MUL Application Supporting Attachment 4.3 AA Screening Report

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1 DETAILS OF MARITIME USAGE

1.1 DESCRIPTION OF MARITIME USAGE

University College Cork (UCC) are establishing a pioneering floating wind testbed, integrated with an energy systems observatory known as FLOWT-EOB within Cork Harbour in Southern Ireland. The main aim of this project is to inform, research and facilitate the extensive future deployment of floating wind technologies in the challenging conditions of the Atlantic Ocean. This infrastructure will advance Ireland's capabilities in offshore renewable energy (ORE).

The proposed Floating Offshore Wind Turbine (FLOWT) location is southeast of Spike Island. An export cable will be installed from the FLOWT passing south or north of Spike Island landing close to the UCC, MAREI building in Ringaskiddy.

This MUL application is for Site Investigation and Survey Activities for the FLOWT-EOB project, as described Part 1 Activity in Schedule 7 "*3. Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000*."

The MUL Application Area is a total of 308.6 ha including:

- The area including and adjacent to the proposed Floating Offshore Wind Turbine (FLOWT) location
- The area including and adjacent to proposed Electric Cable Corridor (ECC) and landfall location.

This application falls under the application prioritisation criteria "*National and European priorities*" described by MARA "*Applications identified as contributing to National and European priorities such as: ORE DMAP and Related Activities (e.g. Offshore Renewable Energy)"* since it supports research and advancement in Ireland's capabilities in offshore renewable energy.

1.2 PURPOSE OF MARITIME USAGE

1.2.1 SITE INVESTIGATION & SURVEY ACTIVITIES

The proposed Site Investigation activities and surveys will be undertaken to inform the design and environmental assessment of the proposed FLOWT-EOB project. The proposed programme of SI activities to be undertaken within the MUL Application Area is summarised in Table 3-1 and indicative locations of SI activities are shown in Figure 1-1.

Table 3-1: SI Descriptions

Activity	Description	Sampling Effort
Geophysical Surveys		
Intertidal Topographic Survey (Lidar or RTK)	Surveys will comprise conventional land-based topographical techniques and/or laser scanning. Topographic surveys carried out on foot by surveyors are used for collecting detailed topographical data of the intertidal area at low tide using land surveying equipment. This can include the setting up of a survey station (e.g., tripod and	Topographic survey will be undertaken across the intertidal area of the Maritime Usage Licence (MUL) Area (ECC) to a suitable

Activity	Description	Sampling Effort
	total station and/or laser scanner) from which accurate measurements can be taken. Similarly, more mobile surveying equipment can be used to accurately map the ground. These units can consist of handheld devices, backpacks, or hand-held pole mounted Global Navigation Satellite Systems (GNSS) devices.	percentage coverage
Sub Bottom Profiler (SBP)	SBP is used to develop an image of the subsurface, identifying different strata encountered in the shallow sediments. Vessel Towed device Innomar systems may be taken as an example of SBP device, operating frequency range 1 – 115 kHz (TOPAS, Innomar systems (Ruppel et al., 2022).	SBP will be undertaken across the Maritime Usage Licence (MUL) Area (both FLOWT & ECC) to a suitable percentage coverage
Multi beam echo sounder (MBES)	MBES is a system for collecting detailed topographical data of the seabed. Vessel towed or AUV mounted device Sonic 2024-V or Kongsberg EM2040 are examples, operating frequency 170-700 kHz (Kongsberg, 2024a; R2Sonic, 2024) with sound pressure levels in the range of 200-228dB re1µPa @1m	MBES will be undertaken across the MUL Area (both FLOWT & ECC) to a suitable percentage coverage
Side Scan Sonar (SSS)	SSS surveys are used to determine sediment characteristics and seabed features. Vessel towed sonar device. The EdgeTech 4125 an example of an SSS device. Potential operating frequency range 600/1600kHz. Sound pressure levels of 228dB re1µPa @1m	SSS will be undertaken MUL Area (FLOWT & ECC) to a suitable percentage coverage
Magnetometer	A magnetometer is used to identify magnetic anomalies and hazard mapping for metal obstructions, shipwrecks and unexploded ordnance on the surface and in the shallow sub-surface. The Geometrics G-882 can be taken as an indicative equipment example, it is a passive device (i.e. it does not emit any sound waves into the marine environment).	Magnetometer will be undertaken across the MUL Area (both FLOWT & ECC) to a suitable percentage coverage
Metocean Surveys		
Acoustic Doppler Current Profiler (ADCP)	Installed on the seabed and anchored with a suitable mooring structure. It is generally a short-term deployment used to gather seasonal data (e.g. winter storm data) however may be deployed for up	Within the MUL Area (FLOWT)

