above water disturbance and displacement impacts have been considered previously in detail.

Underwater noise disturbance

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to

ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Keeragh Islands SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.12 Seas off Wexford Coast SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Seas off Wexford Coast SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.

- Red-throated Diver (*Gavia stellata*) [A001]
- Fulmar (*Fulmarus glacialis*) [A009]
- Manx Shearwater (*Puffinus puffinus*) [A013]
- Gannet (*Morus bassanus*) [A016]
- Cormorant (*Phalacrocorax carbo*) [A017]
- Shag (*Phalacrocorax aristotelis*) [A018]
- Common Scoter (*Melanitta nigra*) [A065]
- Mediterranean Gull (*Larus melanocephalus*) [A176]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Herring Gull (*Larus argentatus*) [A184]
- Kittiwake (*Rissa tridactyla*) [A188]
- Sandwich Tern (*Sterna sandvicensis*) [A191]
- Roseate Tern (*Sterna dougallii*) [A192]
- Common Tern (*Sterna hirundo*) [A193]
- Arctic Tern (*Sterna paradisaea*) [A194]
- Little Tern (*Sterna albifrons*) [A195]
- Guillemot (*Uria aalge*) [A199]
- Razorbill (*Alca torda*) [A200]
- Puffin (*Fratercula arctica*) [A204]

Above water noise disturbance

The physical presence of survey vessels in the marine environment, and the noise associated with the operation of survey equipment, could result in a limited degree of disturbance to seabirds in the vicinity of survey vessels. Birds present on the surface waters near the survey vessels could be temporarily displaced from their chosen feeding/ resting locations. For all surveys, vessel activity in any one location will be of short duration with the vessels moving steadily forward along the transect lines (e.g. during geophysical surveys) or remaining stationary at sample locations for short durations (e.g. during geotechnical sampling and benthic sampling) before transitioning to the next location. This activity will not differ considerably to existing vessel activity in the region, which includes commercial shipping, ferries, fishing and recreational vessels and it is not anticipated that above-water noise emitted by the survey vessels and equipment will differ significantly from that emitted by vessels already using the area. Birds using the area are likely to be habituated to the baseline levels of activity and are unlikely to be significantly disturbed by the presence of vessels.

Underwater noise disturbance

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies

(whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Seas off Wexford Coast SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.13 Cork Harbour SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Cork Harbour SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Little Grebe (*Tachybaptus ruficollis*) [A004]
- Great Crested Grebe (*Podiceps cristatus*) [A005]
- Cormorant (*Phalacrocorax carbo*) [A017]
- Grey Heron (*Ardea cinerea*) [A028]

- Shelduck (*Tadorna tadorna*) [A048]
- Wigeon (*Anas penelope*) [A050]
- Teal (*Anas crecca*) [A052]
- Pintail (*Anas acuta*) [A054]
- Shoveler (*Anas clypeata*) [A056]
- Red-breasted Merganser (*Mergus serrator*) [A069]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola)* [A141]
- Lapwing (*Vanellus vanellus)* [A142]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Common Gull (*Larus canus*) [A182]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Common Tern (*Sterna hirundo*) [A193]
- Wetland and Waterbirds [A999]

Underwater noise disturbance

Consideration of underwater noise disturbance is limited only to seabirds likely to dive in the marine environment (black headed gull, common gull, lesser black-backed gull and common tern).

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Above water disturbance

Cork Harbour SPA is approximately 1 km from the AoI for the SI works. Therefore, there will be no interaction between the proposed SI works and the habitats of the SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA due to the intervening topography. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works

Although breeding common tern is a QI of Cork Harbour SPA, the breeding colonies and roost sites are located within the estuary away from the coast, therefore, that there is no likelihood of interaction with birds at nesting sites and therefore no pathway for adverse effects due to disturbance.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Cork Harbour SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.14 Ballymacoda Bay SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Ballymacoda Bay SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Wigeon (*Anas penelope*) [A050]
- Teal (*Anas crecca*) [A052]
- Ringed Plover (*Charadrius hiaticula*) [A137]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Sanderling (*Calidris alba*) [A144]
- Dunlin (*Calidris alpina*) [A149]

- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Turnstone (*Arenaria interpres*) [A169]
- Wigeon (*Anas penelope*) [A050]
- Teal (*Anas crecca*) [A052]
- Ringed Plover (*Charadrius hiaticula*) [A137]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Sanderling (*Calidris alba*) [A144]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Turnstone (*Arenaria interpres*) [A169]
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Common Gull (*Larus canus*) [A182]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Wetland and Waterbirds [A999]

Above water noise disturbance

Ballymacoda Bay SPA is approximately 5 km from the AoI for the SI works. Therefore, there will be no interaction between the proposed SI works and the habitats of the SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA due to the intervening topography. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works.

Underwater noise disturbance

Consideration of underwater noise disturbance is limited only to SCI seabirds likely to dive in the marine environment (black headed gull, common gull, lesser black-backed gull).

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural

disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Ballymacoda Bay SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.15 Helvick Head to Ballyquin SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Helvick Head to Ballyquin SPA for disturbance and displacement from underwater noise from survey activities, disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.

- Cormorant (*Phalacrocorax carbo*) [A017]
- Herring Gull (*Larus argentatus*) [A184]
- Kittiwake (*Rissa tridactyla*) [A188]

Above water noise disturbance

The operation of vessels and equipment in the nearshore areas of the AoI have the potential to disturb nesting/ breeding birds within coastal SPAs which border the AoI, if the timing of the proposed surveys was to overlap with breeding periods. However, the Helvick Head to Ballyquin SPA is located 5 km from the AoI boundary, therefore there is not interaction between breeding birds at the nest within the SPA and survey activities.

The physical presence of survey vessels in the marine environment, and the noise associated with the operation of survey equipment, could result in a limited degree of disturbance to seabirds in the vicinity of

survey vessels. Birds present on the surface waters near the survey vessels could be temporarily displaced from their chosen feeding/ resting locations. For all surveys, vessel activity in any one location will be of short duration with the vessels moving steadily forward along the transect lines (e.g. during geophysical surveys) or remaining stationary at sample locations for short durations (e.g. during geotechnical sampling and benthic sampling) before transitioning to the next location. This activity will not differ considerably to existing vessel activity in the region, which includes commercial shipping, ferries, fishing and recreational vessels and it is not anticipated that above-water noise emitted by the survey vessels and equipment will differ significantly from that emitted by vessels already using the area. Birds using the area are likely to be habituated to the baseline levels of activity and are unlikely to be significantly disturbed by the presence of vessels.

Underwater noise disturbance

Consideration of underwater noise disturbance is limited only to SCI seabirds likely to dive in the marine environment (black headed gull, common gull, lesser black-backed gull).

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to

ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Helvick Head to Ballyquin SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.16 Sovereign Islands SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Sovereign Islands SPA for disturbance and displacement from underwater noise from survey activities and water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.

- Cormorant (Phalacrocorax carbo) [A017]

Underwater noise disturbance

Consideration of underwater noise disturbance is limited only to SCI seabirds likely to dive in the marine environment (black headed gull, common gull, lesser black-backed gull).

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels

relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Sovereign Islands SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.17 Saltee Islands SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Saltee Islands SPA for disturbance and displacement from underwater noise from survey activities and water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.

- Fulmar (*Fulmarus glacialis*) [A009]
- Gannet (*Morus bassanus*) [A016]
- Cormorant (*Phalacrocorax carbo*) [A017]
- Shag (*Phalacrocorax aristotelis*) [A018]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Herring Gull (*Larus argentatus*) [A184]
- Kittiwake (*Rissa tridactyla)* [A188]
- Guillemot (*Uria aalge*) [A199]
- Razorbill (*Alca torda)* [A200]
- Puffin (*Fratercula arctica*) [A204]

Underwater noise disturbance

Consideration of underwater noise disturbance is limited only to SCI seabirds likely to dive in the marine environment (black headed gull, common gull, lesser black-backed gull).

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Saltee Islands SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.18 Blackwater Estuary SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Blackwater Estuary SPA for disturbance and displacement from above water noise, vibration, lighting, increased human presence or vessel activity from survey activities and water quality deterioration from survey activities or survey vessels, leading to habitat degradation or a reduction in prey species.

- Wigeon (*Anas penelope*) [A050]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Lapwing (*Vanellus vanellus*) [A142]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]
- Wetland and Waterbirds [A999]

Above water disturbance

Blackwater Estuary SPA is approximately 9 km from the AoI for the SI works. Therefore, there will be no interaction between the proposed SI works and the habitats of the Blackwater Estuary SPA, and there will be no impact on the feeding and roosting habitats of the SCI species within the SPA, and no pathway to disturbance of birds within the SPA due to the intervening topography. Overwintering bird species favour wetland and intertidal habitats for foraging and roosting, and do not typically forage in the offshore marine environment. There will therefore be no spatial overlap between wintering birds and the offshore elements of the proposed SI works

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Blackwater Estuary SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.7.19 Old Head of Kinsale SPA

In their screening determination (01/05/2025), MARA screened in the following SCIs at Old Head of Kinsale SPA for disturbance and displacement from underwater noise from survey activities and water quality deterioration from survey activities or survey vessels, leading to a reduction in prey species.

- Kittiwake (*Rissa tridactyla*) [A188]
- Guillemot (*Uria aalge*) [A199]

Underwater noise disturbance

There is potential for diving seabirds to interact with the marine surveys while underwater noise is being produced. Hartley Anderson Limited (2020) provide a summary of the available evidence (at the time of that review) on the auditory abilities of and effects of underwater noise on diving birds, however, this evidence is very limited. Findings from more recent empirical research on a cormorant *Phlacrocorax carbo* subspecies (whose physiology may be broadly comparable to the cormorant typically found in the Celtic Sea) suggest that at least some diving birds have underwater hearing sensitivity is at least as good as their aerial sensitivity (Larsen et al., 2020). And a 2024 study of auks (two species of which occur in the Celtic Sea) found that frequencies of sensitive hearing overlap with many anthropogenic noise sources, indicating susceptibility to disturbance from a range of noise types (Smith et al., 2024). While seabird responses to approaching vessels are highly variable (e.g. Fliessbach et al. 2019), flushing disturbance would be expected to displace most diving seabirds from close proximity to the survey vessel and any towed equipment, thereby limiting their exposure to the highest sound pressures generated. Similarly, behavioural disturbance of seabirds due to acoustic survey activities is most likely to be temporary displacement associated with the physical presence of the vessel. It is expected that any temporary displacement will be comparable to that experienced in response to routine shipping traffic (Hartley Anderson Limited, 2020) and when the survey vessel has left the area, birds can resume diving activities. Therefore, despite the findings of Smith et al. (2024), impacts on bird fitness will not lead to population-level effects at the SPA.

