

**TUSKAR - Ireland to Wales Subsea Fibre Optic
Cable**

APPLICATION FOR MARITIME USAGE LICENCE

**FOR MARINE SURVEY & SITE INVESTIGATION WORKS AT
KILMORE QUAY, WEXFORD & ST GEORGES CHANNEL**

REF: LIC230017

**Assessment of Impacts of the Maritime
Usage (AIMU) Report**

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DOCUMENT CONTROL SHEET

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1.0 INTRODUCTION

1.1 This Assessment of Impacts of the Maritime Usage (AIMU) Report has been prepared by McMahon Design and Management Ltd on behalf of the applicant and forms part of an application for a Maritime Usage Licence for Marine Survey and Site Investigations for cable route and landfall options traversing the Irish Sea, from a landfall at Kilmore Quay County Wexford.

1.2 The applicant plans to investigate the feasibility of constructing a new subsea telecoms cable system, TUSKAR, linking Ireland to the United Kingdom, from a landfall at Kilmore Quay to a landfall at Newgale on the Pembrokeshire Coast of Wales as shown in Figure 1 below.

1.3 This Works Methodology is produced in support of an application for a marine survey and site investigations licence under the Maritime Area Planning Act 2021, and should not be used for any other purpose apart from that expressly stated in this document.

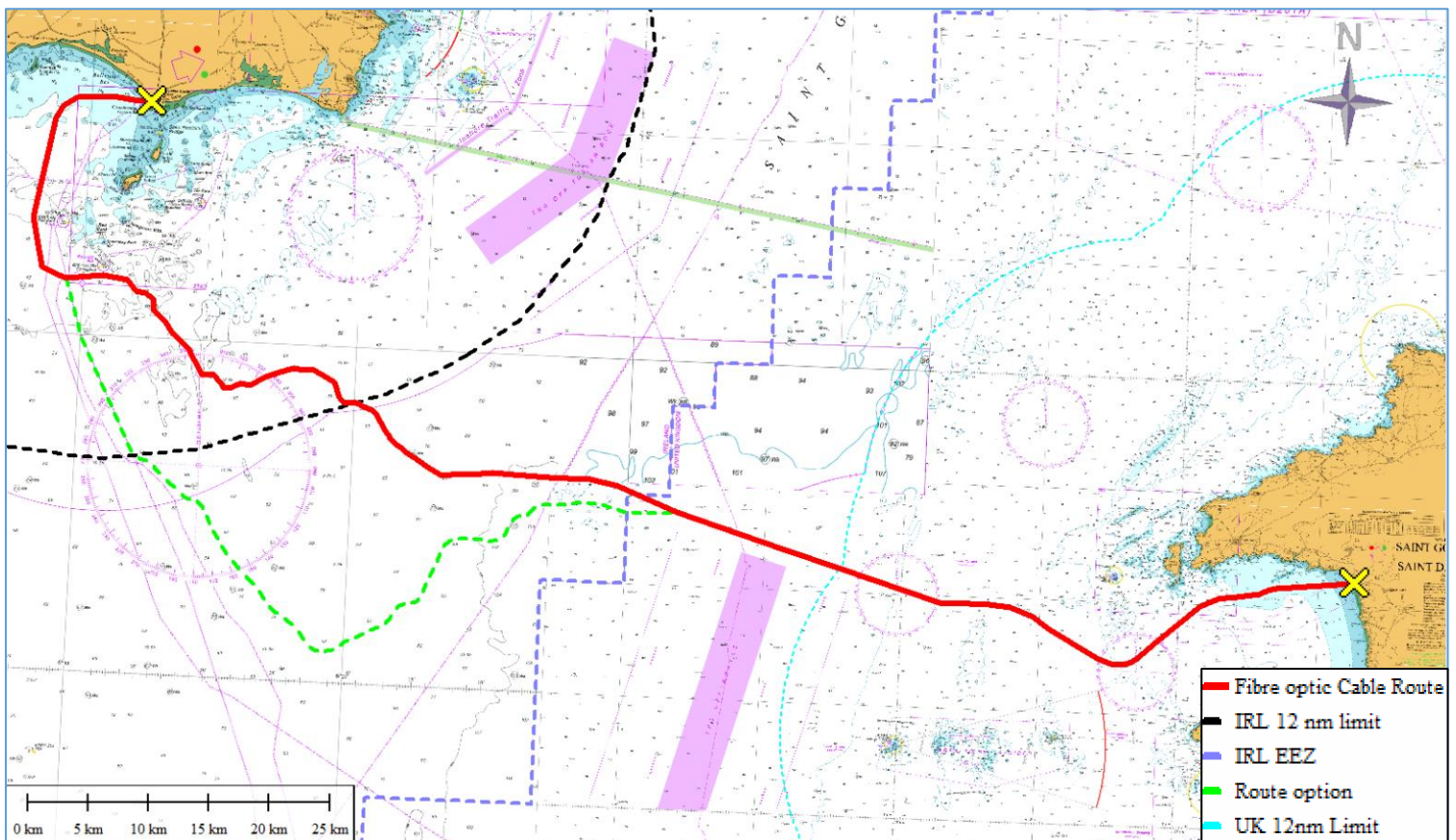


Figure 1. Proposed Telecoms Cable System (final configuration subject to change)

2.0 PROJECT DESCRIPTION

2.1 The License Application Area is situated off the coast of Wexford (Figure 2). The licensed survey corridor has length of approx. 154 km and a total area of 10,191 hectares within EEZ limits. A cable route corridor of approx. 400m to 1500m in width will be surveyed within the licence application area.

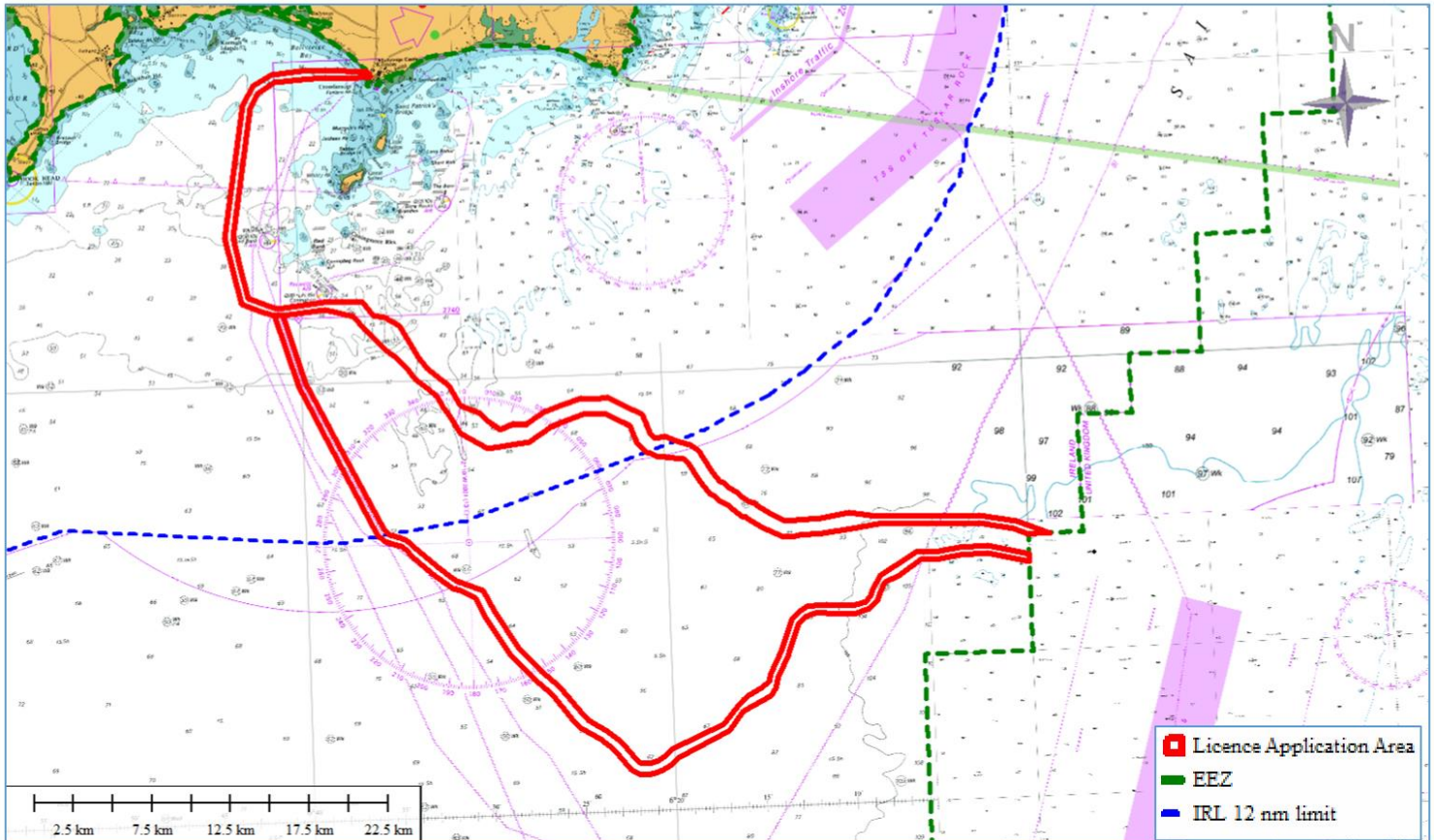


Figure 2. Proposed Survey Licence Application Area.

2.3 The licence application area covers the proposed offshore route options across the Celtic Sea and St Georges Channel to the East. The general location is shown in Figure 3. A more detailed overview of the route and landfalls is provided in the Application Schedule of Works report.



Figure 3. Landfall Locations.

2.4 The principal objective of the Marine Survey & Site Investigations is to ascertain a feasible and safe route for cable system design, deployment, survivability and subsequent maintenance with due regard for environmental and ecological considerations. The survey will also enable decisions to be made on cable armouring and burial. The survey will identify the necessary water depths, route features, seabed obstructions, seabed geomorphology and cable hazards and will also provide detailed information on the seabed sediment, subsurface stratigraphy and upper sediment layers to support cable route and installation engineering. The site investigations will provide “ground-truthing” of the geophysical data along the route.

2.5 The objectives of the marine geophysical survey shall be:

- To collect up to date high-resolution bathymetry along a 400 – 1500m wide cable corridor within the License Application Area;
- To obtain information on the seabed surface (type, texture, variability, etc.) and in particular, to identify any seabed features that may be of interest.

- Identify any shallow geohazards and man-made hazards (including but not limited to outcropping, boulders, shallow gas, wrecks, debris etc.);
- Determine the stratigraphy of the upper layers of the seabed along the cable route and quantify the variability in the lateral and vertical extents to depths of 2-5m
- Identify any seabed obstructions;
- Identify sensitive marine habitats which will need to be avoided during site investigations and sampling.

2.6 The works will be carried out predominantly by remote sensing seabed mapping techniques (geophysical survey) with some selective sampling of the upper layers of the seabed (geotechnical survey). Once the results of the survey are obtained and analysed a preferred route corridor will be determined, design and method statements will be developed and a final Route Position List (RPL) will be defined as part of a further submission for a Licence for installation works.

2.7 The survey works will be carried out having regard to the Habitats Directive, Environmental Impact Assessment (EIA) Directive, Water Framework Directive (WFD), Marine Strategy Framework Directive (MSFD) and Ireland's National Marine Planning Framework (NMPF). This AIMU report details the project's cognizance of these Directives.

Statement of Consistency with the National Marine Planning Framework (NMPF)

2.8 The NMPF details how marine-based human activities will interact with each other and the marine environment. It is the marine equivalent of the National Planning Framework. It enables the Irish Government to "direct decision makers, users and stakeholders towards strategic, plan-led and efficient use of our marine resources" (Department of Housing, Local Government and Heritage, 2021). It brings together the various EU Directives mentioned previously to set a clear direction for managing our seas. The survey work's adherence to EU Directives, coupled with the localised and temporary nature of the work, ensures that it will be consistent with the NMPF.

- 2.9 As stated in the Telecommunications chapter of the National Marine Planning Framework (March 2021), guaranteeing existing and future international telecommunications connectivity is critically important to support the future needs of society and enterprise in Ireland. The value of the digital economy in Ireland is estimated at €12.3bn or 6% of GDP and is expected to grow significantly over the coming years. In an increasingly interconnected world, continued investment in sustainable telecommunications connectivity will be critical to ensuring that Ireland can address digital related challenges, enabling citizens to participate and benefit fully from a more integrated digital single market, improving skills, reducing the digital divide, fostering and strengthening innovation, and providing better job opportunities.
- 2.10 Recent developments at European level, including an initiative led by the Portuguese presidency – the “European Data-Gateway Platforms Strategy” as part of “Shaping Europe’s Digital Future” –outlines an increased ambition to further strengthen the international connectivity of the EU including in respect of telecommunications and subsea telecommunications connectivity. ‘2030 Digital Compass: The European way for the Digital Decade’ also sets a vision, targets, and avenues for a successful digital transformation of Europe by 2030. Europe’s digital leadership and global competitiveness is dependent on strong internal and external connectivity. In that regard, the Commission highlights the importance of improving connectivity with external partners including via subsea cables.
- 2.11 In March 2021, Minister Eamon Ryan, on behalf of Ireland, signed the Declaration on “European Data Gateways as a key element of the EU’s Digital Decade.” In doing so, Ireland joined 24 EU Member States, as well as Iceland and Norway, in committing to reinforcing digital connectivity between Europe and its global partners. The development of the new fibre optic cable system will support and enhance these policy objectives.

[Statement of Consistency with the Marine Strategy Framework Directive](#)

- 2.12 The Marine Strategy Framework Directive (MSFD) is European legislation, which aims to protect the marine environment. It requires the application of an ecosystem-based

approach to the management of human activities, enabling a sustainable use of marine goods and services.

2.13 To implement the MSFD, Ireland is required to:

- Describe what they consider is a clean, healthy, and productive sea.
- Monitor and assess the quality of their seas against Good Environmental Status
- Ensure they take appropriate action by 2020 to maintain or achieve Good Environmental Status.

2.14 This process started in 2012, with a review every six years. Marine Strategy Framework Directive habitat mapping was consulted during the preparation of the Ecological Impact Assessment Report (EclA) for this application.

2.15 Due to the temporary nature of the survey works, there will be no permanent or lasting change or development to the Licence Area, thus eliminating the need for a discussion of the construction, operations, maintenance, and decommissioning phases, as they will not be occurring during the survey works.

3.0 PROPOSED SURVEYS

3.1 The surveys proposed within the Licence Application Area are:

- Landfall Beach Survey
- Marine Geophysical Survey
- Marine Site Investigations and Seabed Sampling
- Underwater Video Survey
- Archaeology Survey

3.2 The survey works will adhere to the MSFD by remaining within the bounds of each of the 11 Descriptors in the Directive.

3.3 Table 1 below summarises the requirements and activities for the cable route survey. Further details are provided in the Licence Application Schedule of Works.

Survey Area	Survey Requirements
Landfall Beach Survey	Non-intrusive topographic (GPS Rover, Total Station or UAV Aerial Drone) and geophysical (Ground Penetrating Radar (GPR), Electrical Resistivity Tomography (ERT), metal detector) survey of the beach along the line of the proposed cable route at each landfall is required to the low water mark.
Landfall Beach Survey	Site Investigations may include 3 Trial Pits on the beach (target depth 2.5m), Bar probes on the beach at 10m spacing (approx. 8 to 10) and Bar probes from the Low Water Line to the 3m water depth contour at 10m spacing. (approx. 8 to 10).
Landfall Beach Survey	Ecological and Archaeological walk-over survey on beach and intertidal to Low Water Mark.
Inshore Marine Survey	Geophysical survey with a small craft or Unmanned Survey Vessel (USV) using Multibeam Echosounder (MBES), sidescan sonar, marine magnetometer and sub-bottom profile equipment.
Offshore Marine Survey	Geophysical survey with primary survey vessel or Unmanned Survey Vessel (USV) using Multibeam Echosounder (MBES), sidescan sonar, marine magnetometer and sub-bottom profile equipment.
Offshore Marine Survey	Site Investigations including: Cone Penetration Tests - up to 26 No. along the route corridor to a target depth of 2m.
Offshore Marine Survey	Site Investigations including: Grab Samples - up to 17 No. along the route corridor, Gravity Cores / Vibrocores - up to 19 No. along the route corridor to a target depth of 3m.
Licence Application Area	Underwater Video Survey as required.