Activity	Description	Sampling Effort
	to 1 year. To understand the coastal processes of the wider area, individual foot print of the device is typically 1 m^2. 1 No. ADCPs	
Wave Buoy	Wave rider buoys may be deployed to measure wave heights and direction to feed into the detailed design of the project within the Licence Application area. They will be moored to the seabed by a suitably sized mooring structure, individual foot print of the mooring is typically 1 m^2. 1 No. Wave buoys	Within the MUL Area (FLOWT)
Geotechnical Surveys		
Intertidal Trial Pit	A trial pit will be excavated, logged, backfilled and reinstated during a single tidal cycle. Excavated material will be temporarily stored and replaced following the sequence in which it was removed. Subject to access and anticipated ground conditions trial pits will be excavated manually or using a mechanical backhoe. Existing land access routes to investigation locations will be used to the extent practicable. The trial pit will be excavated to a depth of 2 m and will be 2 m^2 in plan.	One trial pit will be excavated in the intertidal area of the Maritime Usage Licence (MUL) Area (ECC)
Boreholes	Aim to provide ground conditions and perform downhole sampling and cone penetration test (CPT). Depth max 20m below seafloor (BSF) Equipment recommended Geobor-S to recover sediment & rock cores. Outer core diameter up to 150mm. The typical frequencies emitted from rotary drilling are between 0.001-0.120kHz and a recorded sound pressure of approximately 145dB re1µPa @1m. Estimated BH installation time up to 10 days.	BHs will be undertaken across the MUL Area (FLOWT) and at the landfall location BH are required at each anchor location (4 no.) and 2 at landfall location
CPT	CPTs are a method for testing in situ soil parameters. CPTs can be performed as either Seabed CPTs or downhole in boreholes. The diameter of the downhole CPT will be equal to the diameter of the borehole up to 150mm	CPTs will be undertaken across the MUL Area (FLOWT & ECC).

Activity	Description	Sampling Effort
	(Geobore S as described above). The depth of a CPT test will be maximum 20m, also equal to the borehole maximum depth. The standalone CPT surface area sampled will be 10 cm^2. CPTs are anticipated to have an operating frequency of 50-16,000 Hz and an SPL of 189 dB (Reiser, et al., 2010).	4 no. CPT within the FLOWT. CPTs will be undertaken at 500 m intervals along the length of the ECC.
Vibro Corer	Aim to provide shallow geotechnical testing for cable installation. Vibrocoring, a technique for collecting core samples of the seabed sub-strata sediments, consists of a vibrating mechanism attached to a metallic core which is driven into the sediment by the force of gravity, enhanced by vibration energy. Typical estimated time required for activity – 30 min to 2 hours per location. Typically, an area of 1 m^2 of seabed is sampled. Vibro corer deployed from vessel Depth max 6m BSF Frequency range 50 Hz and a recorded sound pressure of approximately 188dB re1µPa @1m. (Vibrocore from Chorney *et al*. (2011))	VC will be undertaken across the MUL Area (ECC). VC will be undertaken at 500 m intervals along the length of the ECC.
Rock Coring	Shallow bedrock or/and outcropping bedrock may be encountered along the ECC route and at the MUL Area FOWT Typically, an area of 1 m^2 of seabed is sampled. The rock coring may be performed for the top 3 m below seafloor to determine the rock type and characteristics.	Rock coring may be undertaken across the MUL Area (ECC). Where rock is present along the ECC, rock coring will be performed at selected intervals.
Environmental Surveys		
Drop frame camera system	Seabed imagery will be collected by use of a drop frame camera system from up to 20 locations to characterise epibenthic communities and assess suitability of locations for grab sampling.	Dropdown camera will be undertaken MUL area (FLOWT & ECC)