Given the limited extent of sound-producing activity, the limited time diving birds spend underwater, and given that birds are likely to be temporarily displaced to the surrounding area due to the presence of the vessel, it is considered that there is a very low likelihood of interaction between underwater noise sources

and diving birds during the proposed SI works. Therefore, there will be no adverse effect on SCI birds as a result of underwater noise.

Water deterioration impacts

MARA consider in Table 4 of their Screening Determination that this could include an increase in suspended sediments from surveys or water pollution from survey vessels. As stated previously, SI works that extract or disturb sediment also have the potential to result in sediment becoming suspended in the water column. In turn, suspended sediments could smother nearby sensitive community types, habitats or prey species. However, given the relatively limited scale and temporary nature of sampling within the AoI, any suspended sediments will settle out of suspension rapidly, and marine habitats and species, including prey species in the region are adapted to natural levels of turbidity, given the exposed, dynamic marine environment off the south coast of Ireland.

With regards to accidental pollution, all vessels must by law comply with international standards according to the MARPOL (maritime pollution) Convention, which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991 ratified MARPOL in Ireland. In addition, all substances handled and/or used whilst undertaking the works are required by law to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008 (No. 13 of 2008) and Chemicals (Amendment) Act 2010 (No. 32 of 2010) and associated Regulations.

Given these standard legal and regulatory pollution control requirements that apply to all vessels, and given the nature of the proposed SI works, their limited scale and duration, and the insignificant increase in vessels relative to background levels of vessel activity, it is highly unlikely that accidental pollution will occur. However, mitigation measures comprising oil pollution and spill response plans will be implemented to ensure that there are no adverse effects to site integrity due to accidental pollution. See Chapter 6 for full details of this mitigation.

It can be concluded that the favourable conservation condition of all SCI species will be maintained at Old Head of Kinsale SPA, and as such, there will be no adverse effect on site integrity as a result of the SI works.

5.8 In-combination effects

5.8.1 Plans

Even if projects are unlikely to have adverse effects on their own, the effects in-combination with those of other plans or projects could be adverse. An in-combination assessment must be carried out to identify projects/plans that could act in-combination to affect site conservation objectives (OPR, 2021).

In the SISAA Report, an assessment of in-combination effects was carried out following MARA's stepwise approach outlined in their Technical Guidance document. A search was undertaken for other plans and projects that could act in-combination with the SI works taking into account a Cumulative Effects Spatial Scope (CESS) of 5 km and a Cumulative Effects Temporal Scope (CETS) of plans or project likely to occur within the next six years. Impact pathways and predictions were considered and then relevant plans or project were identified. Full details of this assessment are provided in Section 6.3 of the SISAA Report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006). It was concluded that there are no anticipated in-combination effects arising from the identified high-level strategic plans that do not determine the precise location of any development project or designate or allocate specific land uses. Therefore, no plans were screened in for further assessment.

5.8.2 Projects

RPS undertook a desk study using internet searches, planning databases and other available sources, as outlined below, to identify other projects and activities likely to overlap with the CESS and CETS of the proposed SI works, which have the potential to give rise to in-combination effects. Full details of this assessment are provided in Section 6.3 of the SISAA Report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006). Based on the review of other projects occurring within the CESS and CETS of the proposed SI works, there is potential that the following projects could act in combination with the proposed SI works:

- Dumping at Sea (DaS) permits and dredging licenses: S0012-03/LIC230025, S0030-01, S0013-03, FS007126;
- DECC Surveys (LIC240006);
- Celtic Interconnector (FS006916);
- University College Cork marine environmental survey (MUL240013);
- University College Dublin geophysical and sediment sampling survey (MUL240018);
- Gas Networks Ireland, Cork Harbour (MUL240035).

DaS permits and dredging licenses (S0012-03/LIC230025, S0030-01, S0013-03, FS007126)

Port of Waterford was granted DaS permit S0012-03 for the dredging of accumulated sediments to maintain navigation areas within the River Suir and Waterford Estuary. The disposal site for the dredged material is located 2.5 km southwest of Hook Head. The dredged areas which overlap with the AoI are located within Duncannon Channel within the Waterford Estuary and at Creedan Bank. The permit was granted for a period of eight years from 01/01/2018 to 31/12/2025, therefore there is potential for in-combination effects between the proposed SI works and S0012-03 within Duncannon Channel, at Creedan Bank and at the disposal site off Hook Head. LIC230025 is a MUL for maintenance dredging of accumulated sediments to maintain the port of Waterford navigational areas. This MUL covers the same areas as mentioned above in DaS S0012-03 but for an extended licence period from 01/01/2026 to 31/12/2033.

Wexford County Council (WCC) has been granted a DaS permit (S0030-01) to dredge the mouth and approach channel of Kilmore Quay Harbour and the dredged material will be disposed of 11 km west of Kilmore Quay. Under the permit, dredge and disposal operations will be completed by 31/05/2027. Three campaigns are planned with each campaign not exceeding two months in duration over the licence period. The potential for in-combination effects involved the overlap of the dredge disposal site and the AoI approximately 5 km to the south of Keeragh Island SPA.

Port of Cork has been granted an eight-year DaS permit (S0013-03) and a foreshore licence (FS007126) until 2031 to conduct dredge activities within Port of Cork and dispose of the dredged material at a disposal site 8 km south-east of Roches Point. Duration of activities are anticipated to be one primary campaign (every 2 to 3 years) or secondary campaign (during intervening years) per year, lasting seven weeks. The AoI overlaps the dredge area at Whitegate on the exit of Port of Cork between Roches Point and Church Bay Beach and the disposal site off Roches Point.

Due to the frequency of dredging and disposal campaigns in Co. Wexford, Waterford and Cork, there is potential for in-combination effects with the proposed SI works due to above-water noise disturbance, habitat loss and/or disturbance and underwater noise impacts.

Above water noise disturbance

In relation to above-water noise disturbance to birds, the potential for overlap between dredging campaigns and the SI works leading to in-combination impacts associated with the presence of vessels, machinery and personnel has been assessed. The noise emissions from S0012-03/LIC230025 dredging activities are predominately anticipated to be similar in nature to those arising from existing shipping and agricultural sources in the area. Therefore, relative to background levels of commercial, fishing and recreational vessels in the wider region, above-water noise disturbance is deemed not significant and therefore potential for in-combination effects is low. The NIS for S0030-01 concluded that given the short campaigns associated with dredging activities and relative to background levels of vessel activity within the area there will be no increase in above-water noise disturbance above ambient levels associated with the dredging activities. Short term noise associated from the dredging vessels of S0013-03 and foreshore licence FS007126 will not cause significant disturbance to waterbirds as there is an existing level of regular commercial, fishing and recreational vessels in the area which the birds are accustomed to. For the proposed SI works, a highly precautionary estimate is that eight vessels could be working at any one time across the entire AoI (an area of 2,336 km^2), however, this is highly unlikely due to the necessary staggering of survey types (i.e. geophysical survey must be undertaken prior to geotechnical survey). Relative to background levels of commercial, fishing and recreational vessels in the wider region, above-water noise disturbance is deemed not significant and therefore potential for in-combination effects is low.

Habitat loss/disturbance

In relation to habitat loss and/or disturbance, the potential for the proposed SI works to act in combination with dredging campaigns has been assessed. This NIS found that due to the limited scale and temporary

nature of the sampling of sedimentary habitats, and the natural resilience of these habitats, there will be no adverse effects on sedimentary QI habitats and constituent community types within Hook Head SAC. With the application of mitigation measures, there will be no adverse effects on hard substrate habitats such as reefs and vegetated sea cliffs within Hook Head SAC. The suspended sediment associated with the proposed SI works will settle out relatively quickly in the high energy environment with no likelihood of extensive sediment plumes due to discrete and spatially limited sampling sites. There is no risk of adverse effects on habitats at any other SACs from the proposed SI works.

Spatially, there is no overlap between the three dredge/disposal permits and Hook Head SAC. The disposal site for S0012-03 is closest, at approximately 2 km from the SAC, however, based on the applicant's NIS and results of water quality monitoring and sediment dispersion modelling, suspended sediment concentrations will be limited in concentration, duration and spatial extent.

Therefore, there is no potential for in-combination habitat loss or disturbance due to increased SSC with the proposed SI works and any of the DaS permits.

Underwater noise

In relation to cumulative underwater noise, the potential for the proposed SI works to act in combination with the dredging campaigns has been assessed. All dredging projects will implement the DAHG (2014) guidance in relation to underwater noise impacts to marine mammals, and in the context of ambient underwater noise at the dredging locations, the underwater noise associated with dredging is generally of less concern than geophysical survey (DAHG, 2014). However, the combination of noise-producing activities within the CESS might result in temporary displacement of marine mammals and therefore, in addition to the application of mitigation at the project level, in-combination mitigation measures have been proposed, see Section 6.1.5.

DECC Surveys (LIC240006)

DECC was granted an MUL (LIC240006) to undertake geophysical surveys in the SC-DMAP area to inform future ORE development. This licence has a period of one year from the commencement date (04/07/2024), and surveys were due to take place between 6/07/2024 and 20/09/2024 as per the Marine Notice No. 34 of 2024. Although temporal overlap is unlikely, given that the DECC surveys have already been undertaken, the MUL is valid until 03/07/2025, therefore it has been included out of precaution. The NIS for LIC240006 determined that there was potential for disturbance and displacement from underwater noise to marine mammals and birds. Diving seabirds are addressed in this NIS, see Section 5.7. Both the proposed SI works and LIC240006 have imposed mitigation measures for marine mammals based on the DAHG (2014) guidance. Although the likelihood of in-combination effects has been assessed as low due to the application of mitigation for underwater noise impacts at the project level, in-combination mitigation measures have been imposed, see Section 6.1.5.

Celtic Interconnector (FS006916)

FS006916 is a foreshore licence for 40 years for the Celtic Interconnector for the purpose of carrying out associated works in connection with the laying of a new subsea electricity interconnector cable between Irish and French electricity grids, landing at Claycastle Beach in Youghal, Co. Cork. The AoI overlaps FS006916 as it approaches Youghal in Co. Cork. There is no overlap in landfall locations. The potential for in-combination effects with the proposed SI works has been assessed. No SACs for QI habitats within the area of overlap between the AoI and the Celtic Interconnector works area, therefore in-combination habitat impacts can be ruled out. The potential for in-combination above-water noise disturbance is deemed unlikely as the south coast has a busy baseline of vessel traffic from Port of Cork and Waterford Port. Underwater noise produced by cable installation and vessels for the Celtic Interconnector project will be mitigated for through the application of the DAHG (2014) guidance. Although the likelihood of in-combination effects has been assessed as low due to the application of mitigation for underwater noise impacts at the project level, mitigation measures have been imposed, see Section 6.1.5.