Table 1. Cable Route Survey Requirements.

4.0 SURVEY METHODOLOGY

Landfall Beach Survey

- 4.1 A non-intrusive topographic and geophysical survey of the beach along the line of the proposed cable route at each landfall will be carried out to the low water mark.
- 4.2 The topographical survey would typically be carried out by GPS Rover, Total Station or UAV Aerial Drone using photogrammetry or LiDAR techniques. The terrestrial geophysical survey will comprise remote sensing techniques such as Ground Penetrating Radar or Electrical Resistivity Tomography (ERT) to establish subsurface features and depth to bedrock and magnetometer or handheld marine metal detector to locate buried ferrous objects.
- 4.3 Intertidal and beach surveys (walkover survey) will be carried out on the beach by the project ecologist and the project archaeologist.
- 4.4 Landfall Site Investigations will be undertaken on the beach to establish the depth and nature of the sediment and depth to bedrock. The focus of the site investigations will be on the upper layers of sediment to assess the feasibility of cable burial and installation techniques. The following may be undertaken at each landfall:
- 3 Trial Pits on the beach (target depth 2.5m).
 - Bar probes on the beach at 10m spacing (approx. 6 to 8).
 - Bar probes from the Low Water Line to the 3m water depth contour at 10m spacing. (approx. 6 to 8).

Marine Geophysical Survey

- 4.5 Marine Geophysical Survey will be carried out from the low water mark at each landfall with a small shallow draft survey vessel, primary survey vessel or Unmanned Survey Vessel (USV) using Multibeam Echosounder (MBES), sidescan sonar, marine magnetometer and sub-bottom profile equipment. Sub-bottom profile equipment will be able to discern the nature and density of the upper 3 metres of seabed and will be used on a non-interfering basis with other sounding systems. A minimum of seven to nine survey lines, based upon the water depth, will be run to obtain the required data coverage as indicated in Table 2.

Survey Area	Depth Range	Survey Corridor Width	Min. # of Lines	Min. Overlap	Typical Survey Speed
Inshore	3m to 15m	400 - 500m	9	SSS: 100% MBES Bathy: 20%	4 knots
Offshore	> 15m	500 - 1500m	7	SSS: 100% MBES Bathy: 20%	4 knots

Table 2 Inshore Survey.

Marine Site Investigations and Seabed Sampling

4.6 The purpose of the marine site investigations and seabed sampling is to evaluate the physical properties of the superficial seabed sediments along the cable route. These methodologies will ensure that a full understanding of the subsurface is achieved, focussing on the upper 3 metres of sediment to subsequently develop a cable burial assessment, installation and burial plan.

4.7 The scheduled site investigations and seabed sampling within EEZ limits will comprise of the following techniques:

- Up to 26 CPTs (2m to 3m)
- Up to 19 Gravity Cores / Vibrocores (3m)
- Up to 17 Grab Samples

4.8 Indicative locations for the relevant site investigation activities (Gravity or Vibrocore and CPT's) are shown in Figure 4. Typically, individual sampling positions will be determined following initial interpretation of the geophysical survey data. The positioning of individual site investigation locations will also take into consideration environmental constraints such as the position of sensitive habitats or archaeological features.

Underwater Video Survey

4.9 Underwater video camera system may be used for inspections of the seabed to investigate seabed obstructions, marine archaeology or benthic habitats. An underwater drop-down camera system or similar may be used in a series of video transects which would be georeferenced and later mapped in GIS.

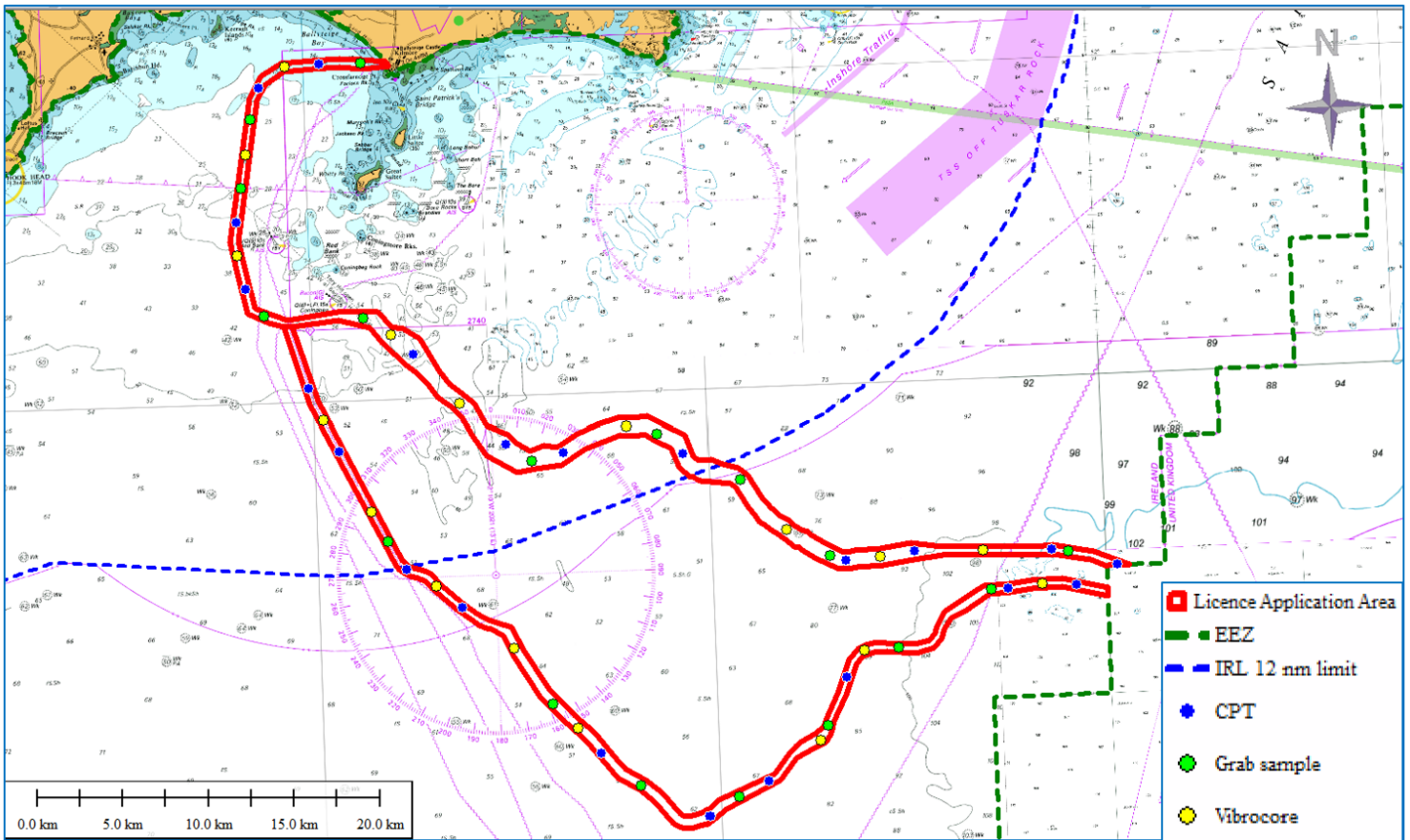


Figure 4. Indicative CPT and GC Locations.

Archaeology Survey

4.10 The proposed survey specification takes into account archaeological data acquisition to enable professional archaeological interpretation and analysis of data. The survey equipment deployed and data acquisition and processing shall comply with the requirements of the National Monuments Service, Underwater Archaeology Unit. Walk over surveys will be conducted within the intertidal area to check for marine archaeology features and evidence of features of cultural heritage significance.

Survey Vessel Requirements

4.11 Offshore survey vessels are typically between 15m and 75m in length with potential for smaller vessels to be used in nearshore / shallow water areas. Offshore survey vessel typically have an endurance of approximately 14 to 28 days. A vessel with a shallow water draft will be utilised for the inshore survey area. An unmanned

surface vehicle (USV) and/or autonomous surface vehicle (ASV) may also be used for the geophysical survey. The survey vessels may use a local port for personnel / equipment mobilisation, bunkering and provisioning.

4.12 All survey vessels will be fit for purpose, will possess all relevant classification certificates and capable of safely undertaking the survey work required. The primary survey vessel will use dynamic positioning for accurate navigation and station keeping. A deck mounted crane or A-frame will be utilised for equipment deployment and recovery. Health, safety, environment and welfare considerations will be a priority and will be actively managed during the course of the survey scopes of work. Appointed contractors will be required to comply with all legislation relevant to the activities within their scope of work.

4.13 The vessels will conform to the following minimum requirements as appropriate:

- Compliance with Safety of Life at Sea (SOLAS), International Maritime Organization (IMO) and national requirements for operating within Irish territorial waters.
- Station-keeping and sea keeping capabilities required to carry out the proposed survey operations safely;
- Calibrated equipment and spares with necessary tools for all specified works;
- Endurance (e.g. fuel, water, stores) to undertake the required survey works;
- Sufficient qualified staff to allow the survey operations to be carried out efficiently, (typically 24 hour continuous for offshore survey, 12 hour for nearshore survey); and
- Appropriate accommodation and crew welfare facilities.

4.14 Survey vessels will follow appropriate Biosecurity protocols and regulations such as the International Maritime Organisation (IMO) Guidelines for the control and management of ships' ballast water, to minimise the transfer of harmful aquatic organisms and pathogens.

Survey Duration

4.15 The intention is to commence the survey as soon as feasible following license award, taking into account survey vessel availability, the overall cable route survey

programme, seasonality and suitable weather windows. The exact mobilisation dates will not be known until the process of procuring a contractor and issue of the licence is complete. It is anticipated that the marine geophysical survey and site investigations activities within the licence application area will take less than 6 weeks in total and will be completed over a 6 month period.

4.16 The estimated time required to complete the cable route survey campaign activities is described in Table 3 below.

Activity	Typical Time Period Required for Activity	Total Number of Site Investigation Locations	Total Time for Survey Activity
Inshore Geophysical Survey	3 to 4 days (weather and sea state dependent)	400 - 500 m cable route corridor	3 to 4 days (weather and sea state dependent)
Offshore Geophysical Survey	8 to 10 days (weather and sea state dependent)	500 - 1500 m cable route corridor	8 to 10 days (weather and sea state dependent)
CPT	30 minutes - 2 hours in any one location	26	52 hours within total 10 days of Site Investigations campaign (weather and sea state dependent, excluding transit between locations)
Gravity Corer	30 minutes - 2 hours in any one location	19	38 hours within total 10 days of Site Investigations campaign (weather and sea state dependent, excluding transit between locations)
Vibro Corer	30 minutes - 2 hours in any one location	19	38 hours within total 10 days of Site Investigations campaign (weather and sea state dependent, excluding transit between locations)
Grab Samples	20 minutes - 45 minutes in any one location	17	13 hours within total 10 days of Site Investigations campaign (weather and sea state dependent, excluding transit between locations)

Table 3. Estimated Time and Duration of Survey Activities.

5.0 SCREENING FOR MANDATORY EIA

General

- 5.1 The EIA Directive 2011/92/EU on the assessment of the effect of certain public and private projects on the environment, as amended by EIA Directive 2014/52/EU, sets out the process by which the likely significant effects of a project on the environment are assessed. The Planning and Development Regulations 2001 (as amended) transpose the requirements of the 2014 EIA Directive into planning consent procedures.
- 5.2 As stated in the regulations an environmental impact assessment (EIA) shall be carried out where either the proposed development would be of a class specified in Part 1 of Schedule 5 of the regulations (as amended) or Part 2 of Schedule 5 of the same regulations.
- Part 1 of Schedule 5 identifies projects of a class that will always have the potential for significant environmental effects and therefore will always require an EIA.
 - Part 2 of Schedule 5 identifies projects that may have an environmental impact and, therefore, thresholds or criteria have been set by member states for the requirements of EIA.
- 5.3 5.3 It is a matter for the MARA as the competent authority, to determine whether a formal EIA Screening determination is required having regard to the provisions of the EIA Directive and Schedule 5 of the Planning Regulations. The information in this report is provided to inform the determination on a requirement for EIA screening, and if required, to inform the screening assessment and determination.
- 5.4 This report does not comprise an Environmental Impact Assessment Screening Report or an Environmental Impact Assessment (EIA) Report, nor does it form part of an Environmental Impact Assessment under the provisions of the EIA Directive 2011/92/EU, as amended by EIA Directive 2014/52/EU.

Screening for Mandatory EIA

5.5 EIA is required in one of three circumstances:

a) Project Type – Is the proposed development “a project” as understood by Article 1(2)(a) of Amended 2011/92/EU Directive? Is the proposed development of a class specified in Part 1 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended) and exceeds any specified relevant quantity area or other limit specified?

Or

b) Mandatory Thresholds – Is the proposed development of a class specified in Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended)? Does the Project exceed the applicable thresholds as listed in the Schedule 5 of the Planning & Development Regulations 2001 (as amended)?

Or

c) Sub-threshold Development – Is the proposed development of a class specified in Part 2 of Schedule 5 of the Planning and Development Regulations, 2001 (as amended), does not exceed the relevant quantity, area or other limit, but is in a sensitive location and / or of a type that could lead to significant effects on the environment.

5.6 Project Type

Article 1(2)(a) of the Amended 2011/92/EU Directive provides the following definition for a project: “the execution of construction works or of other installations or schemes” “other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources”

5.7 The proposed cable route survey and site investigation works comprises temporary and short term investigations including the undertaking of non-intrusive geophysical survey, localised marine site investigations and seabed sampling such as CPT and Vibrocores as detailed by Section 4 above. The proposed cable route survey and site investigation works do not comprise a project for the purposes of EIA.

5.8 A review of the project types in Part 1 of Schedule 5 as described above have been considered in the preparation of this report. The proposed cable route survey and site investigation works is not a project type or class listed in Part 1 of Schedule 5 of the Regulations.

5.9 **Mandatory Thresholds**

A review of the project types in Part 2 of Schedule 5 have been considered in the preparation of this report. The proposed cable route survey and site investigation works is not a project type or class listed in Part 2 of Schedule 5 of the Regulations. For clarity, it is considered that the site investigations (shallow vibrocores, gravity cores and seabed CPT's) proposed as part of the cable route survey do not constitute a project type under Class 2 Extractive Industry (e) as it does not involve 'deep drilling' and also falls within the exception for drilling for investigating the stability of the soil.

5.10 **Sub Threshold Development**

It is the view of the applicant that the proposed cable route survey and site investigations do not comprise a project for the purposes of EIA and do not come within any class of development to which the EIA Directives apply or which requires mandatory EIA as defined in Schedule 5 (Part 1 & Part 2). The survey operations (geophysical and site investigations) are both temporary and short term in nature and not of a type that could lead to significant effects on the environment.