Activity	Description	Sampling Effort
	Typical estimated time required for activity – 20 mins per location.	
Grab Samples	A grab sampler (Day, Van Veen or mini-Hamon grab) will be used to collect sediment samples from up to 20 locations, providing a snapshot of the sediment characteristics and infaunal communities at those locations. Up to 4 no. replicates will be collected from each location. Typical estimated time required for activity – 15 mins per replicate. Typically, an area of 0.1 m^2 of seabed is sampled per deployment.	Grab samples will be undertaken MUL area (FLOWT & ECC)
CPODs / sound traps	Marine mammal acoustic monitoring using up to CPODs deployed on the seabed at up to 2 locations may be undertaken. A SoundTrap hydrophone may be deployed alongside the CPODs. Typically, an area of 1 m^2 of seabed is required per deployment.	Within MUL area (FLOWT & ECC)
Vessels		
Survey Vessels	The geophysical SI is proposed to be performed using an SUV, UAV and small boat such as a catamaran, up to 15 m in length. The geotechnical SI is proposed to be performed from Jack-ups and shallow berth vessels. A small capacity CPT unit and VC unit can be mobilised on a shallow berth vessel which can be used for sampling and testing along the ECC and at the FOWT Survey vessels will adhere to standard navigation protocols and comply with embedded speed restrictions applicable	MUL area (FLOWT & ECC)
Jack-up rigs	The geotechnical SI is proposed to be performed from Jack-ups and shallow berth vessels. The jack-up vessels can be used for soil sampling and rock coring at the FOWT location and spot coring along the ECC route. BHs deployed from a jack-up barge. Estimated seabed contact 1m^2 for each leg (4 no.).	MUL area (FLOWT & ECC)



Figure 1-1 Indicative Site Investigation sampling locations

2 REPORT FOR APPROPRIATE ASSESSMENT SCREENING

2.1 INTRODUCTION

This attachment has been prepared to inform Stage 1 Screening for Appropriate Assessment (AA) in accordance with Article 6(3) of the Habitats Directive (92/43/EEC), as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

The purpose of this Supporting Information for Screening for Appropriate Assessment (SISAA) report is to determine whether the proposed SI activities associated with the project, either alone or in combination with other plans or projects, are likely to give rise to likely significant effects (LSEs) on any European site, in view of their conservation objectives. This SISAA is intended to support the MUL application by providing the competent authority with sufficient information to determine whether the proposed SI activities are likely to have significant effects on European sites, including Special Areas of Conservation (SACs) and their Annex I habitats and Annex II species Qualifying Interests (QIs), and Special Protection Areas (SPAs) (including candidate SPAs) and their Special Conservation Interests (SCIs).

A detailed description of the proposed SI activities, including the full scope, location, timing and nature of the SI activities, is provided in Attachment 3.1 above.

The process of AA Screening is a determination as to whether:

a) The proposed activities are directly connected to or necessary to the management of a site as a European Site; and

b) In view of best scientific knowledge and in view of the conservation objectives of any European Site, and the proposed activities, individually or in combination with other plans or projects are likely to have a significant effect on European Sites.

This screening assessment is based on the best available scientific information and applies a source–pathway–receptor (S-P-R) approach to identify any plausible mechanisms by which the proposed SI activities could affect European sites. Where LSEs can be excluded on the basis of objective information, no further assessment is required. Where LSEs cannot be excluded, the relevant European site(s) requires further assessment in a Natura Impact Statement (NIS).

2.2 STATEMENT OF COMPETENCY

This report has been prepared by Maggie Starr (BSc. (Hons) Marine Sciences). Maggie is a Marine Ecologist and Ornithologist with experience in terrestrial, aquatic and marine/coastal ecology and is a trained Marine Mammal Observer (MMO). Her expertise includes specialised mammal, bird (land based and aerial) and habitat surveys, as well as freshwater surveys such as assessments for white-clawed crayfish, pearl mussels, and Biotic Indices (Q-values) Surveys. Her current work includes ecological and environmental desktop studies for terrestrial, aquatic and marine environments, specialised mammal surveys, ornithological surveys, map preparation and reporting (AA/NIS, EcIA, EIAR).

This report has been checked by Charlotte Manwaring (BSc. Hons Geological Science, MSc. Geochemistry). Charlotte is a Senior Environmental Scientist at GDG with 25 years' experience and an IEMA Practitioner. She has worked across the environmental, compliance, planning and monitoring industries for both the public and private sector. She has experience in environmental

impact assessment of port expansion, onshore windfarm and energy from waste projects and of marine licencing.

This report has been reviewed by Joey O'Connor (BSc. (Hons) Marine Science, MSc. Engineering in the Coastal Environment). Joey is an Environmental Impact Assessment practitioner and Marine Scientist with coastal engineering expertise and extensive experience of offshore survey and Marine Protected Area monitoring, who has undertaken multiple environmental assessments for GDG and as a statutory adviser to the UK government and its devolved administrations with the Joint Nature Conservation Committee (JNCC).