University College Cork marine environmental survey (MUL240013)

MUL240013 is a MUL for marine surveys involving ROV/DDV and grab sampling to support habitat mapping. Seawater samples and CTDs profiles may also be taken. The proposed survey timeline in the application is from 22/09/2024 to 06/10/2024. However, this MUL is still at applied stage and is yet to be reviewed by MARA. There are three proposed locations between the old head of Kinsale and Ballycotton off Co. Cork. As the UCC surveys will be limited in scale and extent, sampling will comprise DDV and grab sampling only, and the survey area will only partially overlap with the AoI, no in-combination effects are expected.

University College Dublin geophysical and sediment sampling survey (MUL240018)

MUL240018 is a MUL to undertake geophysical and sediment sampling off the south coast of Ireland for environmental and geological studies in relation to Blue Carbon potential of marine sediment. The proposed survey timeline is between November 2024 and December 2025, however, this MUL is still at applied stage and is yet to be reviewed by MARA. The MUL240018 study area encompasses an area from approximately 6 km outside of Cork Harbour, and 26 km east to Dungarvan, out to the 90 m contour at the border of the EEZ with the UK and therefore overlaps the AoI of the proposed SI works. No further details have been provided regarding the surveys. However, as the surveys will involve geophysical surveys and sediment sampling, it is reasonable to assume that there will be underwater noise produced and potential habitat loss/disturbance, along with above-water noise disturbance due to the presence of the vessel. Although the likelihood of in-combination effects has been assessed as low due to the application of mitigation for underwater noise impacts at the project level, mitigation measures have been imposed, see Section 6.1.5.

Gas Networks Ireland, Cork Harbour (MUL240035)

MUL240035 is a MUL for marine surveys within Cork Harbour to provide high-quality baseline data that can contribute to a reliable basis for site selection for the Strategic Gas Emergency Reserve. The surveys will involve the deployment and retrieval of static acoustic monitoring (SAM) devices and up to two acoustic doppler current profilers (ADCP) within the study area. This MUL is still at application stage and is yet to be reviewed by MARA. The proposed licence period is for 2.5 years. The red line boundary is adjacent to the AoI at Roches Point in Co. Cork on the approaches into Port of Cork and the SAMs and ADCPs will be deployed within Cork Harbour, with no overlap between the AoI and the proposed locations for the ADCPs and SAMs. The maximum range for auditory injury to marine mammals modelled for the proposed SI works, was within 40 m of the sound source and TTS within 100 m of the sound source, therefore it can be assumed that underwater noise emitted by the GNI ADCPs will not extent into the AoI and there is no potential for in-combination effects between the proposed SI works and MUL240035.

5.8.3 MARA Screening for Appropriate Assessment for a Maritime Usage Licence Application

On 1st May 2025, MARA concluded their Screening for Appropriate Assessment for a Maritime Usage Licence Application. The following sub-sections address the additional Plans and Projects not addressed above that MARA brought forward for Appropriate Assessment.

5.8.3.1 Plans

MARA's screening for appropriate assessment states that likely significant in-combination effects on the conservation objectives of European sites considered in their screening report could not be excluded at screening stage, between the following plans and the PUOSC SI works:

- The Climate Action Plan 2025;
- South Coast Designated Maritime Area Plan;
- Port of Cork Masterplan 2050; and
- Port of Waterford Masterplan 2020–2044.

5.8.3.1.1 Climate Action Plan 2025

In April 2025, the Government of Ireland published the Climate Action Plan 2025 (CAP25). The statutory basis for this plan is provided for in the Climate Action and Low Carbon Development Acts 2015 to 2021. DECC is required to publish an update to the CAP annually.

CAP25 is the third statutory annual update to Ireland's Climate Action Plan. It promotes sustainable development and sets out a roadmap to deliver on Ireland's climate ambition. This includes a reduction in carbon emissions by 51% by 2030, compared to 2018 levels, and achieving net zero carbon emissions by 2050. CAP25 reinforces Ireland's commitment to have at least 5GW of offshore wind by 2030 (p.70).

There are no Key Actions in CAP25 that have the potential to act in-combination with the proposed SI works to adversely affect the integrity of any European sites. No mitigation is required.

5.8.3.1.2 South Coast Designated Maritime Area Plan (SC-DMAP)

The SC-DMAP provides a plan-led approach for the development of offshore renewable energy (ORE) within its geographical area. The SC-DMAP identified four Maritime Areas for the future ORE development, including Area A - Tonn Nua, which is within the AoI for the proposed SI works. It is reasonable to assume that surveys will be undertaken within the Tonn Nua geographical area over the next decade, as development progresses. The SC-DMAP states that proposed future developments and associated transmission infrastructure within the geographical area will be subject to robust project-level environmental assessment. It is also noted that Regional Level Surveys will be carried out within the SC-DMAP area, to support in-combination assessments at project level.

It should be noted that the PUOSC SI works are required in order to deliver the PUOSC project that will facilitate future projects to be delivered under the SC-DMAP. These projects cannot take place without the completion of the PUOSC as it will provide the transmission grid infrastructure required to connect any offshore renewable energy projects to the national grid.

The Minister has determined[11] that the SC-DMAP will not, either individually or in combination with other plans or projects, adversely affect the integrity of any European site(s), in view of the sites' conservation objectives. Given the policy objectives of the SC-DMAP (which inherently protect European sites), and the mitigation applied by this NIS to the PUOSC SI works, there is no potential for adverse in-combination effects to adversely affect the integrity of any European sites. **No mitigation is required**.

5.8.3.1.3 Port of Cork Masterplan 2050 and Port of Waterford Masterplan 2020-2044

The Port of Cork Masterplan 2050 and Port of Waterford Masterplan 2020-2044 are strategic documents setting out plans for the future development of each of these ports. Given the protective policies for European sites inherent in these two masterplans, the temporary nature of the proposed PUOSC SI works, and the mitigation applied to the PUOSC SI works by this NIS, there is no potential for adverse in-combination effects to adversely affect the integrity of any European sites. **No mitigation is required**.

5.8.3.2 Projects

MARA's screening for appropriate assessment states that likely significant in-combination effects between the following projects (not already considered above) and the PUOSC SI works on the conservation objectives of European sites considered in their screening report could not be excluded at screening stage:

- LIC230017 Marine environmental surveys for the purposes of site investigation
- MUL240042 Marine environmental surveys for the purposes of site investigation
- MAC20230016 MAC for re-development of gas reservoir
- MAC240030 MAC for installation of telecommunications cable offshore
- S0005-03 EPA Dumping at Sea Permit (applied, not granted)
- S0021-03 EPA Dumping at Sea Permit (applied, not granted)
- FS006982 Marine site investigation activities

5.8.3.2.1 MUL Applications

MARA screened in the following two MULs:

- **LIC230017 Microsoft Ireland, Kilmore Quay**: is a MUL for a geophysical survey and site investigations for a proposed subsea fibre optic cable having a landfall in Kilmore Quay, County Wexford and to evaluate options for the route traversing Ballyteige Bay, across the Celtic Sea and St Georges Channel to Pembrokeshire, Wales. The route of the survey works is to the west of the Saltee Islands and is within 5 km of the AoI for PUOSC.

[11] Available: The South Coast Designated Maritime Area Plan for Offshore Renewable Energy (SC-DMAP)

- **MUL240042 Port of Cork (previous foreshore no. FS007098, revised in Feb 2025)**: is a MUL to carry out marine site survey work and site investigations including geophysical surveys, geotechnical surveys, environmental surveys, intertidal benthic surveys and marine mammal surveys. The location of the MUL is between Cork Beg and Spike Island within Cork Harbour which is within 5 km of the AoI for PUOSC.

Should there be an overlap between the SI works for PUOSC and those of LIC230017 and/ or MUL240042 (if granted) it is reasonable to assume that there will be underwater noise produced and potential habitat loss/disturbance, along with above-water noise disturbance. Although the likelihood of in-combination effects has been assessed as low due to the application of mitigation for underwater noise impacts at the project level, mitigation measures are imposed, see Section 6.1.5.

5.8.3.2.2 MAC Applications

MARA is the regulatory authority for awarding a Maritime Area Consent (MAC). A MAC gives the holder permission to occupy a specified part of Ireland's maritime area. However, a MAC does not give permission for development. Only after receipt of a MAC can an applicant apply to a planning authority for development consent.

In their Screening for Appropriate Assessment for a Maritime Usage Licence Application, MARA screened in the following two MACs:

- **MAC20230016:** The re-development of the decommissioned and depleted Ballycotton gas reservoir in the Kinsale Head area offshore Cork.
- **MAC240030**: Installation of the Beaufort telecommunications fibre optic cable connecting Kilmore Quay, Wexford to Pembrokeshire, Wales.

As of the date of this report, both MACs have been applied for and neither MAC has been granted. A MAC does not give permission for development. Should there be an overlap between the SI works for PUOSC and works within the scope of MAC20230016 and/or MAC240030 (if granted, and if planning permission is granted) it is reasonable to assume that there will be underwater noise produced and potential habitat loss/disturbance, along with above-water noise disturbance. Although the likelihood of in-combination effects has been assessed as low due to the application of mitigation for underwater noise impacts at the project level, mitigation measures are imposed, see Section 6.1.5.

5.8.3.2.3 Dumping at Sea Applications (S0005-03 and S0021-03)

The following additional DaS applications were screened in by MARA for Appropriate Assessment:

- **S0005-03 Department of Defence**: The Department of Defence has applied to the EPA for a permit under Section 5 of the Dumping at Sea (DaS) Act 1996-2010. The application involves the disposal of approximately 90,000 m³ (166,500 tonnes) of dredged material as part of an eight-year maintenance dredging campaign at the Haulbowline Naval Base on Haulbowline Island, Co. Cork. The dredged material will be disposed of to an existing DaS site location approximately 8 km south-east of Roches Point (south of Power Head), County Cork. The dredging campaigns will be every two years with the first campaign planned for 2025, subject to receipt of a DaS permit, and every two-years thereafter. As noted in the DaS application documents, the dumping site is a well-established dump site that has been used since 1978 and is the main disposal site for dredging spoil near Cork Harbour.
- **S0021-03 Port of Cork Company**: The Port of Cork Company has applied to the EPA for a permit under Section 5 of the DaS Act 1996-2010. The application is for capital dredging works to facilitate the development of new port facilities in Ringskiddy to enable future Offshore Renewable Energy (ORE) project. The works will generate approximately 80,000 wet tonnes of dredged material to be disposed of disposal of as part of to an existing DaS site location approximately 8 km south-east of Roches Point (south of Power Head), County Cork (i.e. the same location as S0005-03). The DaS permit will be for a duration of five years.