6.0 SCREENING OF SIGNIFICANCE OF EFFECTS ON THE ENVIRONMENT

Questions to be Considered	Yes / No /? Briefly describe	Is this likely to result in a significant impact? Yes/No/? – Why?
Brief Project Description: Marine Survey and Site Investigations for cable route and landfall options for a fibre optic cable system landing in Kilmore Quay, County Wexford		
1. Will construction, operation, decommissioning or demolition works of the Project involve actions that will cause physical changes in the locality (topography, land use, changes in waterbodies, etc.)?	<p style="text-align: center;">Yes.</p> <p>The excavation of possible trial pits on the beach, collection of grab samples, gravity cores & vibrocores of the seabed sediments will cause temporary and localised disturbance of the seabed and limited suspended sediments. There will be no topographic or land use changes.</p>	<p>The seabed is regularly disturbed by natural processes. The cumulative volume of sediment collected in the grab samples and shallow cores is small. Any sediment disturbed or suspended by the sampling will settle almost immediately. Any trial pits on the beach will be backfilled immediately with the excavated material.</p> <p>Overall, the work relates to the marine geophysical survey, site investigations and landfall surveys. The survey is transient, of short duration, with reinstatement of any areas of seabed impacted by sampling of the seabed completed naturally by tidal movements and currents.</p> <p>No likely significant impact.</p>
2. Will construction or the operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or are in short supply?	<p style="text-align: center;">Yes.</p> <p>The marine survey and site investigations operations will be carried out by vessels or equipment that will use fuels such as diesel.</p>	<p>No likely significant impact.</p>
3. Will the Project involve the use, storage, transport, handling or production of substances or materials which could be harmful to human health, to the environment or raise concerns about actual or perceived risks to human health?	<p style="text-align: center;">Yes.</p> <p>The marine survey and site investigations operations will be carried out by vessels or equipment that will use fuels such as diesel and oil based lubricants which have potential to be harmful to the environment in the event of an accidental fuel spill.</p>	<p>Normal vessel operating standards and precautions and mandatory maritime regulations such as the MARPOL Convention on Marine Pollution will ensure that the risk of an accidental release of harmful materials such as fuels will be low.</p> <p>To minimise risk at the landfall, machinery used to excavate any trial pits will only be fueled on the hard stand area of a car park or road, at least 10m from a drain or gully. Spill kits will be available on site for the duration of works.</p> <p>No likely significant impact.</p>
4. Will the Project produce solid wastes during construction or operation or decommissioning?	<p style="text-align: center;">Yes.</p> <p>A very small amount of non-hazardous refuse will be produced on board from the normal day to day operations of the survey vessels such as kitchen waste, consumables etc.</p>	<p>No waste material will be dumped into the sea. All refuse waste shall be stored on board the vessel and safely disposed of onshore in accordance with the MARPOL Convention.</p> <p>No likely significant impact.</p>

Questions to be Considered	Yes / No /? Briefly describe	Is this likely to result in a significant impact? Yes/No/? – Why?
5. Will the Project release pollutants or any hazardous, toxic or noxious substances to air or lead to exceeding Ambient Air Quality standards in Directives 2008/50/EC and 2004/107/EC)?	No.	<p>The surveys will be undertaken by vessels which comply with EU requirements in terms of operational controls and environmental standards. Air quality standards will not be exceeded.</p> <p>No likely significant impact.</p>
6. Will the Project cause noise and vibration or the releasing of light, heat energy or electromagnetic radiation?	<p style="text-align: center;">Yes.</p> <p>The Marine Survey uses acoustic / sonar techniques which emit underwater noise. Survey vessels also generate noise from engines, props etc.</p>	<p>The potential impacts from the survey are described in the Supporting Information for Screening of Appropriate Assessment and Natura Impact Statement accompanying the application. The best practice guidelines “Guidance to manage the risk to marine mammals from man-made sounds in Irish waters, NPWS 2014” is the standard practice to mitigate the risk to marine mammals from marine surveys and will be implemented for the duration of the survey operations including pre-start monitoring, soft start and ramp up procedures. A qualified and experienced marine mammal observer (MMO) will be employed during the surveys to monitor for marine mammals and log all sightings and events.</p> <p>No likely significant impact.</p>
7. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater, coastal waters or the sea?	<p style="text-align: center;">Yes.</p> <p>Vessels or equipment will use fuels such as diesel and oil based lubricants which have potential to be harmful to the environment in the event of an accidental fuel spill. Pollution may arise from machinery present in the intertidal habitat to excavate trial pits.</p>	<p>To minimise risk, all machinery will only be fuelled on the hard stand area of a car park or road, at least 10m from a drain or gully.</p> <p>Normal vessel operating standards and precautions and mandatory maritime regulations such as the MARPOL Convention on Marine Pollution will ensure that the risk of an accidental release of harmful materials such as fuels will be low. Spill kits will be available on site for the duration of works.</p> <p>No likely significant impact.</p>
8. Will there be any risk of accidents during construction or operation of the Project that could affect human health or the environment?	<p style="text-align: center;">Yes.</p> <p>Marine survey vessels operate at low vessel speeds when carrying out survey operations and will be stationary at times when deploying and recovering equipment. This may pose an increased risk of vessel to vessel collision.</p>	<p>A notice to mariners will be published in advance of survey operations to inform the public and other marine users in the locality. The survey vessels will display the appropriate lights, shapes and have active AIS. Compliance with the requirements of the International Regulations for Preventing Collisions at Sea will be followed at all times and it is expected that there will be no impact on shipping movements in the area. Survey vessels will follow appropriate Biosecurity protocols and regulations such as the International Maritime Organisation (IMO) Guidelines for the control and management of ships’ ballast water, to minimise the transfer of harmful aquatic</p>

Questions to be Considered	Yes / No /? Briefly describe	Is this likely to result in a significant impact? Yes/No/? – Why?
		organisms and pathogens. No likely significant impact.
9. Will the Project result in environmentally related social changes, for example, in demography, traditional lifestyles, employment?	No.	The survey operations are of short durations and will not result in any direct social changes such as demography, traditional lifestyles or employment. No likely significant impact.
10. Are there any other factors that should be considered such as consequential development which could lead to environmental impacts or the potential for cumulative impacts with other existing or planned activities in the locality?	Yes. The applicant is aware of proposals for renewable energy developments sites and associated marine survey across the South East Coast. Cumulative impact of these developments is taken into account in this application. In due course, an application for the installation of the cable system will be made.	The NIS and supporting information did not identify any significant environmental cumulative impacts arising from the planned survey operations. To minimise risk of cumulative impacts on fisheries, shipping and general navigation, notice to mariners, local fisheries liaison and other mitigation measures will be considered. No likely significant impact.
11. Is the project located within or close to any areas which are protected under international, EU, or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the Project?	Yes. In terms of European designated sites, the proposed cable survey corridor is located within one designated conservation sites (Ballyteige Burrow SAC,) and passes through one proposed Natural Heritage Area (Ballyteige Burrow pNHA).	The applicant NIS concluded that, with the implementation of specified mitigations measures, the proposed development alone or in combination with other activities, would not cause any adverse effect on the integrity of any European sites. The geophysical survey data will be analysed to identify any known or previously unrecorded wrecks or potential cultural heritage features which will be avoided by any intrusive survey activities such as sampling or CPT's. With the implementation of specified mitigations measures, no likely significant effects on cultural heritage or archaeology is foreseen. The coastline along the licence application area is described as Coastal' with Distinctive Landscapes of 'Sloblands' and 'Islands' in the Wexford County Development Plan 2022 to 2028. The surveys are temporary in nature and will not present a negative impact on the landscape. No likely significant impact.

Questions to be Considered	Yes / No /? Briefly describe	Is this likely to result in a significant impact? Yes/No/? – Why?
12. Are there any other areas on or around the location that are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other waterbodies, the coastal zone, mountains, forests or woodlands, that could be affected by the Project?	No	No likely significant impact.
13. Are there any areas on or around the location that are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, overwintering, migration, which could be affected by the Project?	No	Due to the localised and temporary nature of the marine survey and site investigations and with the implementation of specified mitigations measures in relation noise and general disturbance, the proposed surveys are not likely to cause any significant adverse effects on any sensitive species of fauna or flora. No likely significant impact.
14. Are there any inland, coastal, marine or underground waters (or features of the marine environment) on or around the location that could be affected by the Project?	Yes, The licence application area comprises intertidal and subtidal water bodies.	Due to the localised and temporary nature of the marine survey and site investigations and with the implementation of specified mitigations measures, the proposed marine survey and site investigations are not likely to cause any significant adverse effects on the coastal zone and related water bodies. No likely significant impact
15. Are there any areas or features of high landscape or scenic value on or around the location which could be affected by the Project?	Yes. The coastline along the licence application area is described as Coastal' with Distinctive Landscapes of 'Sloblands' and 'Islands' in the Wexford County Development Plan 2022 to 2028. T	The surveys are temporary in nature and will not present a negative impact on the landscape or scenic qualities of the area. No likely significant impact.
16. Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the Project?	Yes	The landfall survey will take place on the beach. No public facilities will be impacted by the proposed works. The existing access paths will be used by staff and machinery to access the beach. Use of these routes will be short term and will not inhibit the use of these areas by the public. Public access will be maintained at all times. No likely significant impact.

Questions to be Considered	Yes / No /? Briefly describe	Is this likely to result in a significant impact? Yes/No/? – Why?
<p>17. Are there any transport routes on or around the location that are susceptible to congestion or which cause environmental problems, which could be affected by the Project?</p>	<p>No</p>	<p>The landfall survey location is close to Kilmore Quay village. The area is not affected by strategic routes or significant traffic volumes. Traffic generated during the landfall surveys is expected to be 1-2 vehicles per day over an overall period of approximately 3 to 5 days.</p> <p>The majority of the vessel traffic traversing the offshore marine survey corridor is made up of fishing vessels transiting to the harbour at Kilmore Quay, which is approx. 10km east of the survey route. No congestion of vessel movements is expected as a result of the marine survey operations and any disruption will be temporary and of short duration.</p> <p>No likely significant impact.</p>
<p>18. Is the Project in a location in which it is likely to be highly visible to many people?</p>	<p>No</p>	<p>The surveys are temporary in nature and given the existing marine vessel traffic in the general area, the survey will not present a negative visual impact.</p> <p>No likely significant impact.</p>
<p>19. Are there any areas or features of historic or cultural importance on or around the location that could be affected by the Project?</p>	<p>There are 3 shipwrecks in the licence area with 3 shipwrecks in proximity to it.</p>	<p>The geophysical survey data will be analysed to identify any known or previously unrecorded wrecks or potential cultural heritage features which will be avoided by any intrusive survey activities such as sampling or CPT's. A Marine Archaeology Assessment has been prepared which considers the works in combination with historical and cultural sensitivity of the area. With the implementation of specified mitigations measures, no likely significant effects on cultural heritage or archaeology is foreseen</p> <p>No likely significant impact.</p>
<p>20. Is the Project located in a previously undeveloped area where there will be loss of greenfield land?</p>	<p>No</p>	<p>The survey is temporary in nature.</p> <p>No likely significant impact.</p>
<p>21. Are there existing land uses within or around the location e.g. homes, gardens, other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying that could</p>	<p>Yes</p>	<p>The landfall survey will take place on the beach which is used for public recreation. Public access will be maintained at all times.</p> <p>Any impact on vessel movements within the survey corridor such as by local fishers or recreational sailing vessels as a result of the marine survey operations will be temporary and of short duration.</p>

Questions to be Considered	Yes / No /? Briefly describe	Is this likely to result in a significant impact? Yes/No/? – Why?
be affected by the Project?		No likely significant impact.
22. Are there any plans for future land uses within or around the location that could be affected by the Project?	No	There is no indication of any plans for future land uses that could be affected by the project. No likely significant impact.
23. Are there areas within or around the location which are densely populated or built-up, that could be affected by the Project?	Yes	The area around the proposed landfalls is close to built up areas but the survey operations are temporary and of short duration. No likely significant impact.
24. Are there any areas within or around the location which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities, that could be affected by the Project?	No	The landfall survey will take place on the beach which is used for public recreation. Public access will be maintained at all times. No likely significant impact.
25. Are there any areas within or around the location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, that could be affected by the Project?	The survey route intersects with known cod, haddock, hake, horse mackerel, megrim and whiting nursery grounds and cod, haddock, herring and whiting spawning grounds. It also passes through the range of Atlantic salmon and areas of lobster and crab potting and razor clam dredging.	The proposed foreshore survey route options pass at the edge of the Keeragh Island herring (<i>Clupea harengus</i>) spawning ground. It should be noted that the survey would take approximately 1 hr to pass through this area. Herring spawning grounds occur in small, localised coastal areas around the south, west and northwest of Ireland, and are vulnerable to disturbance. The spawning beds are overlapping, as well as adjacent to, the proposed survey routes (Dunmore East: Tramore, Baginbun, Keeragh Island) constitute the largest collection by area of known Irish herring spawning grounds in the Celtic Sea, therefore the grounds in which the survey works will take place are of specific importance to this species. Spawning activity in the Keeragh Island spawning ground peaks in September and October. Herring spawn on specific substrate, which is sensitive to disturbance. The proposed sampling methods which are small but involve contact with the sea bed (core penetration test, gravity core, grab sampling, vibrocorer etc.), due to their minimal footprint and temporary nature, will have negligible impact on the sediment structure of this area and associated spawning activity. There is no significant overlap with fishing activities in the region with exception to the pot fishery of lobster, crab, and razor clam dredging, however these fishing grounds are quite large and due to the short-term survey works, there should be no impact on the interests of this fishery. The proposed survey works would not be expected to result in the direct mortality of fish species due to the slow-moving nature of the survey vessel. No significant

Questions to be Considered	Yes / No /? Briefly describe	Is this likely to result in a significant impact? Yes/No/? – Why?
		impacts on fish nursery areas are predicted. Due to the nature of the proposed survey methods, there should be no disruption to the stocks or activities of local potting and dredging fisheries. Further information on fisheries is included in the EclA Report. No likely significant impact.
26. Are there any areas within or around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, that could be affected by the Project?	No	There is no knowledge of pollution or environmental damage in the wider area. No likely significant impact.
27. Is the Project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the Project to present environmental problems?	Yes, Coastal fog or adverse stormy weather and related sea states can occur in the licence application area and wider coastal / offshore marine zones.	The survey vessels and equipment will be operated in accordance with the weather limitations and will be fit for purpose. No likely significant impact.

7.0 ENVIRONMENTAL APPRAISAL

Archaeology and Cultural Heritage

- 7.1 An Underwater Archaeological Impact Assessment (UAIA) has been prepared by Mizen Archaeology on behalf of the applicant to assess the potential impacts of the survey on archaeology and cultural heritage. The UAIA covers the Licence Area within Irish territorial waters and focuses on the proposed site investigation works.
- 7.2 The proposed survey specification takes into account archaeological data acquisition to enable professional archaeological interpretation and analysis of data. The survey equipment deployed and data acquisition and processing shall comply with the requirements of the National Monuments Service, Underwater Archaeology Unit. Walk over surveys will be conducted within the intertidal area to check for marine archaeology features and evidence of features of cultural heritage significance. An Underwater Archaeological Impact Assessment (UAIA) has been prepared by Mizen Archaeology on behalf of the applicant to assess the potential impacts of the survey on archaeology and cultural heritage. The UAIA covers the Licence Area within Irish territorial waters and the landfall in Kilmore Quay.
- 7.3 The Sites and Monuments Record (SMR)/ Record of Monuments and Places (RMP) and the National Inventory of Architectural Heritage (NIAH)/ Record of Protected Structures (RPS) for Co. Wexford were reviewed for the area immediate to the coastal and offshore areas within the track of the proposed cable route. Two archaeological sites are listed within 1km of the proposed landfall, a burial (WX051-010) and a signal tower (WX051-011)
- 7.4 Five archaeological investigation projects have taken place near the site of proposed landfall at Kilmore Quay. Three of these investigations found archaeological remains. This included burnt stone deposits with flint debitage (19E0047), a fire spot with prehistoric pottery (19E0047 ext.), and burials revealed by Storm Ophelia on the shoreline (17E0574). An underwater impact assessment (09D0038; 09R0117) at Kilmore Quay found no archaeological material during survey, though it was suggested that works in the area had potential for uncovering unrecorded archaeological remains

particularly due to navigational hazards. The fifth investigation in the area has no available report (00E0260).

- 7.5 Figure 5 shows the distribution of the wrecks as recorded in the Wreck Inventory of Ireland Database, with both known and unknown identities. Previously recorded shipwrecks held by the National Monuments Service are numerous in the wider vicinity of the proposed works; there are 364 potential wrecks in the area. Within the survey boundaries of the proposed works, there are three known shipwrecks; Copeland (SS) and two unknown shipwrecks (W10924 and W18564) and three (W10913, W10922, W11479) are found within 100m of the proposed corridor boundaries. Copeland is an iron steamship Wexford, which sank 15 miles SSW of / SW of Tusker Rock in 1917. No detailed information is available for W10924 which was identified by the UK hydrographic office. Identified by the INFOMAR, lying in 54m of water 10km SSE of Great Saltee, W18564 wreck measures 98m in length and 12m in width. Given that the remaining 358 potential wrecks in the area have no known locational coordinates, there is a high possibility that more are closer to the route than currently known. Some of these unknown wrecks may be buried by marine sediments and may not be revealed unless further investigations take place. Further details of these wrecks are included in the Underwater Archaeological Impact Assessment.
- 7.6 No invasive SI works are proposed over the wrecks within the survey corridor (W03358, W10924, W18564), though one test is within 100m from a shipwreck (W18564). Wreck W03358 is located c. 789m northeast of a proposed vibrocore sample (46) and c. 2.2km northwest of a proposed grab sample (64). Wreck W10924 is located c. 443m southeast of a proposed cone penetration test (CPT 20) and c. 1.5km northwest of a proposed vibrocore sample (32). Wreck W18564 is located c. 83m southeast of a proposed cone penetration test (CPT 9) and c. 3.8km northwest of a proposed vibrocore sample (43). The proposed cone penetration test (CPT 9) currently placed within c. 83m northwest of the shipwreck W18564 should be moved to a location at least 100m away from this known shipwreck.

- 7.7 The non-invasive geophysical survey shall have a positive impact on the underwater cultural heritage of Kilmore Quay and the Celtic Sea as it shall provide further information on potential cultural heritage sites.
- 7.8 As three known shipwrecks are recorded within the route corridor the geophysical survey should be licensed by the National Monuments Service. The geophysical survey data sets shall be assessed by an underwater archaeologist with experience in interpreting geophysical surveys in advance of the geotechnical works taking place. The assessment of the geophysical data may lead to further mitigation measures if potential archaeological features are noted in the geophysical data.
- 7.9 A walkover survey comprising a visual and metal detection survey shall be undertaken on the inter-tidal and upper foreshore within the cable route corridor at Crossfarnogue Beach. The survey shall be carried out by underwater archaeologists under licence from the National Monuments Service.
- 7.10 No geotechnical works shall be undertaken in advance of agreement with the National Monuments Service regarding the assessment of the geophysical data and site inspection.
- 7.11 Following the completion of the geotechnical works the data logs relating to the core and grab samples shall be assessed by an underwater archaeologist. At the completion of the geophysical and geotechnical works the AIA report shall be updated to consider potential impacts associated with the main installation works. The report shall assess the results of the geophysical and geotechnical works shall include proposals for mitigation of potential impacts on archaeology, such as avoidance, dive surveys, monitoring, or test excavations.
- 7.12 To address the potential impacts of any temporary trial pits on the foreshore, the intertidal and beach area will be the focus of an archaeological survey comprising visual walkover survey accompanied by a hand-held metal detection survey. This will be carried out on both strands by an underwater archaeologist under licence approved by the National Monuments Service. The intertidal surveys will be undertaken at low Spring

tides. A camera, DGPS and metal detector will be deployed, scanning a series of survey lines in a grid pattern on the beach and intertidal zones. The survey will be carried out to determine the location of all known or previously unknown visible or buried archaeological or cultural heritage features in advance of the landfall site investigations.

- 7.13 If a geophysical survey/remote sensing survey is proposed for the foreshore area, the results of this should be made available to the archaeologist to review in advance of the foreshore/intertidal archaeological survey being undertaken to inform that survey. It is recommended that all groundworks in the foreshore be archaeologically monitored by a suitably qualified underwater archaeologist licenced under the National Monuments Acts.
- 7.14 The results of the marine geophysical survey should be archaeologically assessed and interpreted by a suitably qualified archaeo-geophysicist or should be made available to the contracting archaeologist who is experienced in the interpretation of such raw data. The results should be assessed in regard to the known recorded shipwreck sites and all identified anomalies should be georeferenced and plotted within the proposed survey line. The results should inform the locations of the SI works to ensure all identifiable negative impacts on known or potential underwater cultural heritage are minimalised and mitigated.



Figure 5. Proposed survey route with surrounding shipwrecks with known locations in the WIID. Wrecks within the corridor and within c. 100m are highlighted in yellow.

People and Human Health

7.15 The geographic extents of the survey area is predominantly offshore with limited survey and site investigations planned at the beach landfall. The most significant settlements in the vicinity of the landfall is are Kilmore Quay (300m east, population of approx. 396) as shown in Figure 6. The landfall survey location of Crossfarnogue Beach comprise an amenity area on the edge of the village .



Figure 6. Settlements close to survey area.

- 7.16 At Kilmore Quay the landfall location on Crossfarnogue Beach is adjacent to the L3056 Crossfarnogue Road and west of the public car park. Any requirement for beach access for vehicles or equipment at the landfall will be via the existing established tracks and paths from the car park. No vehicles or equipment will traverse the sand dune systems at Ballyteigue Burrow. Public access to the beach will be maintained at all times during the survey operations but in the interests of public safety, beach users may be temporarily diverted away from certain areas while surveys or site investigations are underway.
- 7.17 All proposed surveys and site investigations will be conducted in accordance with all relevant national and international Health and Safety Legislation and Regulations, such as the Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005) and Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended and in adherence to all major international shipping conventions, adopted by the International Maritime Organization (and the International Labour Organization) concerning maritime safety and pollution prevention. With the implementation of these, there will be no impact nor any significant effects on people and human health during the proposed survey activities

Biodiversity, Flora and Fauna

7.18 Site visits to the landfall areas were carried out on the 27th January 2018, 20th February 2020, 2nd August 2020, 13th December 2020, 31st August 2021 and the 13th May 2023. During fieldwork (13th May 2023), habitats in the vicinity of the survey route were classified according to Fossitt (2000). Observations on species were made on a receding tide, as well as at Low Water. (Plates 1-5)

Habitats and Species – On-Site Fieldwork



Plate 1. Beach from the car park area (L). Area beneath car park (R).

LS2 Sand Shores

7.19 The intertidal survey area consists of Littoral Sediment- Sand shores. In the vicinity of the landfall (Plate 2) the sediment was coarse (Plate 3) and appeared to be well trodden.

No fauna or flora were noted along the intertidal route. However, the entire beach is classed in the conservation objectives document as Mudflats and sandflats not covered by sea water at low tide consisting of Mixed sediment to sand with nematodes and *Tubificoides benedii* community complex. However, it would be expected that *Tubificoides benedii* would be found in less mobile environments primarily. There was a drift line in this location in May 2023. Rock Samphire (*Crithmum maritimum*) was noted near the car park. No seagrass (*Zostera* sp) was noted on site.



Plate 2. Beach in the vicinity of the landfall area.

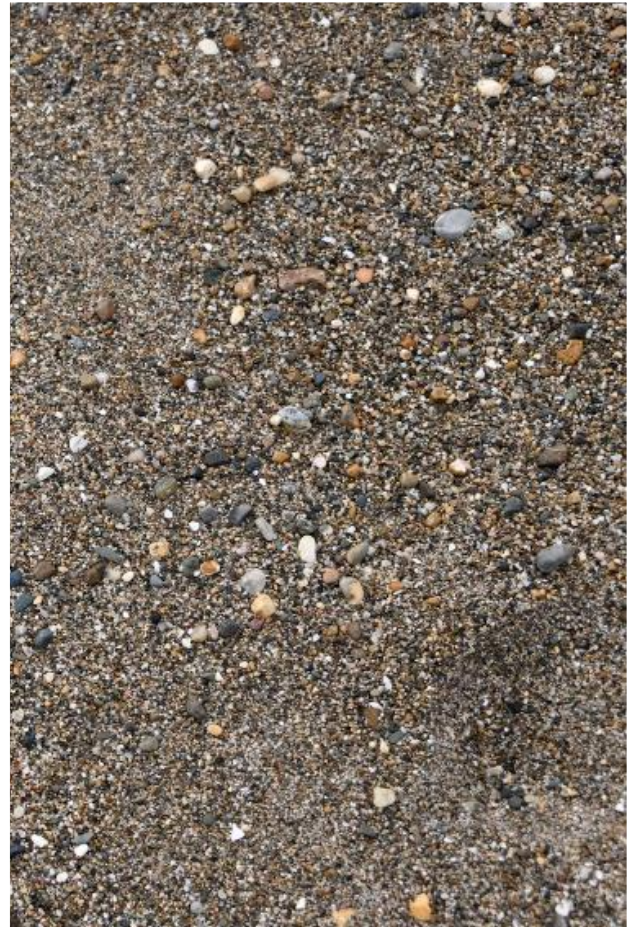


Plate 3. Coarse sediment in the vicinity of the landfall area.

BL-Built Land

7.20 Built land in the vicinity of the proposed works included the roads, footpaths, walls and car parking areas. These areas are of low biodiversity importance and will not be impacted by the proposed works.

CD2 Marram Dunes and ED2 Bare Ground

7.21 The proposed works are in the Ballyteige Burrow SAC and the dune system form an important component of the qualifying interests. 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] and Humid dune slacks [2190] are all features of interest of this SAC. Based on the conservation objectives supporting document Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes') [2120] and Fixed coastal dunes with herbaceous vegetation ('grey dunes') [2130] are located in the landfall area. Species within the vicinity of the proposed project include Marram grass (*Ammophila arenaria*), Chamomile (*Chamaemelum nobile*), Scurvygrass (*Cochlearia anglica*), Bracken (*Pteridium aquilinum*), bramble (*Rubus fruticosus* agg.), Cat's-ear (*Hypochoeris radicata*) and Selfheal (*Prunella vulgaris*). No invasive works are proposed in the vicinity of the dune systems. Works in the dune system relate to machinery and pedestrian access on existing paths and localised works in the vicinity of the beach manhole.



Plate 4. Existing pedestrian access to the beach



Plate 5. Existing beach manhole (not covered by dune habitat)

Species

Birds

- 7.22 The proposed landfall is within a SPA. It is proximate to Kilmore Quay and a public carpark and is an important area for overwintering birds. Please see main NIS document for information on the species of importance in this area. The site was visited outside of overwintering bird season. Bird species noted on site included black-headed gull (*Larus ridibundus*), little egret (*Egretta garzetta*), grey heron (*Ardea cinerea*) and pied wagtail (*Motacilla alba yarrellii*).

Amphibians

- 7.23 The common frog (*Rana temporaria*) was not observed in the surrounding terrestrial areas. NPWS records of rare and threatened species in addition to the NBDC sightings records were investigated and showed no records in proximity of the landfall or beach area. No streams or drainage ditches were observed in the terrestrial element of the cable route and existing terrestrial duct infrastructure will be used. No amphibians of conservation importance are recorded on NPWS data.

Terrestrial Mammals

7.24 No badger setts or evidence of terrestrial mammals of conservation importance were seen in the vicinity of the landfall area. Records of sightings of the badger, pine marten, otter and hedgehog were examined from the NBDC and NPWS rare and threatened species records showed no records in proximity of the landfall area. However, the conservation objectives supporting document highlights a 250m buffer from High Water as otter habitat within the SAC. Otters were not observed on site.

Cetacean Species

7.25 Figure 8 shows all cetacean species and Figure 9 shows cetacean activity within proximity of Saltee Islands as recorded by NBDC sightings data IWDG sightings scheme. Cetacean activity has been seen in the vicinity of the proposed survey works. The harbour porpoise, bottlenose dolphin and common dolphin, in particular, have been recorded frequently within the survey area and surrounding region. These species of cetacean may be present year-round in the region.

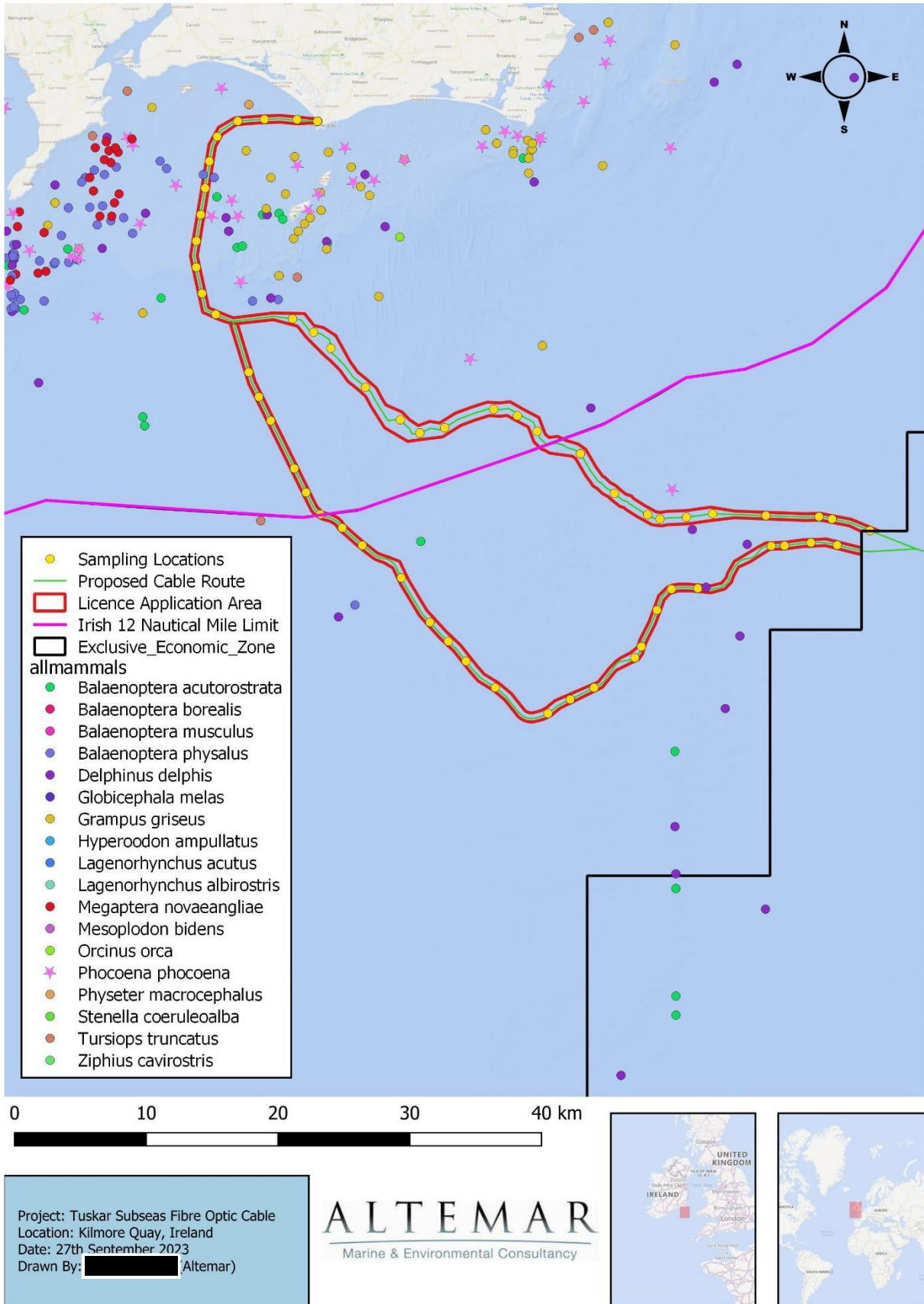


Figure 7. Cetacean Sightings (Source NBDC sightings data)

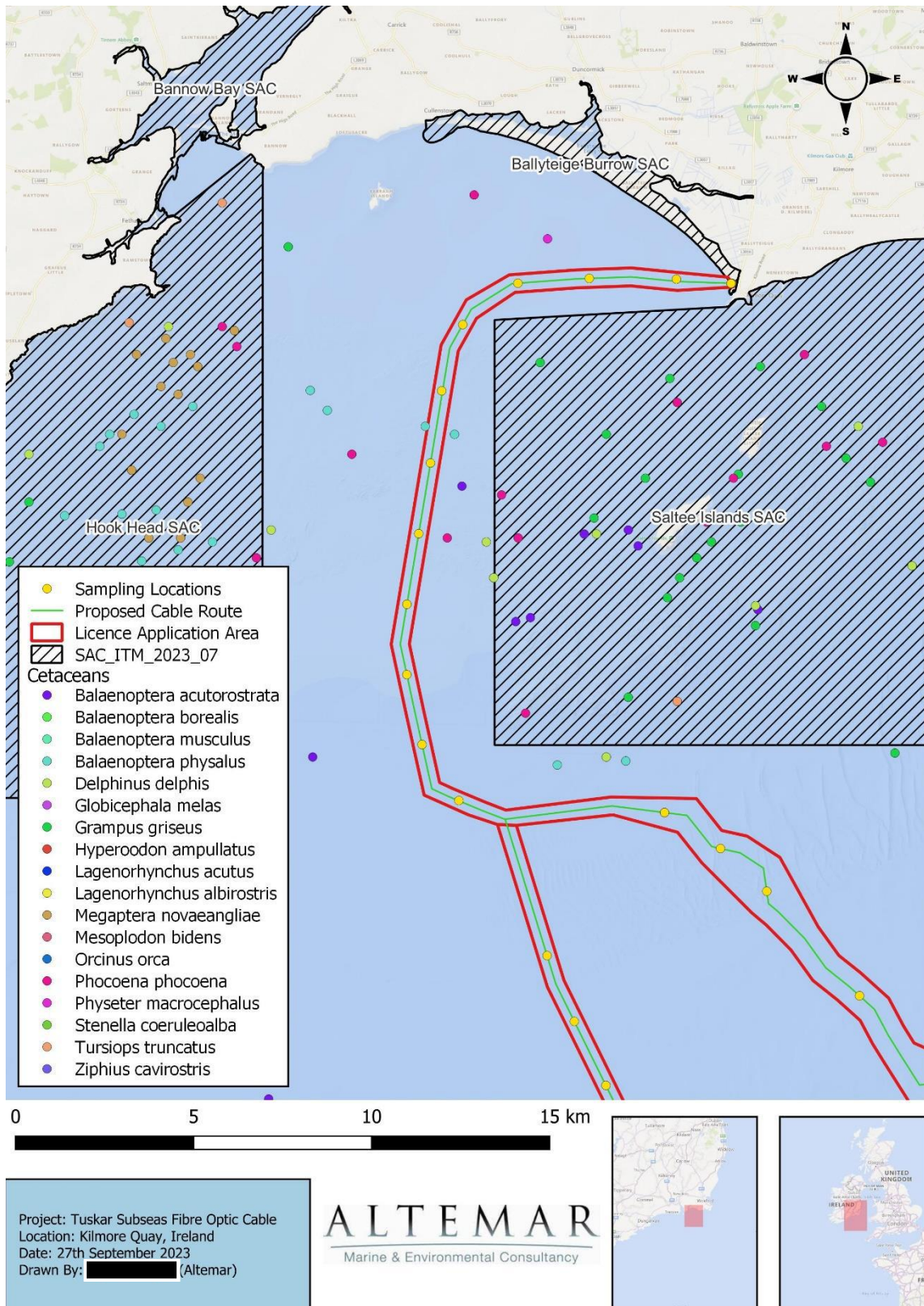


Figure 8. Recorded Cetacean species sightings (Source NBDC sightings data) proximate to Saltee Islands .