Due to the frequency of dredging and disposal campaigns, there is potential for in-combination effects with the proposed SI works due to above-water noise disturbance, habitat loss and/or disturbance and underwater noise impacts. Therefore, in addition to the application of mitigation at the project level, in-combination mitigation measures are imposed, see Section 6.1.5.

5.8.3.2.4 Foreshore Licences

The following additional foreshore licence was screened in by MARA for Appropriate Assessment:

- **FS006982 Energia site investigations:** RPS stated in the SISAA report (RPS report ref: IE001220-RPS-RP-XX-RP-EN-0006), that Energia was granted a foreshore licence (FS006982) to conduct SI works to determine design for a proposed ORE development off Helvick Head in Co. Waterford. This licence was for a term of five years from the commencement date (05/07/2021), therefore temporal overlap with the proposed SI works is possible, although unlikely, as geophysical and geotechnical surveys have been completed[12].

Although the likelihood of in-combination effects has been assessed as low, the mitigation measures imposed from Section 6.1.5 will be applied should there be any further activities undertaken as part of FS006982.

5.8.4 In-combination Assessment Conclusion

In the absence of mitigation measures, the proposed SI works would act in-combination with other projects, where there is a temporal overlap, to result in likely significant effects on the conservation objectives of the European sites considered in this NIS. Therefore, as a precautionary measure, mitigation measures have been imposed to avoid in-combination effects with other projects. See Section 6.1.5 for further detail on mitigation measures for in-combination effects. Following implementation of these measures, there will be no adverse in-combination effects on European sites.

[12] https://www.northcelticseawind.ie/energia-renewables-reaches-key-milestone-as-seabed-surveys-are-successfully-completed/ [Accessed 09/05/2025]

6 MITIGATION MEASURES

6.1 Mitigation of Adverse Effects

6.1.1 Avoidance of impacts due to habitat loss, alteration and/or fragmentation loss

Due to uncertainty around the exact extent and distribution of subtidal QI reef habitats in NPWS (2011c), in order to avoid direct and indirect impacts on the QI reefs within Hook Head SAC, the following stepwise approach to mitigation will be followed:

- Step 1: Prior to the commencement of any intrusive or extractive SI works (i.e. boreholes, vibrocores, CPT, intertidal cores, grab sampling, anchoring/mooring, placement of JUB legs), geophysical surveys will be undertaken.
- Step 2: Prior to the commencement of any intrusive or extractive SI works within Hook Head SAC, the outputs of marine geophysical surveys will be reviewed by a suitably qualified marine ecologist to identify any areas which may correspond with subtidal reef habitats. Any areas identified as potential reef will be avoided by micrositing intrusive/extractive survey locations away from the potential reef areas.
- Step 3: Prior to commencement of intrusive or extractive SI works, drop-down video (DDV) will be deployed at each sampling location. If reef habitats are confirmed as present, these stations will be surveyed using DDV only.

Due to uncertainty surrounding the exact extent and distribution of intertidal QI reef habitats within Hook Head SAC at landfall zone E in NPWS (2011), the following stepwise approach to mitigation will be followed:

- A walkover survey will be undertaken by a suitably qualified marine ecologist prior to intrusive/extractive SI works to identify and delineate areas of intertidal reef.
- Any areas identified as reef will be avoided by micrositing intrusive/ extractive survey locations (e.g. boreholes, vibrocores, CPT, intertidal cores) in areas of sedimentary habitat.

With respect to the vegetated sea cliffs QI habitat at Hook Head SAC, the following mitigation will be imposed to ensure that there will be no adverse effects on the QI habitats as a result of the proposed surveys:

- No intrusive or extractive survey types will be carried out within the sea cliff habitats, as mapped by NPWS (2011).

6.1.2 Avoidance of impacts due to water quality impacts

In order to avoid any accidental pollution effects to habitats and species including migratory fish, marine mammals, otters and birds, the following standard measures will be implemented.

- All vessels will comply with international standards according to the MARPOL (maritime pollution) Convention and the Sea Pollution Acts with respect to wastewater and food waste discharges. Hazardous materials, radiation sources or chemicals will be stored, handled, used and documented in accordance with those legal provisions and also the Safety Health and Welfare at Work Act 2005, as amended, and associated regulations, which apply to vessels as places of work, and the Chemicals Act 2008, as amended, and associated regulations, accepted guidelines, and technical standards and requirements.
- An oil pollution emergency plan will be implemented onboard all survey vessels. This plan will specify:
    - Information on the location and detail of spill response resources on-board
    - Information on crew training in relation to oil pollution response
    - How crew will interface with other vessel operators, where applicable.
- Spill kits will be stored on board all vessels and will also be available where machinery is operating in the intertidal zone. Any fluid leaks or spills will be cleaned up immediately. All machinery or vehicles on the

intertidal area will be fuelled on the hard-standing surface of a car park or road and at least 10 m from a drain or gully

6.1.3 Avoidance of impacts due to visual and above water noise disturbance

In order to avoid visual and above-water disturbance effects to nesting bird species at the Mid-Waterford Coast SPA and Keeragh Islands SPA, the following SI works will not be undertaken within a 1 km buffer of the boundaries of the Mid-Waterford Coast SPA and Keeragh Islands SPA during the months March to July (inclusive):

- Coastal geotechnical sampling: excavation of trial pits and onshore borehole drilling (due to presence of equipment and noise)
- Marine geophysical survey (due to presence of vessel and above-water noise)
- Marine geotechnical and environmental grab sampling using JUB and/or vessel (due to presence of JUB/vessel and above-water noise)

Ornithology vantage point surveys will be undertaken by suitably experienced ornithologists with a working knowledge of bird disturbance and will be undertaken using binoculars and scopes, without use of Hi-Vis vests in order to avoid disturbing nesting birds.

6.1.4 Avoidance of underwater noise impacts

Standard risk avoidance and/or risk reduction measures will be in place on geophysical and geotechnical survey vessels, as required under Section 4.3.4 of the *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014). These measures will comprise visual observation during daylight hours (see Pre-Start Monitoring below) and the use of soft start procedures (see Ramp-Up / Soft Start Procedures below). The incorporation of these measures will avoid auditory injury and reduce disturbance to marine mammals. The implementation of soft-start/ramp up procedures as a mitigation measure for marine mammals as described below will also benefit migratory fish and otters, as the ramp-up in noise will deter these species from approaching the vessel.

The relevant text from DAHG (2014) has been included below:

1. A qualified and experienced marine mammal observer (MMO) shall be appointed to monitor for marine mammals and to log all relevant events using standardised data forms.
2. Unless information specific to the location and/or plan/project is otherwise available to inform the mitigation process (e.g., specific sound propagation and/or attenuation data) and a distance modification has been agreed with the Regulatory Authority, acoustic surveying using the above equipment shall not commence if marine mammals are detected within a 500m radial distance of the sound source intended for use, i.e., within the Monitored Zone.

Pre-Start Monitoring

3. Sound producing activities shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible the sound-producing activities shall be postponed until effective visual monitoring is possible.
4. An agreed and clear on-site communication signal must be used between the MMO and the Works Superintendent as to whether the relevant activity may or may not proceed, or resume following a break (see below). It shall only proceed on positive confirmation with the MMO.
5. In waters up to 200m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.
6. This prescribed Pre-Start Monitoring shall subsequently be followed by a Ramp-Up Procedure which should include continued monitoring by the MMO.

Ramp-Up / Soft Start Procedure

7. In commencing sound producing activities using the above equipment, the following Ramp-up Procedure (i.e., “soft-start”) must be used, including during any testing of acoustic sources, where the output peak sound pressure level from any source exceeds 170 dB re: 1µPa @1m:
    a. Where it is possible according to the operational parameters of the equipment concerned, the device’s acoustic energy output shall commence from a lower energy start-up (i.e., a peak sound pressure level not exceeding 170 dB re: 1µPa @1m) and thereafter be allowed to gradually build up to the necessary maximum output over a period of 20 minutes.
    b. This controlled build-up of acoustic energy output shall occur in consistent stages to provide a steady and gradual increase over the ramp-up period.
    c. Where the acoustic output measures outlined in steps (a) and (b) are not possible according to the operational parameters of any such equipment, the device shall be switched “on” and “off” in a consistent sequential manner over a period of 20 minutes prior to commencement of the full necessary output. In the case of sparkers/boomers, starting with the lowest electric discharge possible, and thereafter being allowed to gradually build up to the necessary maximum output over a period of 40 minutes.
8. In all cases where a Ramp-Up Procedure is employed the delay between the end of ramp-up and the necessary full output must be minimised to prevent unnecessary high-level sound introduction into the environment.
9. Once the Ramp-Up Procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within a 500m radial distance, of the sound source, i.e., within the Monitored Zone.

Breaks in sound output

10. If there is a break in sound output for a period greater than 30 minutes (e.g., due to equipment failure, shut-down, survey line or station change) then all Pre-Start Monitoring and a subsequent Ramp-up Procedure (where appropriate following Pre-Start Monitoring) must be undertaken.

Reporting

11. Full reporting on MMO operations and mitigation undertaken must be provided to the Regulatory Authority.

6.1.5 In-combination effects

Where the SI works are to take place within 5 km of and at the same time as other licenced activities, EirGrid will coordinate with other licence holders to ensure that:

- There will be no temporal and spatial overlap between the SI works marine geophysical activities and marine geophysical activities by other licence holders;
- There will be no spatial overlap between the SI works marine geotechnical, environmental and archaeological activities and overlapping activities by other licence holders. Appropriate separation distances (500 m or as otherwise conditioned by MARA) will be maintained between vessels.

7 CONCLUSION

This NIS has examined the potential implications of the proposed project, alone and in combination with other plans and projects, on the integrity of the SACs and SPAs identified below, considering each European site's structure, function, and conservation objectives.