Historic Records of Biodiversity

- 7.26 The National Biodiversity Data Centre's online viewer was consulted in order to determine the extent of biodiversity and/or species of interest in the area. Appendix I of the EclA report provides a list of all species recorded in custom polygons drawn to the outline of the survey area and 10km grid areas that possess a specific designation, such as Invasive Species or Protected Species.

Potential Effects

- 7.27 The marine and intertidal survey of a deep sea fibre-optic cable is a complex and challenging procedure. From the beginning of the planning stage to determining the final cable route, careful thought has gone into ensuring the longevity of the cable and uninterrupted service. This, in tandem with marine licencing and environmental legislation results in the routing of the cable in as stable an environment as possible that will have minimal impact on the environment and threat of anthropogenic disturbance. The marine survey is to identify the optimal route for the cable. The survey elements may involve intertidal trial pits/bar probes and acoustic/geophysical survey offshore.
- 7.28 The terrestrial activities will involve the movement of personnel and machinery on existing roads and car park areas. No excavation is proposed in the terrestrial areas. The principal elements of the terrestrial activities are the facilitation of access for machinery. Intertidal works involve excavation of trial pits and bar probed during a single falling tide on each beach. Temporary compaction would occur in localised areas, but these areas are on existing paths that have undergone compaction. The presence of machinery and personnel in the intertidal may temporarily disturb wildlife. Pollution generated from machinery/construction activities could potentially impact the intertidal and terrestrial habitats. Potential impacts on habitats and species and the extent of these impacts that could potentially be encountered during the construction phase are seen in Table 11a (habitats) and 11b (species) of the EclA submitted with the application.
- 7.29 In the subtidal the process will involve a ship moving at a speed of approximately 4kn and generating acoustic noise with the use of acoustic equipment. In addition, geotechnical sampling will also generate localised noise but also localised disturbance of sediment. However, as the vessel will be stationary during geotechnical sampling (cores

grabs etc.) this disturbance of silt will be very localised. During the acoustic survey disturbance of cetaceans may occur due to the presence of the vessel and underwater noise.

Land and Soils

- 7.30 Crossfarnogue Beach is a long and uninterrupted stretch of sand extending for 5km along Ballyteige Bay which is backed along most of its length by Ballyteige Burrow, a belt of grassy coastal sand and shingle dunes. The proposed cable landfall is at the eastern end of Crossfarnogue Beach, a location where a number of subsea telecoms cable have historically landed.
- 7.31 The area around Kilmore Quay is geologically diverse and consists of Precambrian age pale-grey gneiss and schist bedrock, part of the Kilmore Quay Group (Rosslare Complex), cross-cut in places by dark-coloured diorite dykes. The underlying bedrock strata in this area is defined as the Kilmore Quay Group, Killag Formation and the Greenore Point Formation. (Figure 10).
- 7.32 The Kilmore Quay Geological Heritage site is located at Forlorn Point, east of the proposed landfall and outside the survey area. , Bedrock is principally comprised of thin bands of gneiss and dark-grey schist. The rocks were originally sandy and muddy sedimentary rocks, prior to being heavily deformed and metamorphosed during successive episodes of deformation affected these rocks prior to the injection of the dykes. The Rosslare Complex rocks were severely faulted and folded around 480 million years ago. The Rosslare Complex represents the exposed basement of the microcontinent of Avalonia. Avalonia collided with the continent of Laurentia (NW Ireland) between c. 450 and 380 million years ago, with the closure of the Iapetus Ocean during one of the great tectonic episodes to affect Ireland – the Caledonian Orogeny. The survey operations will not impact on the Geological Heritage Site.
- 7.33 The seabed substrate along the proposed survey area consists of mainly coarse and hard substrate interspersed with sand lenses across the intertidal and nearshore zones. Predominantly sands, in places overlaying coarse substrate are indicated within the survey corridor offshore. (Figure 12)

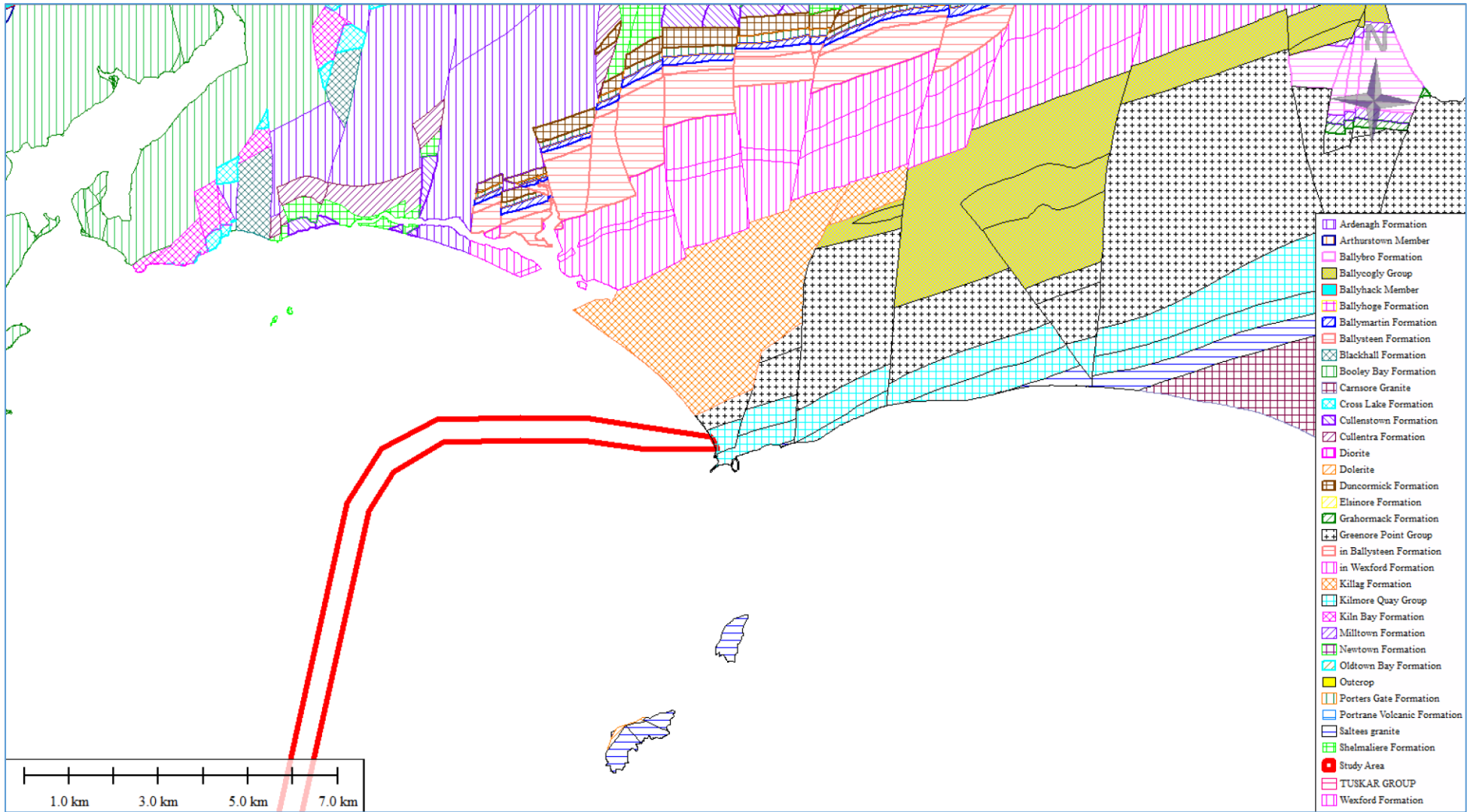


Figure 9. Geology of Landfall.



Figure 10. Diorite dyke (dark) in gneiss at Forlorn Point.

7.34 The seabed is regularly disturbed by natural processes. The cumulative volume of sediment collected in the grab samples and shallow cores is small. Any sediment disturbed or suspended by the sampling will settle almost immediately. Any trial pits on the beach will be backfilled immediately with the excavated material. Overall, the work relates to the marine geophysical survey, site investigations and landfall surveys. The survey is transient, of short duration, with reinstatement of any areas of seabed impacted by sampling completed naturally by tidal movements and currents. There will be no significant impact nor any significant effects on land and soils within the survey area as a result of the proposed survey activities

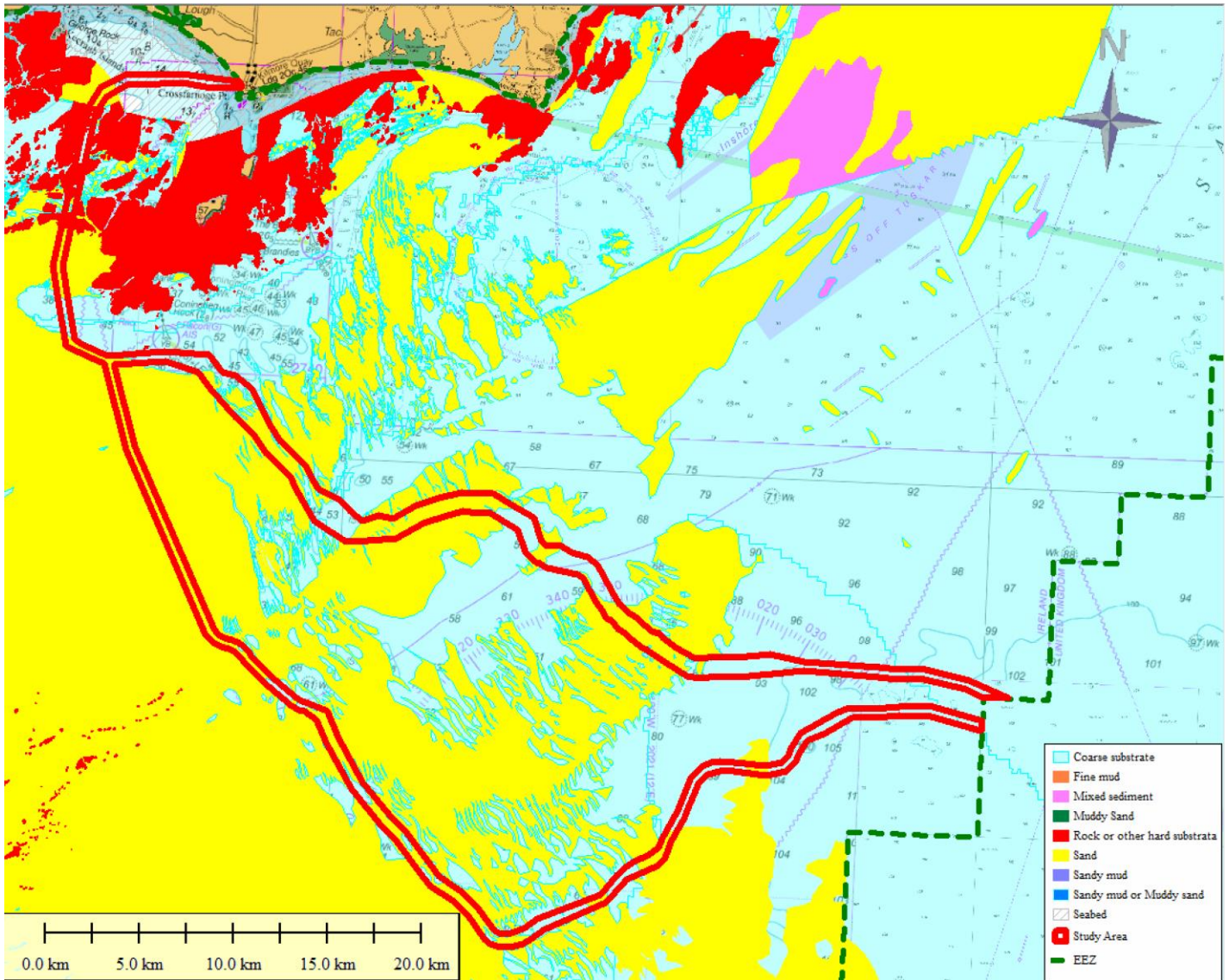


Figure 11. Indicative Seabed Sediments within Survey Area.

Landscape & Seascape

7.35 The survey area consists of landfall survey location at Crossfarnogue Beach which is bounded by the Ballyteigue Burrow Dune system to the East. The majority of the survey area comprises a marine corridor in a general South East - East direction across the Celtic Sea and St Georges Channel.

7.36 In the Wexford County Development Plan (2022 – 2028), the Landscape in proximity to the survey area is characterised as ‘Coastal’ with Distinctive Landscapes of ‘Sloblands’ and ‘Islands’, both with ‘High’ Sensitivity. The sloblands at Wexford, Inish and Ballyteigue form distinctive, very low lying flat landscapes with straight drainage ditches and wetland

areas, largely formed by land reclamation projects in the 1800s. These landscapes provide important habitats for wildfowl. The Inish and Ballyteige slob landscape is backed by the dune landscape of Ballyteigue and is punctuated by sand extraction activity and more recently by wind turbines. The islands around the south coast of Wexford, the Saltees being the largest, are significant landscapes in themselves, as well as providing punctuation and focus to the seascape

- 7.37 The Marine Institute Regional Seascape Character Assessment for Ireland published in 2020 defined the Seascape Character Area in the survey area as Celtic Sea Bays and Beaches and classified the seascape as a series of very broad shallow bays with low-lying hinterlands, divided by the key protruding headlands; Helvik Head, Brownstown Head, Hook Head, Forlorn Head and Carnsore Point. The eastern end of the region where the landfall is located is the most low-lying and there are slob at Ballyteige and very distinctive brackish lagoons at Tacumshin Lake and Lady's Island Lake. This part of the seascape region also contains very long beaches with sand spits extending into the sea and across lagoons and extensive sand dune systems. These sand dune systems are locally termed "Burrows" due to the 12th century Anglo-Norman management of these areas for rabbit production.
- 7.38 The location of the survey corridor (landfall and offshore marine) is visible from some areas of Kilmore Quay but is screened to a large extent by the Ballyteigue Burrow and the Saltee Islands. Given the nature of the survey operations which will be small scale, temporary and conducted over a short timeframe, the visual impact will be limited to the presence of the survey vessels in the Irish Sea.
- 7.39 The surveys are temporary in nature and given the existing marine vessel traffic in the general area, the survey will not present a negative visual impact. There will be no significant impact on the landscape and seascape as a result of the proposed survey operations.

Hydrology and Water Bodies

- 7.40 Conservation sites and Waterbodies proximate to the Cable Route and Survey Route Corridor are demonstrated in the EclA, along with the survey route corridor, and works (to Irish 12 Nautical Mile Limit and Irish EEZ). The inshore coastal waterbodies through

which the license area traverses (Eastern Celtic Sea) is classed as unpolluted under the Water Framework Directive (WFD) (Figure 13).

- 7.41 Refuelling of equipment, machinery or plant will not take place on the foreshore. All survey vessels will comply with the International Convention for the Prevention of Marine Pollution from Ships (MARPOL) as per best practice which will reduce the risk of contamination incidents or accidents to protect the water quality status of St Georges Channel and the Celtic Sea in compliance with the Water Framework Directive.

Air and Climate

- 7.42 The survey area (at the landfall) is designated as Zone D of the EPA Air Quality Zones which comprises Rural Ireland. Air Quality in this region (Region 5, Rural East) is classified as 3-Good in the Air Quality Index. During the survey, there will be no releases of emissions to air, other than routine vessels exhausts. Air Quality standards will not be exceeded.
- 7.43 The operation of the survey vessels will result in the emission of exhaust gases associated with fossil fuel use. The transport of people, equipment and materials and use of machinery to dig trial pits will also result in emissions of exhaust gases. Given the nature of the survey operations which will be conducted over a short timeframe, the quantity of emissions will be small and effects contributing to climate change will not arise. There will be no significant impact on the air and climate as a result of the proposed survey.

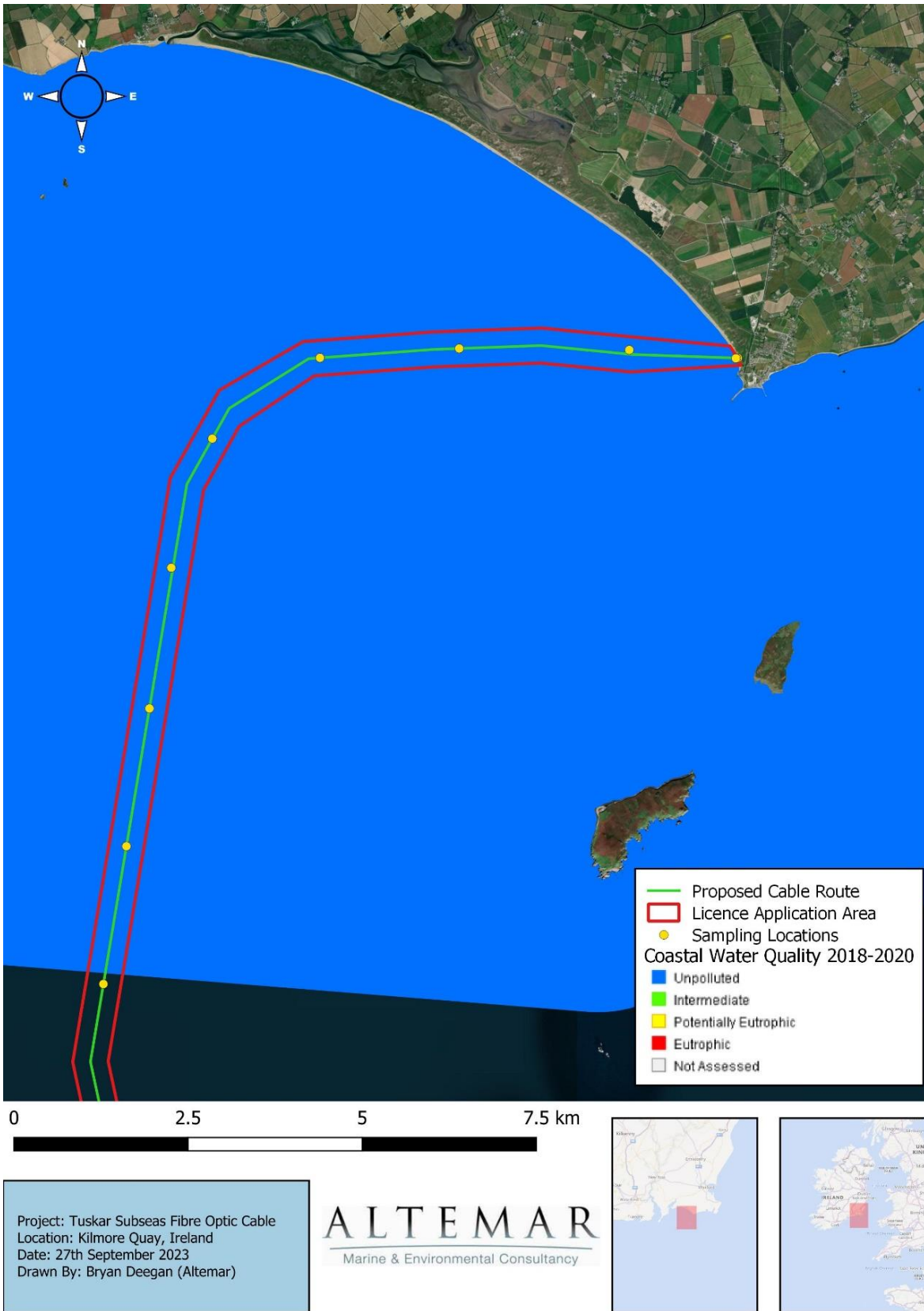


Figure 12. Coastal Waterbodies.

Noise and Vibration

- 7.44 Shipping and general vessel traffic is a major contributor to background noise in oceans and seas. Vessels generally produce low frequency continuous sound. The vessels associated with the survey and sampling operations will contribute to background ocean noise. As seen in Figure 14 below, there is existing vessel traffic (shipping, fishing, recreation) transiting the survey area which generates anthropogenic sound and therefore the operation of the survey vessel in the area will not create significant additional noise or disturbance. Marine mammals are often seen in close proximity to human activity and exhibit some tolerance to anthropogenic noise and other stimuli and range over a wide area when foraging.
- 7.45 The multi-beam and single beam echosounders, side-scan sonar and sub-bottom profiler are noise emitting technologies. The sound levels and frequencies of the sources are at higher frequency than the frequencies which the most sensitive cetacean are capable of hearing. Acoustic disturbance could occur during the site investigations due to the use of a wide range of frequencies during the geophysical surveys and the localised noise during sampling operations. Noise generated from vibro-coring will be of low intensity, very localized, will move around the survey area and may result in short-term displacement.
- 7.46 The risk of disrupting the life cycle of marine mammals is considered to be extremely low. The geophysical and geotechnical surveys could cause temporary displacement from the immediate area and if it occurs, it would only occur during short periods. Any effect is likely to be quite localized and of relatively short duration. The potential for impact was considered within the Applicant's NIS assessment and Risk Assessment for Annex IV Species.
- 7.47 The survey operations shall comply with the NPWS (2014) "Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters". These guidelines would be deemed adequate to mitigate the negative impacts of the proposed works. Cetaceans in the vicinity of the vessel during start up procedures would be given ample time to leave the site with the soft start procedures outlined in the guidelines. In

addition, vessel speeds are extremely slow which would give marine mammals ample opportunity to move from the area. With the implementation of mitigation measures, there is no significant risk for potential impact on cetacean and any possible disturbance from the works would be contained within the very limited local disturbance from the presence of vessels.

Navigation & Shipping

- 7.48 There are no designated shipping lanes, Traffic Separation Zones, Vessel Traffic Services (VTS) or anchorages within the survey application area. The Tuskar Rock Traffic Separation Scheme is located approximately 19km North East of the survey area (Figure 14). The Commissioners of Irish Lights is the responsible authority for the principal navigation buoys and lights on or around the coast of Ireland. There are no Aids to Navigation situated within the survey area.
- 7.49 Rosslare Port is a large commercial port in Wexford, primarily consisting of RORO vessels servicing European routes and is located c.35km to the north east of the survey area. Figure 15 shows AIS data for 2022 representing the vessel traffic in the area, excluding fishing vessels.
- 7.50 Close to the landfalls, the majority of vessel movements are related to fishing vessels transiting to the fisheries harbour at Kilmore Quay, 4km East of the survey area (Figure 15). In summer, pleasure craft and sailing vessels traverse the survey area as they navigate along the coast between Rosslare, Kilmore Quay, and further West to Dunmore East, Dungarvan and harbours along the Cork coast.
- 7.51 Further offshore, commercial shipping traffic crosses the survey area as it routes through St Georges Channel and the Celtic Sea. This shipping activity transits to and from the commercial ports on the east coast of Ireland, (Dublin Port, Drogheda, Warrenpoint, Greenore), the west coast of the United Kingdom (Liverpool, Holyhead, Fleetwood), the Isle of Man and Northern Ireland to access the Atlantic or the English Channel.
- 7.52 During the marine survey operations, survey vessels will display lights, shapes and internationally recognised identification or warning signals. Other vessels will be requested to maintain a safe distance from survey vessels due to their restricted manoeuvrability.

7.53 Mitigation measures will be in place to ensure compliance with the International Regulations for Preventing Collisions at Sea and standards, including the issuing of a formal marine notice. Local liaison with fishers will also be undertaken. As the surveys will be temporary and of limited duration, the effect on shipping and navigation is expected to be minor.

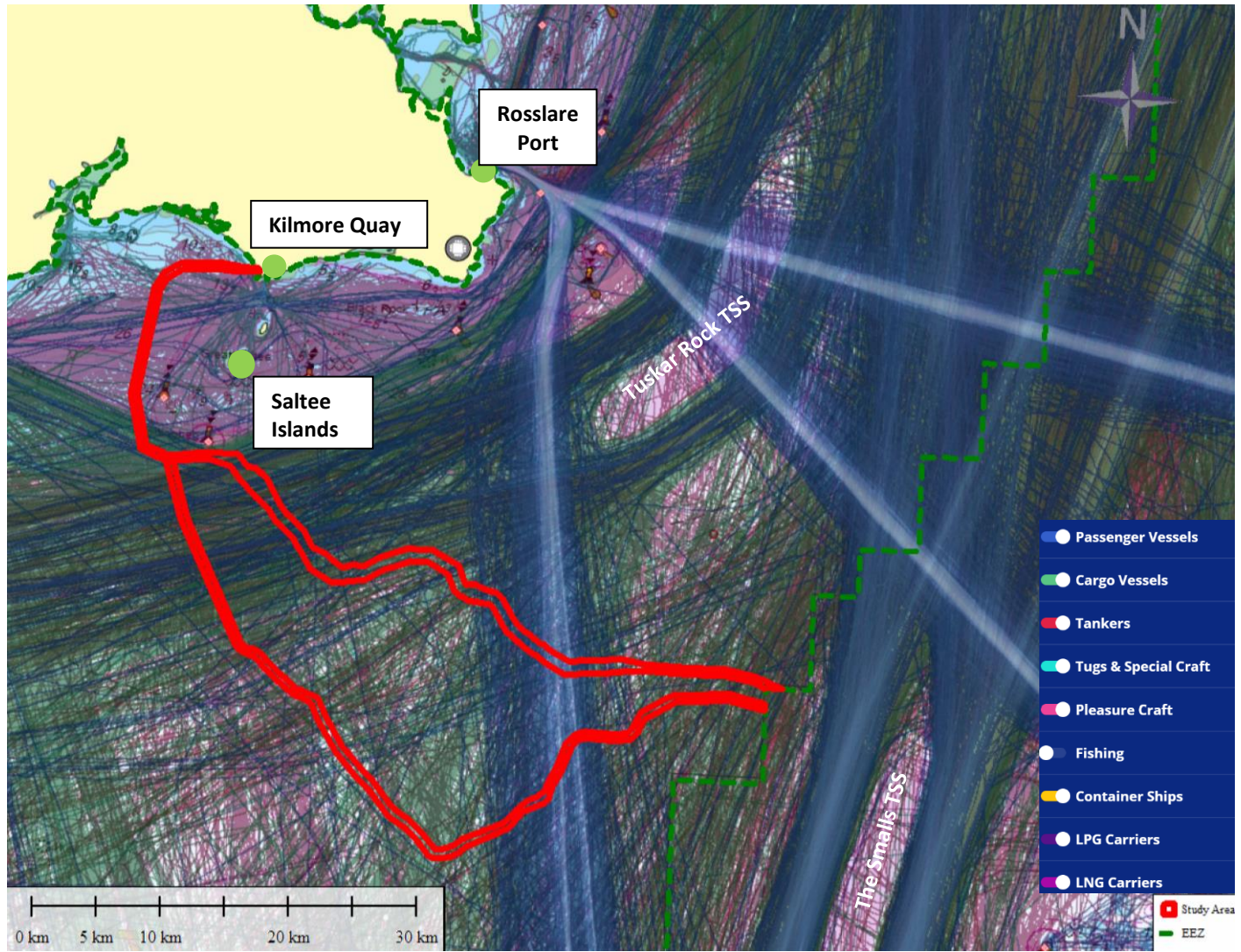


Figure 13. Shipping Traffic (AIS 2022)

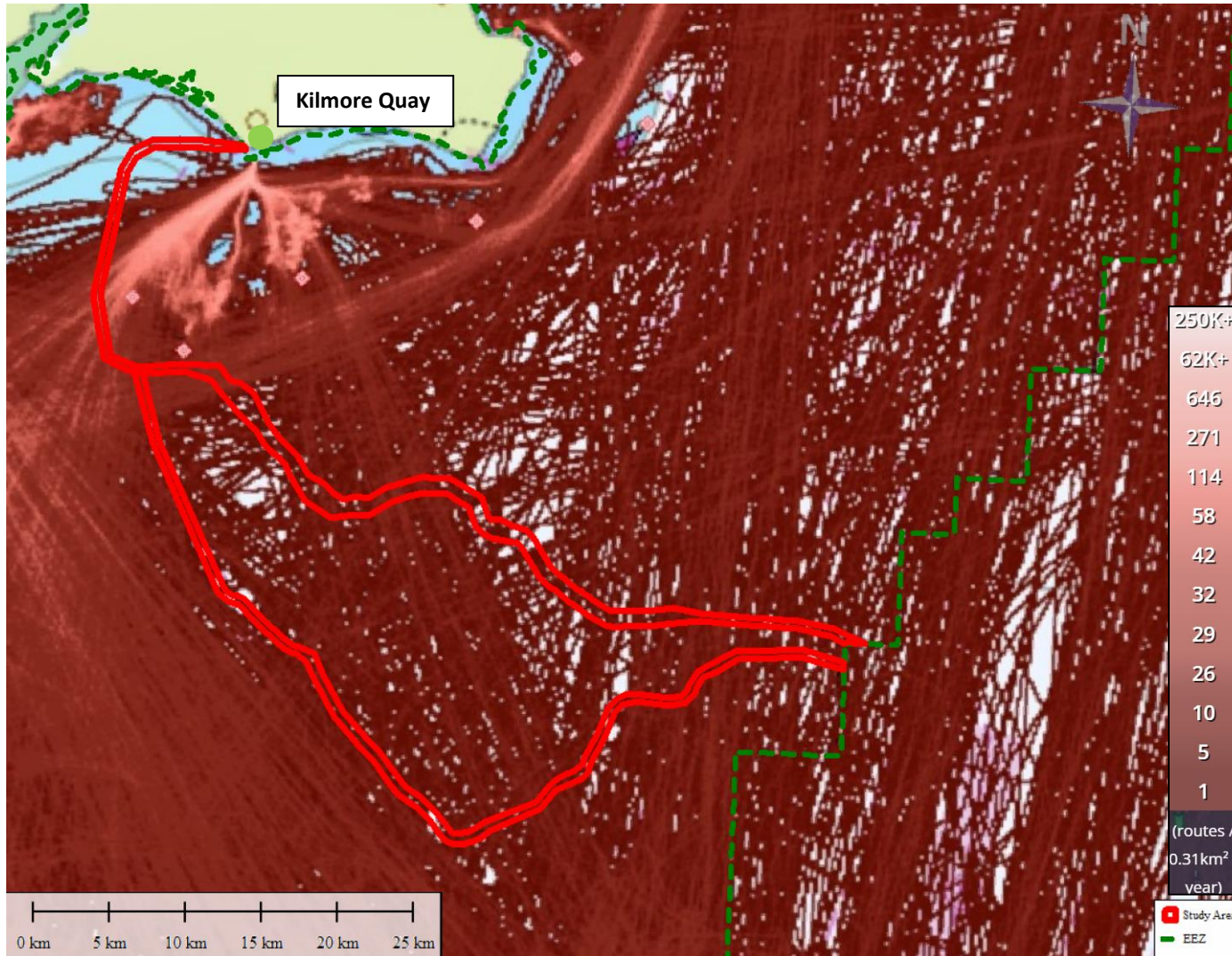


Figure 14. Fishing Vessel Traffic (AIS 2022)

Fisheries

Spawning Grounds

- 7.54 As outlined by Ellis et al. (2011) “There are numerous modes of reproduction in fishes, and broadcast spawning, which involves shedding the eggs and sperm into the water column, is one of the more frequent strategies (Balon, 1984). Such species may have more extensive spawning grounds than those species which deposit eggs on the sea floor or on biogenic structures. The presence of eggs and larvae of broadcast spawners can be indicative of spawning grounds, although it should be noted that later larval stages may have been advected away from the spawning site. Mature fish with running eggs or sperm can also be indicative of spawning grounds, although these data were not used in the current project, as not all areas have surveys at the right time of year in order to assess the spawning state.”