- Bannow Bay SAC
- River Barrow and River Nore SAC
- Hook Head SAC
- Blackwater River (Cork/Waterford) SAC
- Lower River Suir SAC
- Slaney River Valley SAC
- Saltee Islands SAC
- Carnsore Point SAC
- Blackwater Bank SAC
- Roaringwater Bay and Islands SAC
- Glengarriff Harbour and Woodland SAC
- Pembrokeshire Marine / Sir Benfro Forol SAC
- West Wales Marine / Gorllewin Cymru Forol SAC
- Bannow Bay SPA
- Ballycotton Bay SPA
- Ballyteige Burrow SPA
- Tramore Back Strand SPA
- Dungarvan Harbour SPA
- Tacumshin Lake SPA
- Wexford Harbour and Slobs SPA
- Mid Waterford Coast SPA
- Keeragh Islands SPA
- Seas off Wexford Coast SPA
- Mid-Waterford Coast SPA
- Cork Harbour SPA
- Ballymacoda Bay SPA
- Helvick Head to Ballyquin SPA
- Sovereign Islands SPA
- Saltee Islands SPA
- Blackwater Estuary SPA
- Old Head of Kinsale SPA

The competent authority may use the information contained in this NIS for establishing its own complete, precise, and definitive findings and conclusions to ensure all reasonable scientific doubt has been removed regarding the effects of the proposed site investigations on relevant European sites.

Following a comprehensive evaluation of the potential direct, indirect, and in-combination effects on the conservation objectives of relevant SACs and SPAs, mitigation measures were prescribed where necessary. Consequently, it has been concluded in this NIS that the proposed SI works, either alone or in-combination with any other plan or project, will not adversely effect the integrity of any European Site.

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Appendix A
Project Drawings

-8.351812
52.752839

-6.710312
52.752839

-8.351812
51.476566

-6.710312
51.476566

Area = 2,336 km^2

Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, USGS

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

MARA File Reference No:
MUL240036

Prepared by:
[redacted]

N

Northern Ireland
Belfast
Dublin
IRELAND
Celtic Sea

Client
EirGrid

South Coast Offshore Transmission Project

Title

Proposed Licence Area Map

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

Issue Details

File Identifier:
IE001220-RPS-AP-XX-DG-EN-0001

Status:	Rev:	Model File Identifier:
A1	C04	

Drawn:	MV	**Date:** 27/01/2025	
Checked:	GME	**Scale:** 1:580,000	(A3)
Approved:	GME	**Projection:**	ETRS1989 UTM Zone 28N, 29N or 30N projection

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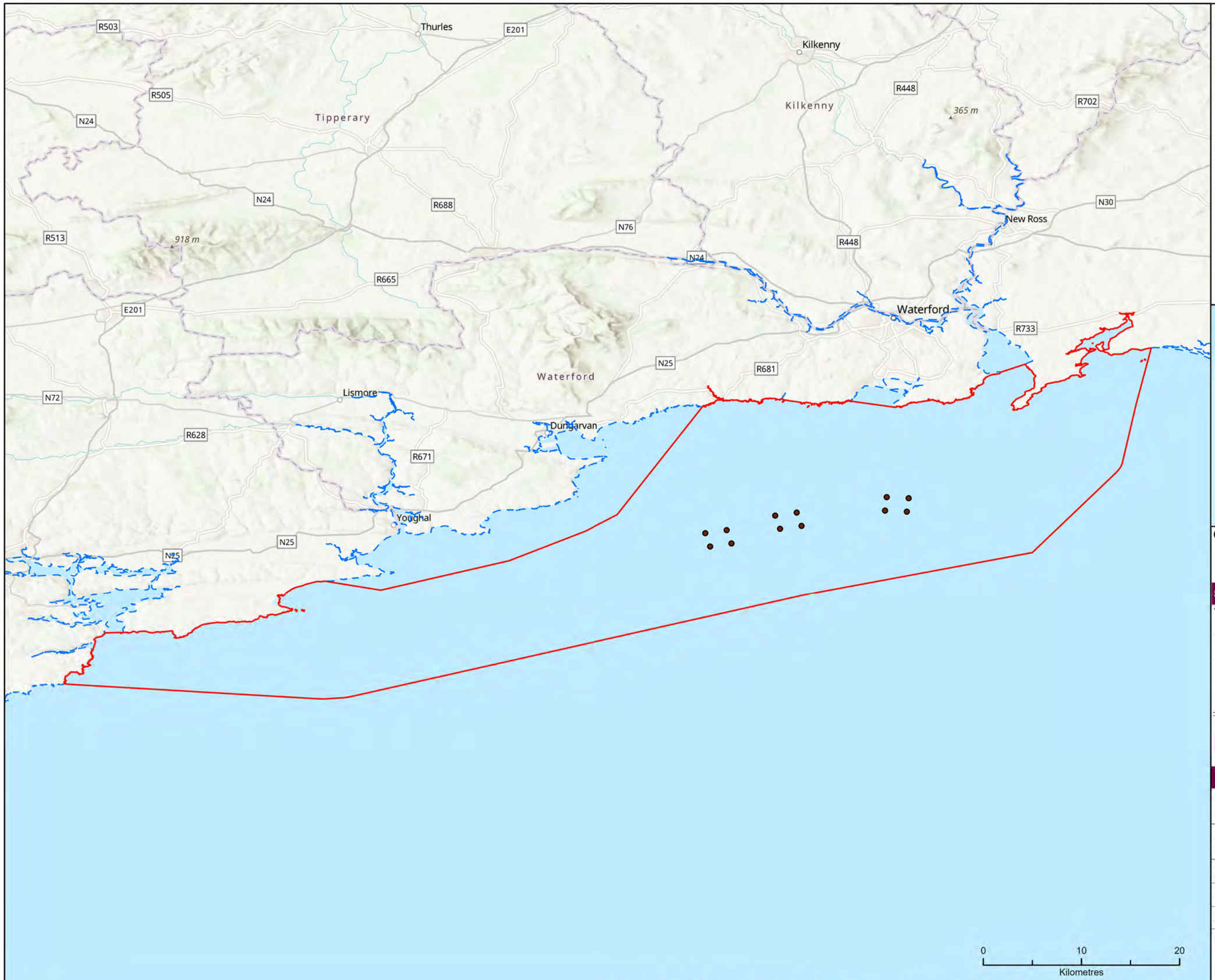
0 7 14
Kilometres



Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Deep Drive CPT

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

N

Prepared by:
[redacted]

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Deep Drive CPT

rps A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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Status: A1	**Rev:** C03	**Model File Identifier:**
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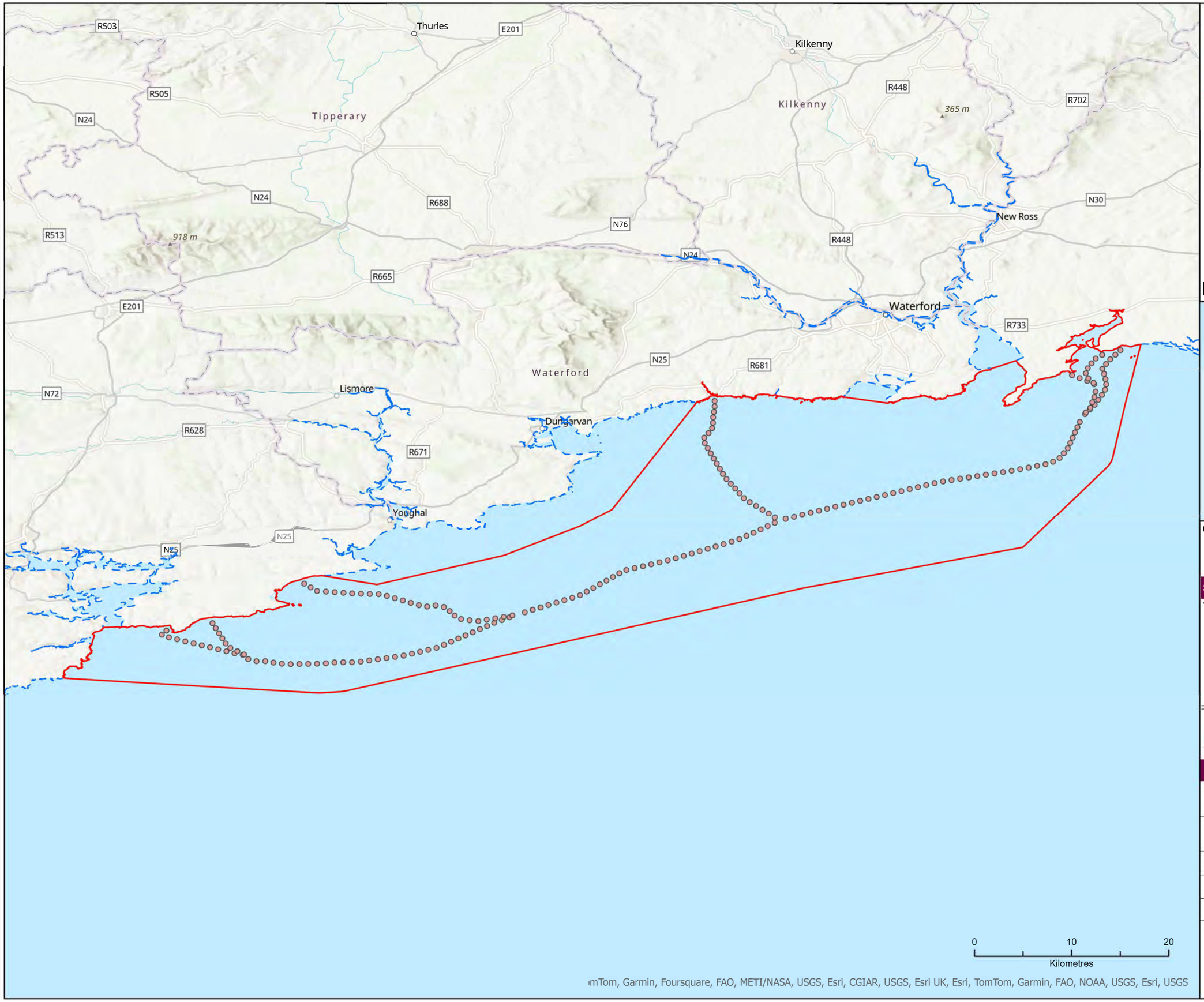

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Grab Samples

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

N

Prepared by: [redacted]