Nursery Grounds

- 7.55 As outlined by Ellis et al. (2011) “The grounds where juveniles are found are termed nursery grounds. It has been suggested that nursery grounds are those sites where juveniles occur at higher densities, have reduced rates of predation and have faster growth rates than in other habitats, which should result in nursery grounds providing a greater relative contribution to adult recruitment in comparison to non-nursery ground habitats (see Beck et al., 2003; Heupel et al., 2007). Whilst field data are available to highlight areas where juveniles occur at higher densities, comparable data to confirm that they avoid predation more successfully, have enhanced growth rates and provide greater relative contributions to recruitment are generally lacking.”

Conclusions on Fisheries impact from ECIA Report

- 7.56 The proposed foreshore survey route passes through known cod (*Gadus morhua*) nursery and spawning grounds. These nursery grounds span for much of the Irish coastline and therefore the grounds in which the survey works will take place are not of specific importance to this species. There is the potential for minor disturbances to cod within their spawning grounds. These spawning grounds span a large proportion of the Irish east coast, and so any disturbances to spawning activity due to the proposed surveys should not be significant. Peak spawning period for cod occurs in February and

March, and so any surveying activities undertaken outside of this timeframe will avoid any possible disturbances.

- 7.57 Both survey route options pass through known haddock (*Melanogrammus aeglefinus*) nursery and spawning grounds. Haddock nursery grounds span large areas off the east and south coasts, as well as smaller areas off the west and northwest coasts. The grounds in which the survey works will take place are therefore not of specific importance to this species. There is the potential for minor disturbances to haddock within their spawning grounds. These spawning grounds span a similar area and location to known nursery grounds, and so any disturbances to spawning activity due to the proposed surveys would not be significant. The spawning period for haddock peaks in March and April, and so to avoid disturbance to spawning haddock, survey activities should be undertaken outside of this period.
- 7.58 The proposed foreshore survey route options pass through hake (*Merluccius merluccius*) nursery grounds. Hake nursery grounds span a large proportion of Irish waters, including the majority of the Celtic Sea and seas off southwest Ireland, and so the grounds in which the survey works will take place are therefore not of specific importance to this species.
- 7.59 The proposed foreshore survey route options pass at the edge of the Keeragh Island herring (*Clupea harengus*) spawning ground. It should be noted that the survey would take approximately 1 hr to pass through this area. Herring spawning grounds occur in small, localised coastal areas around the south, west and northwest of Ireland, and are vulnerable to disturbance. The spawning beds are overlapping, as well as adjacent to, the proposed survey routes (Dunmore East: Tramore, Baginbun, Keeragh Island) constitute the largest collection by area of known Irish herring spawning grounds in the Celtic Sea, therefore the grounds in which the survey works will take place are of specific importance to this species. Spawning activity in the Keeragh Island spawning ground peaks in September and October. Herring spawn on specific substrate, which is sensitive to disturbance. The proposed sampling methods which are small but involve contact with the sea bed (core penetration test, gravity core, grab sampling, vibrocorer etc.), due to their minimal footprint and temporary nature, will have negligible impact on the sediment structure of this area and associated spawning activity. Sampling and surveying

outside of peak spawning activity at the Keeragh spawning ground (September and October) will mitigate any negative impact of the proposed survey route on herring spawning activity at these grounds.

7.60 The proposed foreshore survey route options pass through horse mackerel (*Trachurus trachurus*) nursery grounds. Horse mackerel nursery grounds span a large proportion of Irish waters, including the majority of the Celtic Sea and the entirety of the Irish Sea, and so the grounds in which the survey works will take place are therefore not of specific importance to this species.

7.61 The southern proposed foreshore survey route option passes through megrim (*Lepidorhombus whiffiagonis*) nursery grounds. Megrim nursery grounds span a large proportion of the Celtic Sea, and so the grounds in which the survey works will take place are therefore not of specific importance to this species.

7.62 The proposed foreshore survey route options pass through known whiting (*Merlangius merlangus*) nursery and spawning grounds. These nursery grounds span large areas of the Celtic Sea and therefore the grounds in which the survey works will take place are not of specific importance to this species. There is the potential for minor disturbances to whiting within their spawning grounds. These spawning grounds span a large proportion of the Celtic Sea, and so any disturbances to spawning activities from the proposed surveys would not be significant. The spawning period for whiting ranges from February through June, and so any surveying activities undertaken outside of this timeframe will avoid any potential disturbances.

7.63 The proposed foreshore survey route options pass through the range of wild Atlantic salmon (*Salmo salar*). Atlantic salmon native to rivers draining into the Irish Sea, Celtic Sea and English Channel utilise the Celtic Sea as transitional habitat both as smolts out-migrating from rivers towards their feeding grounds and as adults returning to their natal streams. Atlantic salmon will be present within the proposed survey routes year-round, peaking in June when out-migrating smolts overlap with adults returning to spawn. Due to the extent of the range of Atlantic salmon, it is unlikely that the proposed works will have any significant impact on Atlantic Salmon. Avoiding survey activities during the

month of June will limit any potential impacts the works may have on salmon migration patterns.

7.64 The proposed foreshore survey route options pass through areas of lobster (*Homarus Gammarus*) and crab potting activity. Due to the survey methods being utilised, no impact on the target species for this fishery is foreseen. Consultation with fisheries representatives and engagement with local fleets should be carried out prior to works to avoid disruption to fisheries and prevent a direct overlap of fishing with survey activities.

7.65 The proposed foreshore survey route options pass through areas of dredging activity for razor clam (*Ensis magnus*). Due to the survey methods being utilised, and the fact that no bottom sampling locations have been proposed within this dredging area, no impact on the target species for this fishery is foreseen. Consultation with fisheries representatives and engagement with local fleets should be carried out prior to works to avoid disruption to fisheries and prevent a direct overlap of fishing with survey activities.

Aquaculture

7.66 There are no licensed aquaculture sites within or in proximity to the survey area. There is an area licenced for Blue Mussels and Pacific Oysters approximately 45 km north of the survey area at Wexford Harbour and a further area licensed for Pacific Oysters and Manila Clam, 15 km west of the survey area at Bannow Bay (Figure 16). The marine survey activities will not impact on aquaculture operations.

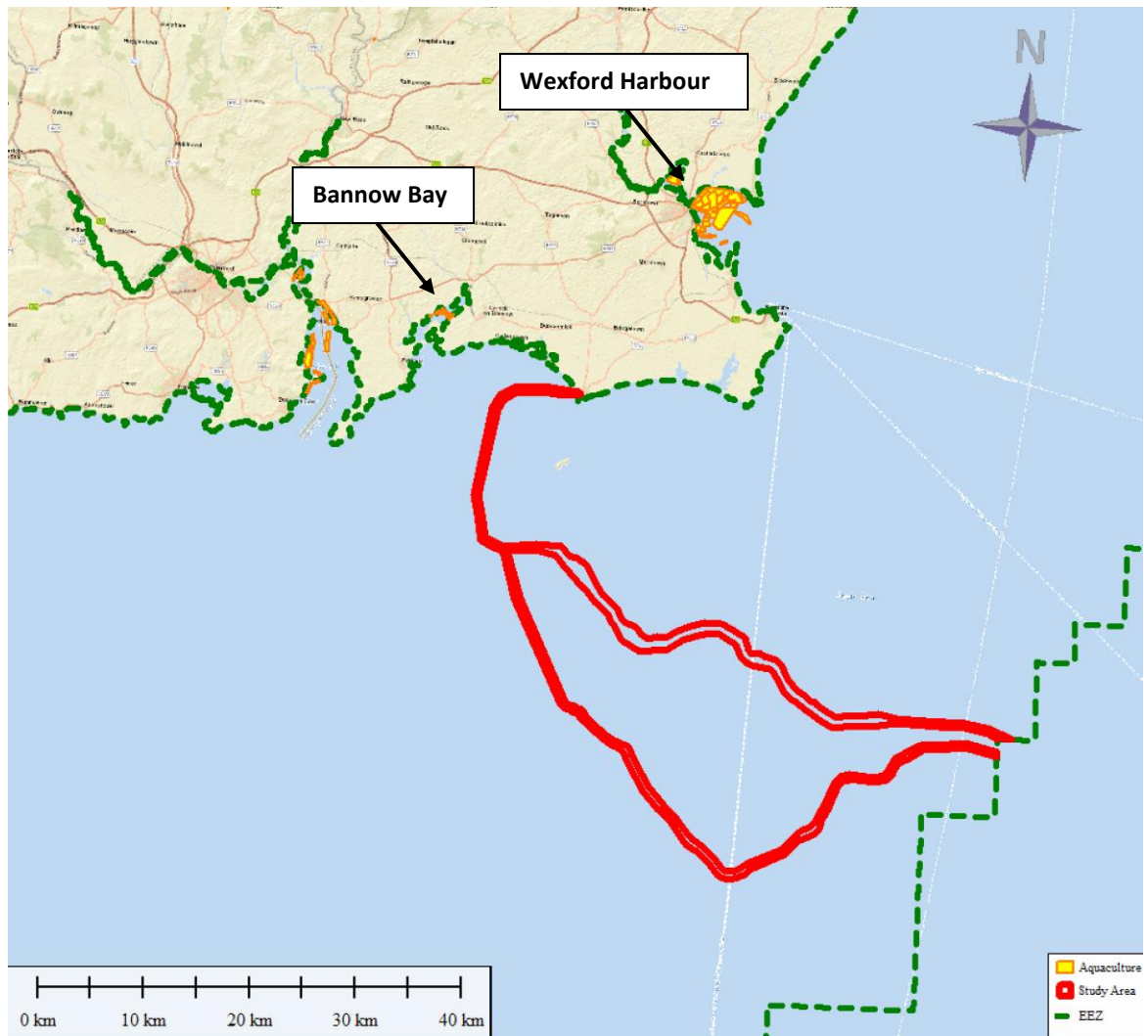


Figure 15. Licensed Aquaculture Areas.

Recreation

- 7.67 The South East coast and the area around Kilmore Quay is a popular destination for recreational marine based activities. Kilmore Quay Boat Club is based in Kilmore Quay Marina. Most of the sailing activity in the area takes place between May and September and is concentrated in the immediate vicinity of the Harbour, outside the survey area.
- 7.68 Other recreational activities in the area include sea angling, diving, kayaking, canoeing, surfing, sea swimming, board sports such as surfing, stand-up paddleboarding, windsurfing & kite surfing and general beach users. Day trips to the Saltee Islands for sightseeing and birdwatching are popular in summer and the ferry route from Kilmore Quay marina to the Saltees does not cross the survey area. Swimming is very popular at

this location as well as walkers strolling on the long sandy beach year round. Public access will be maintained at all times during the landfall survey and site investigations.

- 7.69 The nearest RNLI Station is in Kilmore Quay, which was founded prior to 1847 with a Tamar class lifeboat currently in operation.
- 7.70 During the marine survey operations, survey vessels will display lights, shapes and internationally recognised identification or warning signals. Other vessels and marine users will be requested to maintain a safe distance from survey vessels due to their restricted manoeuvrability.
- 7.71 Mitigation measures will be in place to ensure compliance with the International Regulations for Preventing Collisions at Sea and standards, including the issuing of a formal marine notice. As the surveys will be temporary and of limited duration, the effect on recreation activities is expected to be minor.

Material Assets

- 7.72 There are no existing pipelines, oil and gas production facilities or licence blocks, marine aggregate extraction operations or marine outfalls within the survey area.
- 7.73 The Celtic, SOLAS, ESAT 1, UK-IRELAND CROSSING 1 and Hibernia Atlantic submarine fibre optic cables cross the survey route in Irish waters (Figure 17).
- 7.74 The as-found position of these cables across the survey route will be confirmed by the marine geophysical survey (marine magnetometer). Any sampling or intrusive site investigations will be positioned a minimum of 100m from the as-found position of these existing cables or 250m from the as-laid position if the position is not confirmed during the geophysical survey. Third party asset owners will be informed prior to survey works commencing.

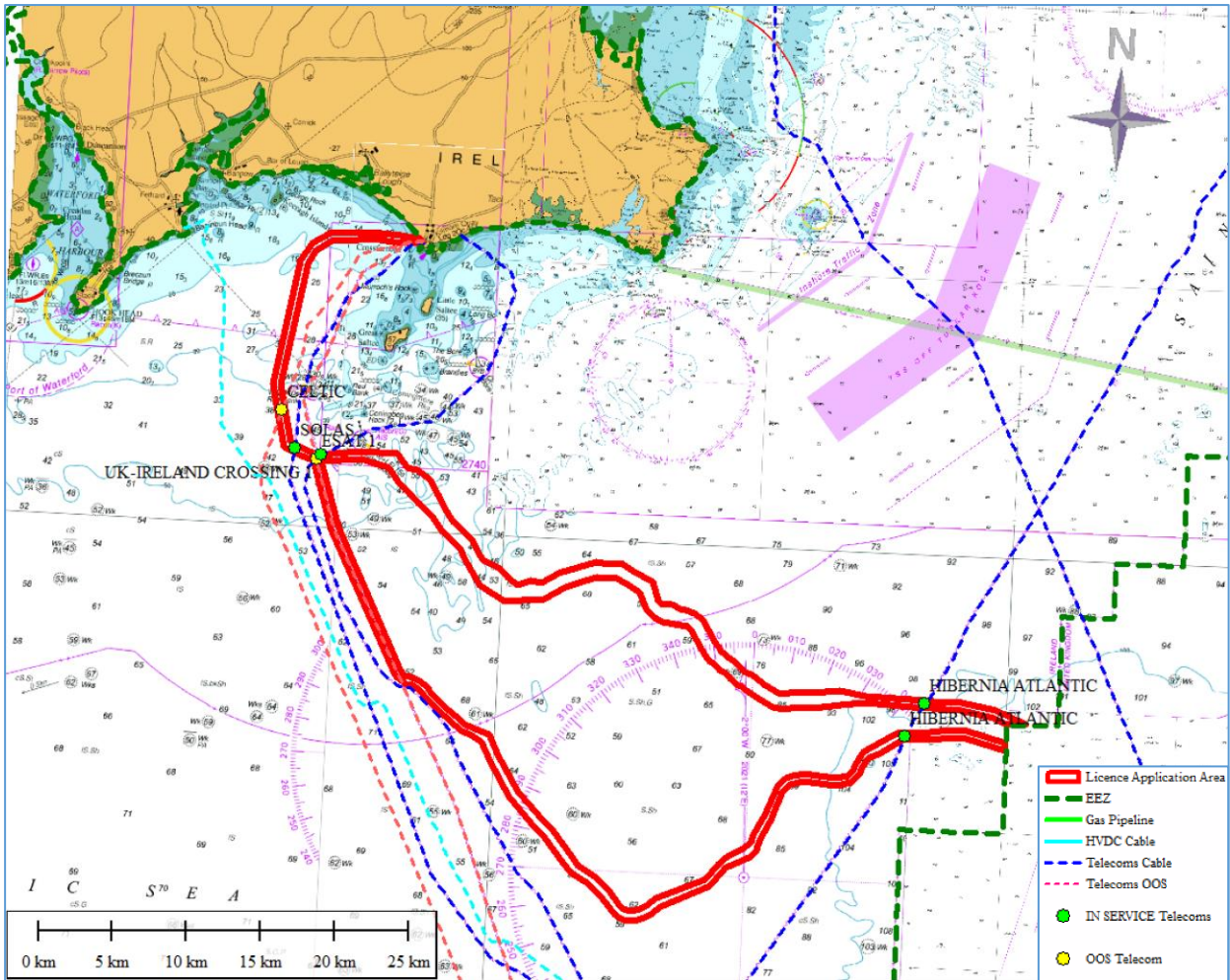


Figure 16. Existing Subsea Assets.