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Grab Samples

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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File Identifier:
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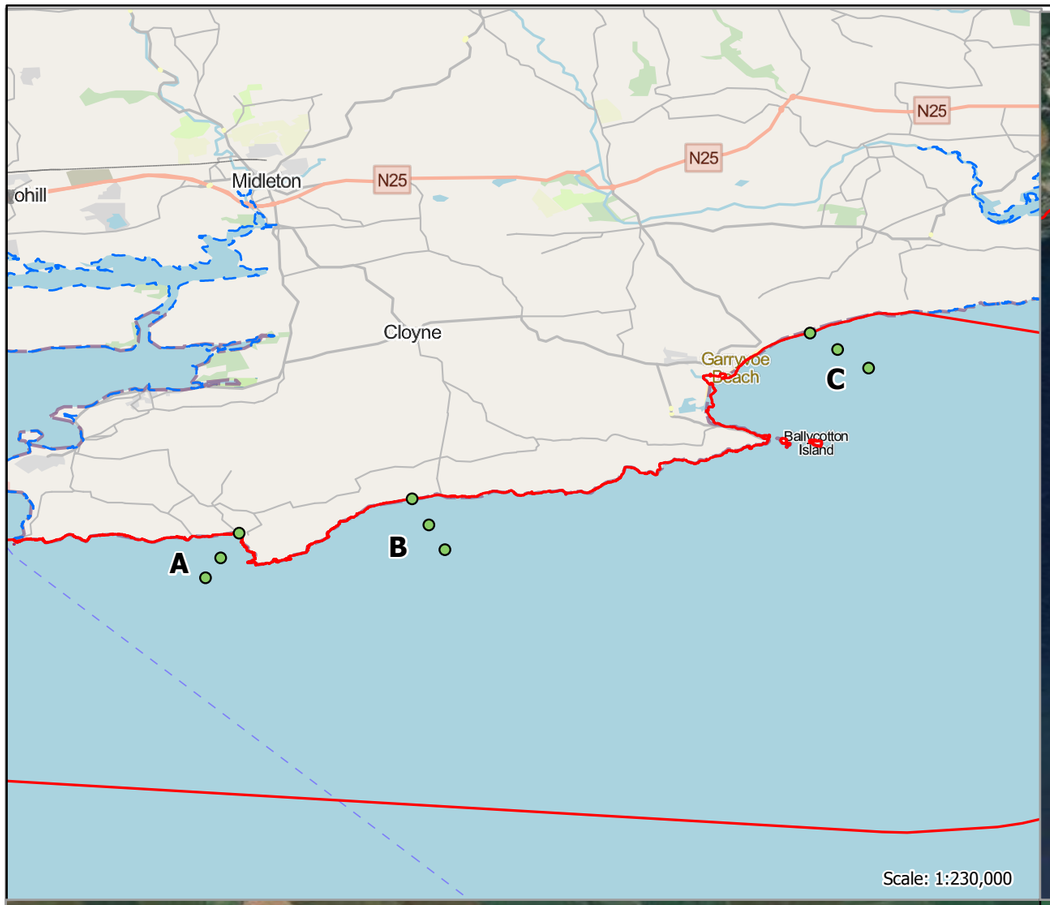

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Inshore-Onshore Boreholes

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

Prepared by:

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Inshore-Onshore Boreholes

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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File Identifier:
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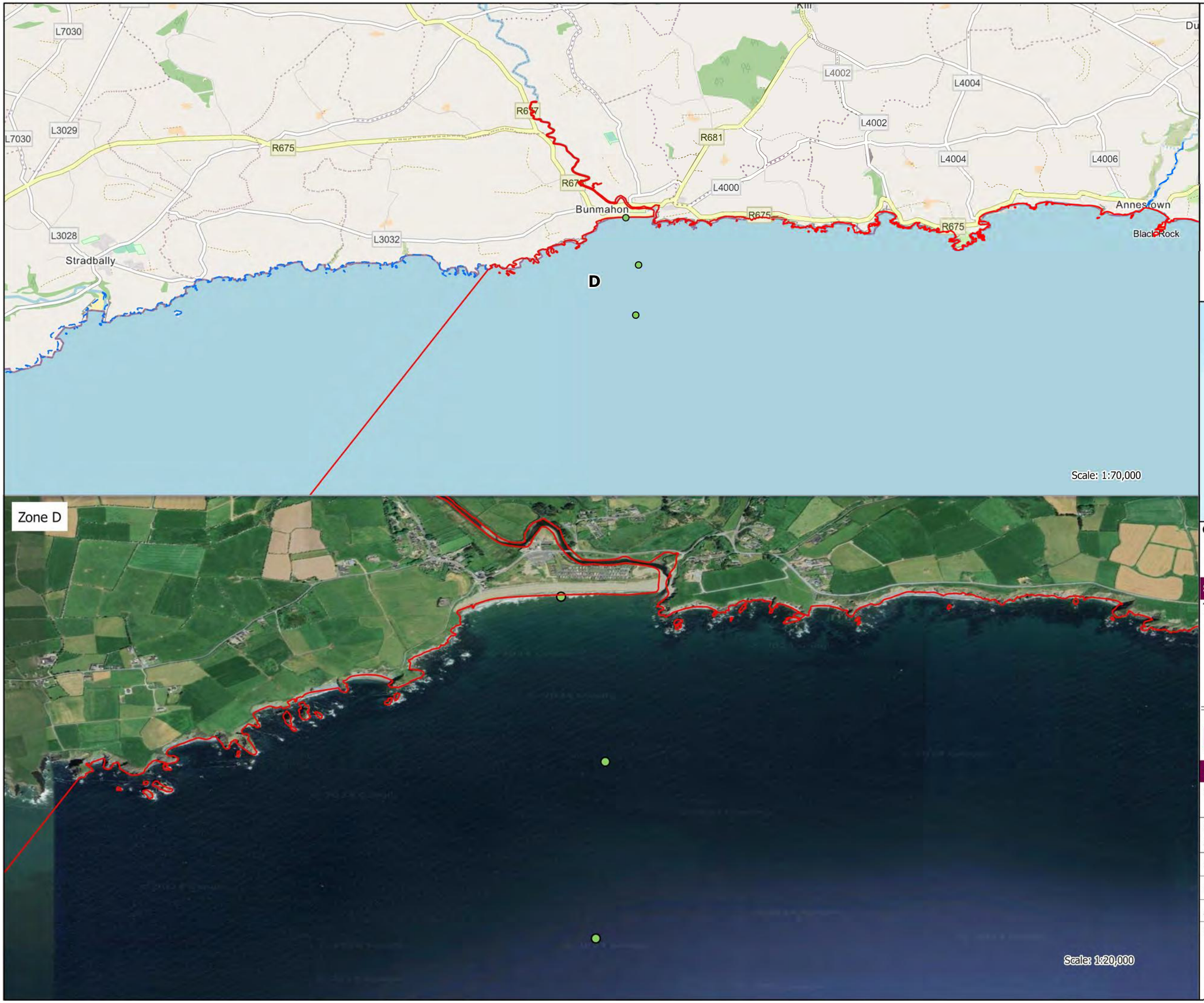

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Inshore-Onshore Boreholes

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

Prepared by:
[redacted]

N

Client
EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Inshore-Onshore Boreholes

Page 2 of 4

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

Issue Details

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Status:	Rev:	Model File Identifier:
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Drawn: MV		Date: 04/10/2024
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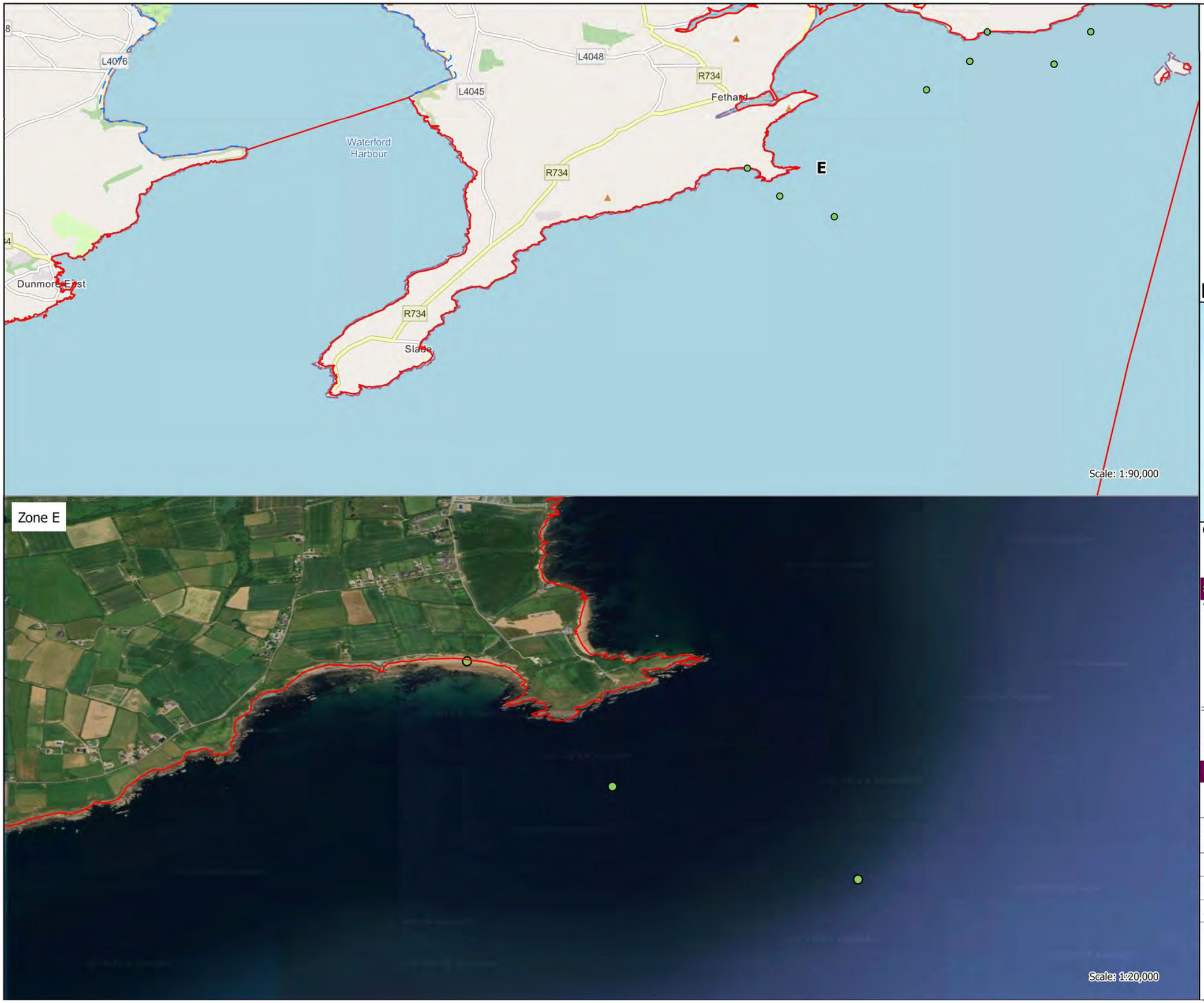

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Inshore-Onshore Boreholes

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

Prepared by: [redacted]

N

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Inshore- Onshore Boreholes

Page 3 of 4

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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Drawn: MV		**Date:** 02/12/2024
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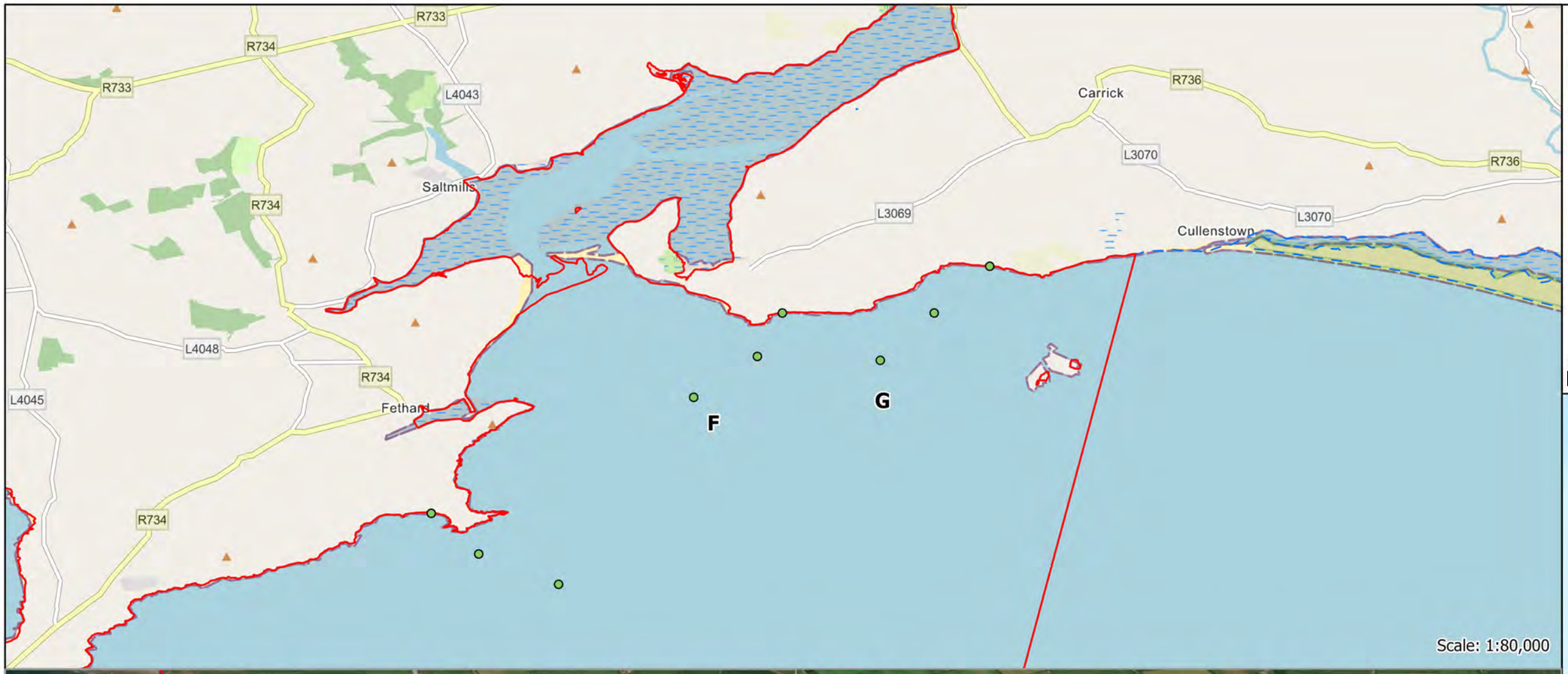

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Inshore-Onshore Boreholes

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

Prepared by:
[redacted]

N

Client
EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Inshore-Onshore Boreholes

Page 4 of 4

RPS
A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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Status:	Rev:	Model File Identifier:
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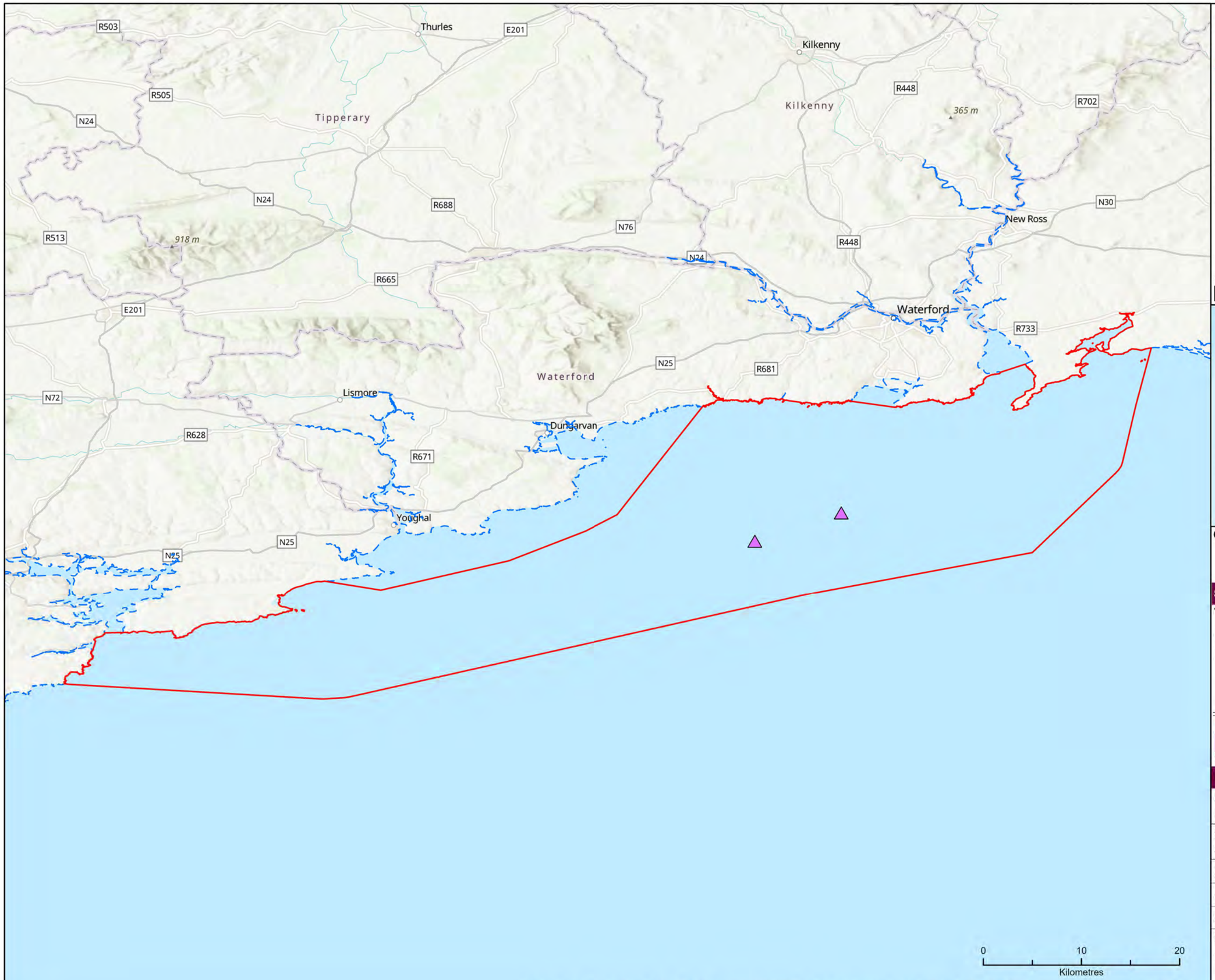

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Metocean Buoy Deployments

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

N

Prepared by:
[redacted]

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Metocean Buoy Deployments

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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Drawn: MV		**Date:** 02/12/2024
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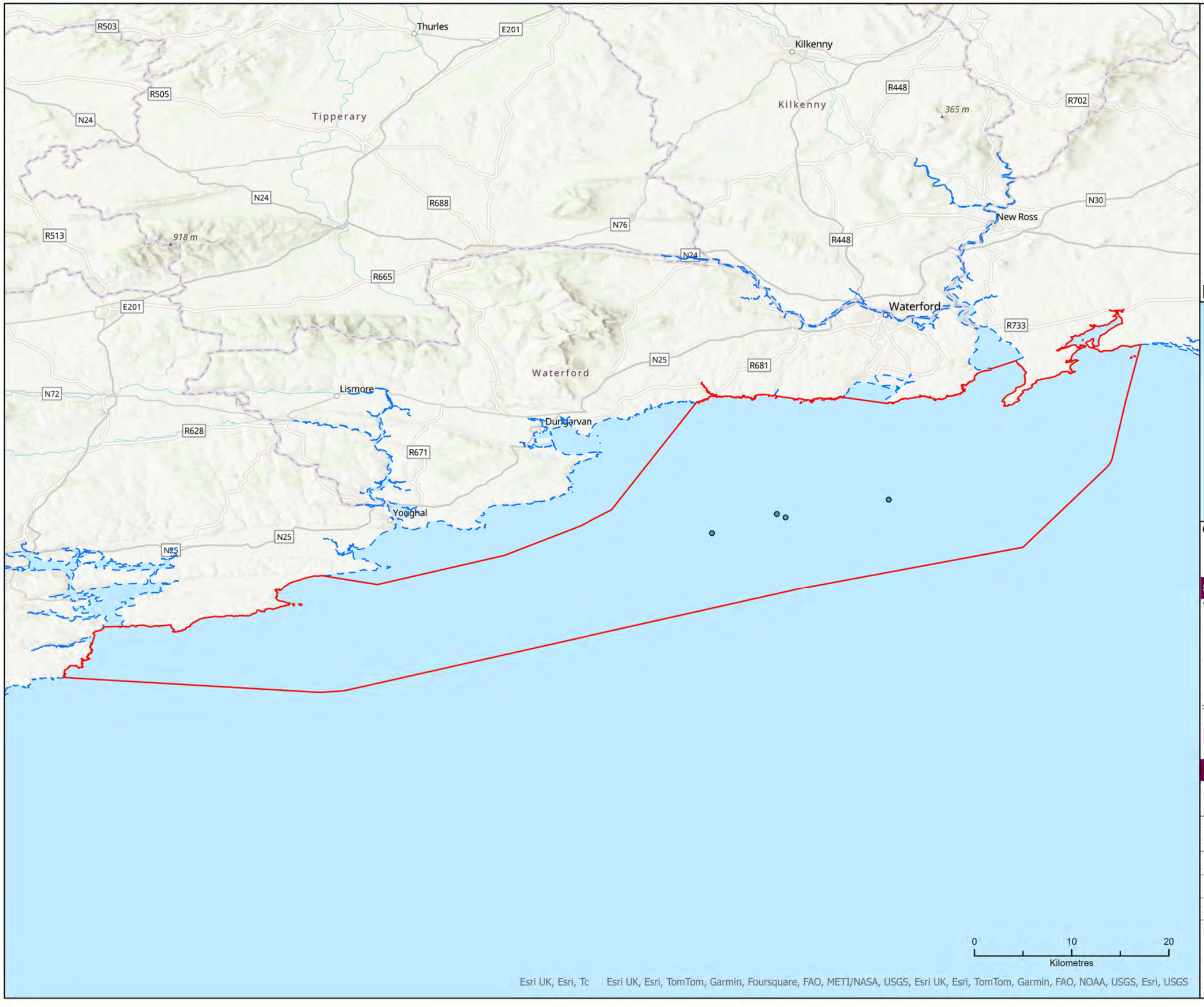