System Name	Type	Location	Status	Owner
Hibernia Atlantic x 2	Telecom	IRL EEZ	In-Service	EXA
SOLAS	Telecom	IRL 12nm	In-Service	Vodafone / Eir
Celtic	Telegraph	IRL 12nm	Out of Service	Eir
ESAT 1	Telecom	IRL 12nm	Out of Service	BT
UK-IRELAND CROSSING 1	Telecom	IRL 12nm	In-Service	Colt

Table 4. Subsea Cable Crossings

Accidents and Disasters

7.75 Given the nature of the survey operations which will be small scale, temporary and conducted over a short timeframe, they will not influence natural disasters, such as earthquakes, subsidence, landslides, erosion or flooding. Coastal fog or adverse stormy weather and related sea states can occur in the survey area and wider coastal / offshore marine zones.

7.76 The potential for a major accident to arise as a result of the marine survey operations is low and will be further minimised through mitigation measures. With particular relevance to safety of shipping and navigation, mitigation will include publication of a formal Marine Notice, display of lights, shapes and other internationally recognised identification or warning signals on survey vessels and compliance with all requirements of the International Regulations for Preventing Collisions at Sea.

Other developments / Cumulative Impacts

7.77 As outlined by (OSPAR, 2012) “Cumulative effects, the combined effect of more than one activity, may reinforce the impacts of a single activity due to temporal and/or spatial overlaps”. The potential for in-combination effects within the ZOI that may occur as a result of the proposed project, during and post works were assessed. The proposed landfall cable survey works are in a populated area and is a popular destination for the local community. It is a location with a regular stream of dog walkers and pedestrians on the shore. The proposed survey works would not be seen to have an impact on water quality of the area including impacting the water quality status. The intertidal section of this project will involve trial pits (in SAC/SPA/pNHA & Ramsar site) and machinery that will enter the upper shore (within the conservation sites).

7.78 Department of Housing, Local Government and Heritage’s ‘National Planning Application Database’, Foreshore Applications and EIA portal were examined, and the potential for in-combination effects due to development in the area.

7.79 A review of the DHLGH Foreshore Licence Applications and Determinations search tool (Department of Housing, Local Government and Heritage (DHLGH), November 2023), was undertaken for foreshore licence applications for projects in ‘County Wexford’ for 2019, 2020, 2021, 2022 and up to 17th July 2023, when the Maritime Area Regulatory Authority (MARA) became operational. The NMPF Activities Map was also consulted for relevant licence applications (MarinePlan.ie, 2023). No further relevant licence applications were identified. This is considered a conservative approach, considering the very temporary and localised nature of the survey and site investigation activities detailed in this application.

- 7.80 Details of these projects, their interaction with the site investigation activities proposed under this Licence Application and the potential for likely in-combination effects is set out below.
- 7.81 The UK element of the project will be covered under UK licencing. Given this, it is considered that cumulative impacts with other existing and proposed developments in proximity to the application area would be unlikely, neutral, not significant and localised. It is concluded that no likely significant effects on Natura 2000 sites will be seen as a result of the proposed survey works alone or combination with other projects.
- 7.82 The potential impacts of the proposed cable route survey are Temporary (i.e. Effects lasting less than a year) and primarily to occur during the brief survey period (with the presence of boats, machinery and personnel in the vicinity of the works). Impacts on infauna would be deemed to be temporary (i.e. Effects lasting less than a year). The projects outlined above are either completed or, are currently going through planning stages and are not expected to be carried out concurrently or are not at a scale or location where cumulative impacts are foresee with the proposed project.
- 7.83 This report pertains to the survey for a marine fibre optic cable in subtidal and intertidal habitats. As can be seen from using the Best Available Techniques and mitigation measures during survey, considerable effort has gone into minimising the potential environmental impact of the project. "Generally all mitigation measures applied for individual cables also contribute to reduction of cumulative impacts" (OSPAR, 2012).
- 7.84 From a review of the above, it is concluded that no projects in the vicinity of the proposed project would be seen to have a significant cumulative impacts on biodiversity or designated conservation sites.

Ref. No.	Address	Proposal
20210079	Ballask (ED Kilmore), Kilmore.	Permission for the construction of 1) an All Weather Outdoor Training facility and associated lighting, 2) an All weather walking track and associated lighting and 3) all associated site works at Kilmore GAA grounds.
20191633	Crossfarnogue, Nemestown, Beak, Ballyteigue and Libgate, Kilmore.	Ten year planning permission to construct a new wastewater treatment plant in Kilmore Quay in two phases. Phase 1 (A) Wastewater treatment plant (WwTP) with a capacity of 850 population equivalent (PE) at Nemestown; (B) 2 No. wastewater pumping stations (WwPS) at Crossfarnogue; (C) 8.5 kms of pipeline Irish Water intends to deliver this phase within 5 years. Phase 2 construction of modular expansion to the WwTP to provide a treatment capacity up to 1,900 PE. A Natura Impact Statement accompanies this planning application.
20170534	Crossfarnogue, Kilmore.	Permission for extension to front of existing factory comprising the erection of single storey loading bay.

Table 5. Planning applications in proximity.

Reference	Title	Year	Location	Activity	Status
FS007445	Blackwater Offshore Wind – Marine Surveys	2022	Wexford	Marine Surveys	Applied
FS007472	Mac Lir Offshore Wind Limited Site Investigations for proposed Offshore Wind Farm	2022	Wicklow, Wexford, Dublin	Site Investigations	Applied
FS007488	Celtic Offshore Renewable Energy Site Investigations for proposed Offshore Wind Farm	2022	Wexford and Waterford	Site Investigations	Applied
FS007436	Voyage Offshore Array Limited Site Investigations for proposed Wind Farm	2022	Waterford and Wexford	Site Investigations	Applied
FS007464	Bore Array Offshore Wind Farm	2022	Wexford	Site Investigations	Applied
FS007509	Rosslare Europort Offshore Wind Hub Site Investigations	2022	Wexford	Site Investigations	Determination
FS007361	Beaufort Subsea Fibre Optic Cable	2022	Off Wexford Coast	Installation of Subsea Fibre Optic Cable	Consultation
FS007232	DP Energy – Latitude 52 Offshore Windfarm Ltd. Site Investigations	2022	Wicklow and Wexford	Site Investigations	Applied
FS007135	ESB Wind Development Ltd. Site Investigations at Loch Garman Offshore Wind	2022	Wexford	Site Investigations	Consultation
FS007318	RWE Renewables Ireland East Celtic Ltd. Site Investigations for proposed East Celtic Offshore Wind Park	2022	Wexford and Waterford	Site Investigations	Applied
FS007384	Celtic Horizon Offshore Wind Farm Limited Site Investigations for proposed Offshore Wind Farm	2022	Wexford and Waterford	Site Investigations	Applied
FS007224	Rosslare Europort Berth 3 Extension	2022	Wexford	Extension of Existing Berth 3	Consultation
FS007219	Rosslare Europort Maintenance Dredging	2022	Wexford	Maintenance Dredging	Determination

Reference	Title	Year	Location	Activity	Status
FS007374	Mainstream Renewable Power Ltd.	2022	Waterford & Wexford	Site Investigations	Consultation
FS007038	Lady's Island Pipeline	2022	Wexford	Installation of 2 no. pipes and a flow control structure	Consultation
FS007351	GDG Ltd. Deployment of 3 ADCP off the coast of Wicklow and Deployment of 1 ADCP off the coast of Wexford	2021	Wexford & Wicklow	Four Acoustic Doppler Current Profiler (ADCP) Trawl Resistant Bottom Mount (TRBM) units to be deployed on the seabed in the Irish Sea for a duration of 35 days to collect data on current speed and direction at each location.	Determination
FS007222	Rosslare Europort Site Investigation	2021	Wexford	Site Investigation	Determination
FS007274	UCD Soil and Vegetation Sampling - Ballyteige	2021	Wexford	Soil and vegetation sampling	Consultation
FS007050	Greenlink Interconnector Wexford	2019	Wexford	Subsea and underground electricity interconnector cable	Determination
FS006982	Energia - Application for Site Investigation Licence for Windfarm off Helvick Head	2019	Waterford	Site investigations for Offshore Wind Farm	Consultation
FS006983	SSE Renewables Celtic Sea	2019	Waterford	Site investigations for Offshore Wind Farm	Consultation
FS007038	Lady's Island Pipeline	2021	Wexford	Installation of 2 no. pipes and a flow control structure	Consultation

Table 6. Foreshore Licences in the vicinity of the Licence Area.

Equipment Type	Purpose	Frequency Range	Duration	Maximum Source Pressure Level (re 1µPa at 1 m)	Reference
Multibeam Echo Sounder (MBES)	Measure detailed bathymetry by transmitting sound pulses (active sonar).	200 kHz to 500 kHz	0.05 - 10 ms	210 - 245 dB.	Danson 2005, Hopkins 2007, DECC 2011, Lurton and DeReutier 2011, Lurton 2016, BEIS 2020, Crocker & Fratantonio 2016
Side Scan Sonar (SSS)	Determine surficial nature of the seabed and detect objects by transmitting sound pulse.	200 kHz to 700 kHz	0.4 - 1.0 ms	200 - 240 dB.	BOEM 2016, BEIS 2020, DAHG 2014, Crocker & Fratantonio 2016
Sub-bottom Profiler (SBP) - Pinger	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	2 kHz to 15 kHz	0.5 - 30 ms	214 dB.	Hartley Anderson 2020
Sub-bottom Profiler (SBP) - Chirper	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	2 kHz to 13 kHz	5 - 40 ms	185 - 215 dB.	Crocker & Fratantonio 2016, Hartley Anderson 2020
Sub-bottom Profiler (SBP) - Boomer	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	500 Hz to 15 kHz	0.5 - 1.0 ms	205 - 215 dB.	Crocker & Fratantonio 2016
Sub-bottom Profiler (SBP) - Parametric	Identify different geological layers encountered in the shallow sediments and sediment thicknesses beneath the seabed.	4 to 15 kHz, 85 to 115 kHz	0.2 - 30 ms	238 - 247 dB. 200 - 206 dB.	Hartley Anderson 2020
Ultra-Short Base Line (USBL)	Subsea positioning.	20 kHz to 50 kHz	5 - 10 ms	194 - 207 dB.	Kongsberg
Magnetometer	Identify ferrous anomalies for metal obstructions, shipwrecks, etc. on and under the seabed.	Passive	N/A	Passive	N/A
Survey Vessels	Carry out the survey and deploy the equipment.	50 Hz to 300 Hz	N/A	160 - 190 dB.	DECC 2011

Table 7. Marine Survey Activities.

Equipment Type	Purpose	Number of locations within Application Area (up to)	Frequency Range	Maximum Source Pressure Level (re 1µPa at 1 m)	Reference
Cone Penetration Test (CPT)	Determine geotechnical engineering properties of seabed sediments.	26	28 Hz	118 - 145 dB.	BOEM 2012, EIRGRID 2014
Gravity Corer	Retrieve a seabed sediment sample by penetrating seabed with a steel core barrel under self-weight	19	N/A	N/A	N/A
Vibrocorer	Retrieve a seabed sediment sample by penetrating seabed with a vibrating steel core barrel	19	30 Hz	187.4 dB.	LGL 2010
Grab Samples	Collect small sediment samples from seabed surface with clamshell mechanism	17	N/A	N/A	N/A

Table 8. Marine Site Investigation Activities.

8.0 MITIGATION MEASURES & MONITORING

- 8.1 Specific controls that will be incorporated into the proposed survey operations to minimise the potential negative impacts on the ecology within the Zone of Influence (Zoi) within / proximate to the subject site are outlined in below.
- 8.2 Minor short-term impacts may result because of the survey phase of the project, but these are believed not to be at the scale to impact on designated conservation sites, species, or the site-specific conservation objectives. However, following the precautionary principle, mitigation measures have been developed to minimise the ecological impacts of the project, in relation to Natura 2000 Annex habitats and species. This is primarily because of noise disturbance and the potential for pollution within the marine environment.

Route Planning within the landfall area.

- 8.3 A strict route selection process was carried out to assess the optimal route and landfall site, considering the lowest environmental impact, highest resource efficiency and wave exposure using sound and comparable data. This included addressing engineering issues as well as environmental concerns and assessing existing infrastructure.

Disturbance

- 8.4 The proposed survey route is within an area of existing vessel traffic in Kilmore Quay and the intertidal element is on a popular beach with a car park and existing human and dog walking activity. As a result, the presence of additional personnel on the shore, intertidal and subtidal would not cause a significant additional disturbance. However, there is potential for disturbance of the sandflats and as a result the following mitigation measures would be carried out:
- An ecologist would be onsite during the surveys within the terrestrial/intertidal and subtidal within Kilmore Quay in order to minimise disturbance and ensure site integrity is maintained.
 - Drift lines and vegetation on the shore in close proximity to the proposed route would contain the highest proportion of potential food source for bird species. If present, these should be avoided by machinery and personnel.
 - Any temporary access arrangements or structures that are put in place to allow machinery access to the shore area will be prepared in consultation with an ecologist and the site should be fully reinstated post works.

Reinstatement

- 8.5 Reinstatement of the terrestrial and intertidal habitat should be carried out to pre-construction conditions. Any concerns in relation to the survey process or resulting reinstatement of the habitat to pre survey conditions will be raised with NPWS by the project ecologist prior to the removal of personnel from the site.

Subtidal

8.6 Mitigation impacts are primarily concerned with the survey and the following mitigation measures would be enforced.

- Mitigation measures will include the presence of a MMO onboard the survey vessel. The purpose of the MMO is to ensure that there is no disturbance of seal /cetacean populations.
- The NPWS Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters' (NPWS, 2014) should be followed throughout the survey.
- The MMO/ecologist will ensure that mitigation measures are carried out. Sufficient resources should be made immediately available on the survey vessel to deal with accidental oil spills including hydraulic hoses bursting etc. and reported to the on-board ecologist.
- The vessels operating within Kilmore Quay will be inspected by the ecologist for pollution sources. Any pollutions sources identified by the ecologist to form a risk to the European Sites will be rectified immediately before works commence/recommence. The ecologist will maintain a watching brief in relation to pollution risks and observations. A spill kit will be on board the vessel.

9.0 CONCLUSION

9.1 This report has been undertaken based on the information in the Schedule of Works, Supporting Information Report to inform AA Screening, Applicant NIS, Ecological Impact Assessment (EclA) and Underwater Archaeological Impact Assessment Report and the implementation of mitigation measure proposed. The nature, scale and location of the proposed survey is such that there are no foreseeable significant effects on the environment arising from the survey operations. It is the conclusion of the AIMU Report and screening exercise that an EIA is not required.

Common Abbreviations

AA	Appropriate Assessment
AIMU	Assessment of Impact of the Maritime Usage
AIS	Automatic Identification System
BIM	Bord Iascaigh Mhara
CO	Conservation Objective
CPT	Cone Penetration Test
DAFM	Department of Agriculture, Food and the Marine
DAHG	Department of Culture, Heritage and the Gaeltacht
DHLGH	Department of Housing, Local Government and Heritage
EC	European Commission
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPA	Environment Protection Agency
EPS	European Protected Species
EU	European Union
FLO	Fisheries Liaison Officer
HABs	Harmful Algal Blooms
ICES	International Council for the Exploration of the Sea
IMO	International Maritime Organization
ISO	International Organization for Standardization
ITM	Irish Transverse Mercator
JNCC	Joint Nature Conservation Committee
LSE	Likely Significant Effects
MAP	Marine Area Planning Bill
MARPOL	The International Convention for the Prevention of Pollution from Ships
MBES	Multibeam echosounder
MI	Marine Institute
MMO	Marine Mammal Observer
NIS	Natura Impact Statement
NM	Nautical Mile
NMPF	National Marine Planning Framework
NPWS	National Parks and Wildlife Service
NSER	Non-Statutory Environmental Report
PTS	Permanent Threshold Shift
SCI	Special Conservation Interest
SISAA	Supporting Information for Screening for Appropriate Assessment
SPL	Sound Pressure Level
SSS	Side Scan Sonar
SWD	Shellfish Waters Directive
TTS	Temporary Threshold Shift
UTM	Universal Transverse Mercator
VC	Vibrocore
VMS	Vessel Electronic Monitoring System
WGS	World Geodetic System

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