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Offshore Boreholes

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

N

Prepared by:
[redacted]

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Offshore Boreholes

RPS
A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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File Identifier: IE001220-RPS-AP-XX-DG-EN-0006		
Status: A1	**Rev:** C03	**Model File Identifier:**
Drawn: MV		**Date:** 03/12/2024
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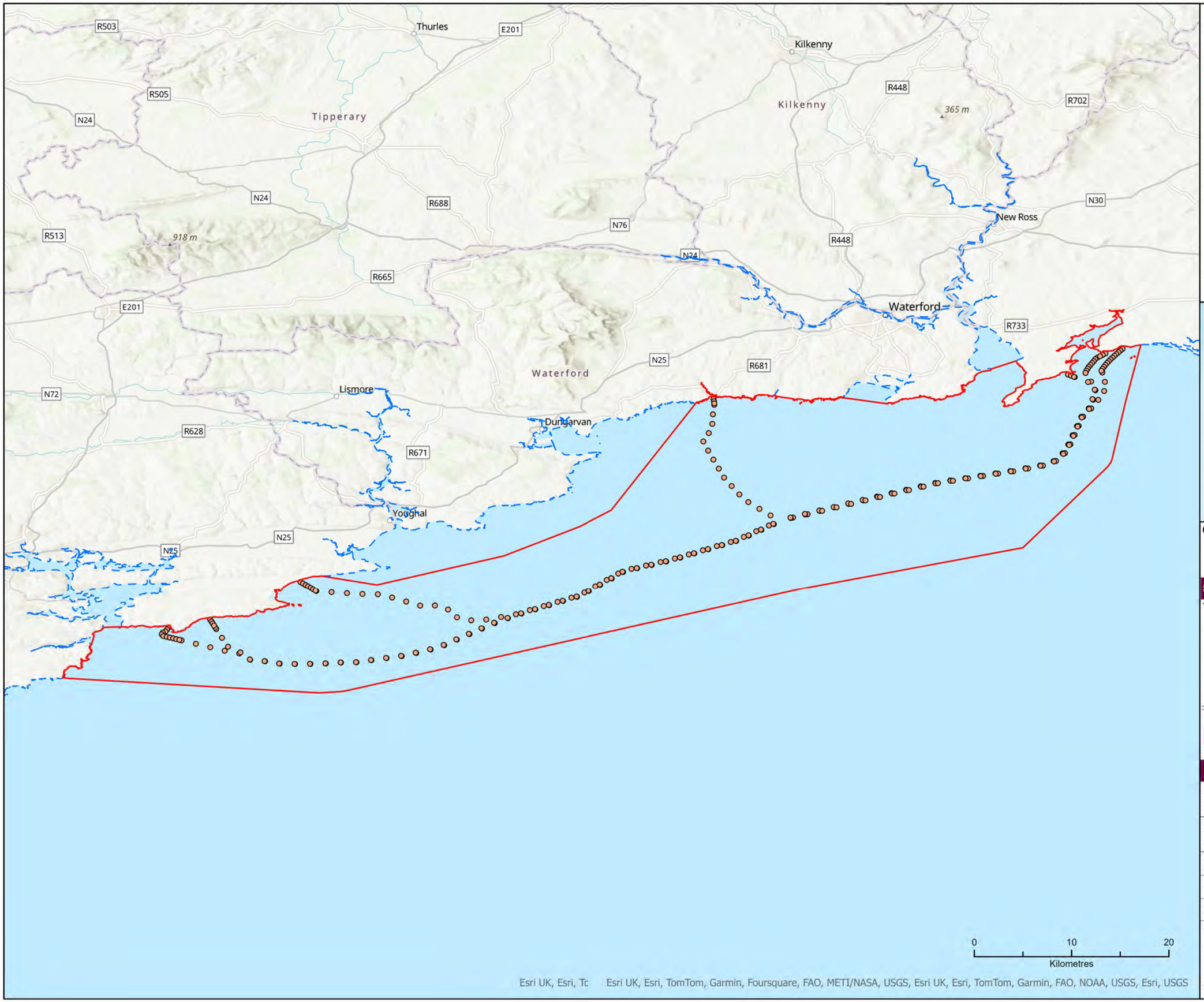

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Shallow CPT

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

N

Prepared by:
[redacted]

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Shallow CPT

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

Issue Details

File Identifier:
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Drawn:	MV	**Date:** 02/12/2024	
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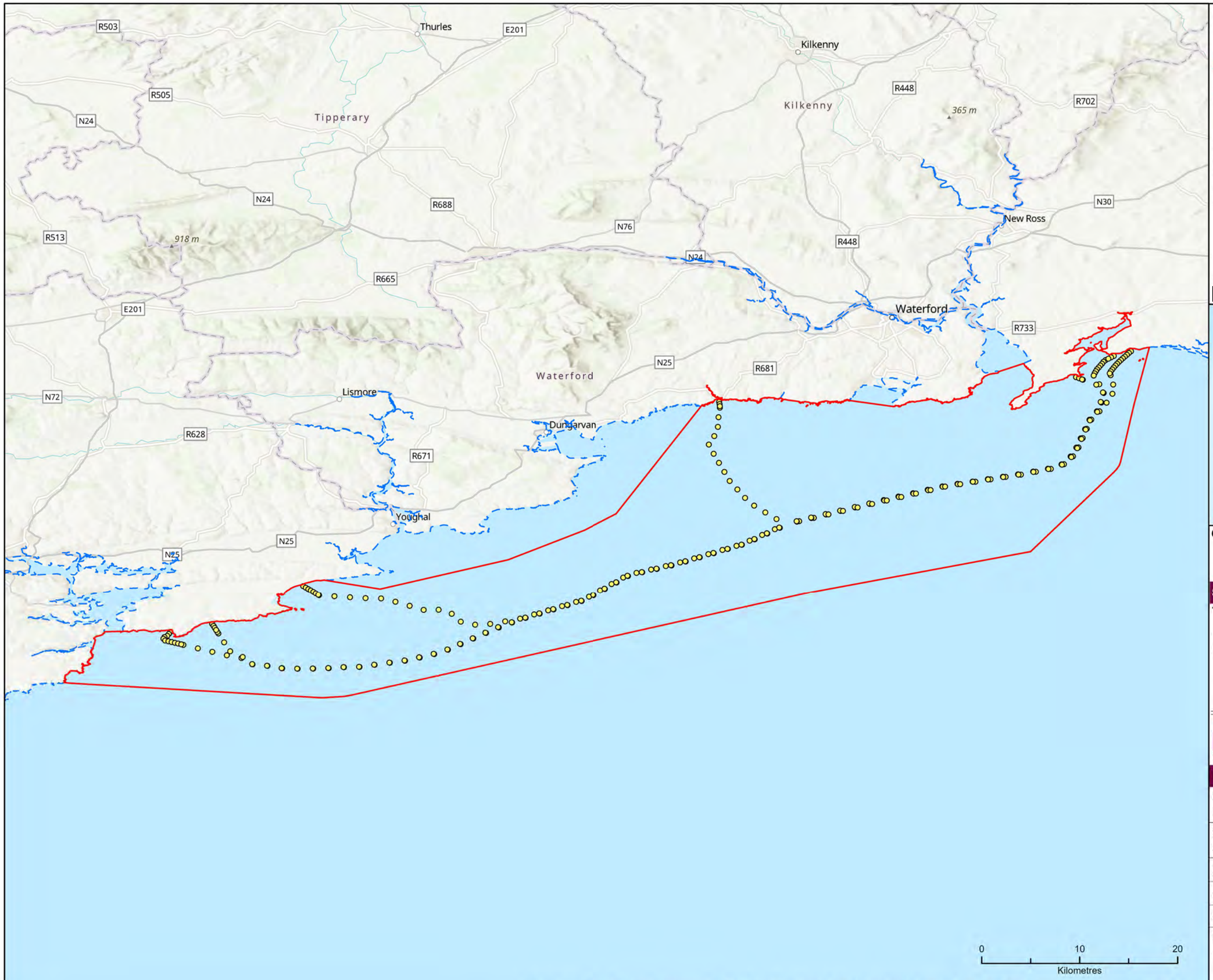

0 10 20
Kilometres

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Vibrocores

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

N

Prepared by:
[redacted]

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Vibrocores

RPS
A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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Coolbea
Ballytibbot
Tullaheen More
Moated Site
Tullaheen Beg
Ballycroneen West
Fulacht Fia
Ballybranagan
Lugfree
Inch
Church
Ballykenefick
Ballyshane
Ballintra West
Lahard
Powerhead Bay
Castle
Promontory Fort
Power Head
Dhún an Phaoraigh
A
B
61
60
62
Scale: 1:28,000

Zone A

Scale: 1:5,000

Zone B

Scale: 1:15,000

Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Trial Pit Zones

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

Prepared by:
[redacted]

N

Northern Ireland
Belfast
Dublin
IRELAND
Celtic Sea

Client
EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Trial Pit

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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Status:	Rev:	Model File Identifier:
A1	C02	

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Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Trial Pit Zones

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

Prepared by:

[redacted]

N

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Trial Pit

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

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A1	C02	

Drawn:	MV	**Date:** 04/10/2024	
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Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Trial Pit Zones

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

Prepared by:

N

Client

EirGrid

South Coast Offshore Transmission Project

Title

Indicative Sampling Locations Trial Pit

RPS A TETRA TECH COMPANY
Innishmore
Ballincollig,
Co Cork, Ireland.
P31 KR68
T +353 (0) 21 466 5900
E ireland@rpsgroup.com
W rpsgroup.com/ireland

Issue Details

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Drawn: MV		Date: 04/10/2024
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NOTE:

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Legend

- Maritime Usage License Area of Interest
- High Water Mark (HWM)
- Trial Pit Zones

Where the licence area adjoins or abuts the land the High Water Mark as defined by the Chief Boundary Surveyor is the boundary of the licence area.

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Page 4 of 4

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