2.3 METHODOLOGY

This section outlines the approach taken to AA screening, including a summary of relevant guidance considered, the methodology used to determine LSEs, consideration of Site-Specific Conservation Objectives (SSCOs), assessment of ecological connectivity and evaluation of potential in-combination effects with other plans or projects.

As the proposed works are not directly connected to or necessary for the management of a Natura 2000 site, this document focuses on assessing whether the works, alone or in combination with other plans and projects, are likely to have significant effects on any Natura 2000 site, in view of their Conservation Objectives.

This report has been informed by a review of publicly available datasets and available scientific literature that has allowed the characterisation of the receiving environment and supported the identification and assessment of potential impacts and their significance. The sources of the information used are cited throughout the report and listed in the References section.

2.3.1 GUIDANCE ON APPROPIATE ASSESSMENT

The preparation of this report has been informed in accordance with the following guidance:

- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG, 2010)
- European Commission Notice C (2021) 6913 'Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC', Office for Official Publications of the European Communities, Luxembourg (EC,2021).
- Communication from the Commission on the Precautionary Principle. Office for Official Publications of the European Communities, Luxembourg (EC, 2000)
- Managing Natura 2000 Sites - The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission 2019).
- Office of the Planning Regulator – Practice Note 01 – PN01 (March 2021)

2.4 SCOPE OF ASSESSMENT

2.4.1 LIKELY SIGNIFICANT EFFECTS

The likely significance effect test establishes whether any likelihood of significant effects on European sites can be ruled out.

'Likely' means a risk or possibility of effects occurring that cannot be ruled out based on objective information.

Significant effects are those that would undermine the conservation objectives of the European sites, either alone or in-combination with other plans and projects. The significance of ecological impacts depends on:

- the ecological characteristics of the species or habitat, including their structure, function, conservation status and sensitivity to change, and/or
- the character, magnitude, duration, consequences and probability of the impacts occurring.

The European Site information used in this assessment is based on the most up-to-date data available from the National Parks and Wildlife Service (NPWS, www.npws.ie), the Joint Nature Conservation Committee (JNCC, https://jncc.gov.uk/) and the European Commission (https://ec.europa.eu/environment/nature/natura2000/index_en.htm).

Note, candidate Natura 2000 Sites including cSPAs have also been considered, as have existing SACs with recently added QIs at the time of writing.

The European Commission's 2018 guidance (EC, 2019) clarifies that the trigger for Appropriate Assessment under Article 6(3) of the Habitats Directive is not the certainty but rather the possibility of significant effects from a plan or project, irrespective of whether it is located within or outside a designated site. An Appropriate Assessment is required where such effects cannot be excluded based on objective scientific evidence. The assessment of significance must take into account the specific ecological features and environmental conditions of the site in question, with particular reference to its Conservation Objectives.

The threshold for identifying a Likely Significant Effect (LSE) is above a *de minimis* level. A *de minimis* effect refers to a level of impact that is so minor that it need not be considered in relation to the ecological requirements of Annex I habitats or Annex II species populations essential to maintaining favourable conservation status. If low-level effects are deemed negligible and this conclusion is reached without reasonable scientific doubt, then such effects are not considered to constitute an LSE.

According to the European Commission (2021), a Stage 1 screening for Appropriate Assessment involves four key steps:

- Determining whether the plan or project is directly related to, or necessary for, the management of the Natura 2000 site;
- Identifying the components of the plan or project and their potential effects;
- Identifying any Natura 2000 sites that may be impacted, including cumulative effects with other plans or projects;
- Assessing whether, in light of the site's conservation objectives, likely significant effects can be ruled out.

Case law from the Court of Justice of the European Union (CJEU) has affirmed that an LSE is deemed to occur when:

- There is a real possibility or risk of the plan or project affecting a European site;
- The project could potentially undermine the site's Conservation Objectives;
- A significant effect cannot be excluded on the basis of objective scientific information.

The European Commission (2021) further defines a Likely Significant Effect as any effect that can be reasonably foreseen as resulting from a plan or project and that could negatively and significantly

impact the Conservation Objectives of habitats or species for which the Natura 2000 site is designated. These effects may arise from activities either within the site or from external sources, including cumulative impacts with other plans or projects.

The requirement for an effect to be “significant” is intended to exclude trivial or negligible effects. Therefore, plans or projects with no appreciable or discernible impact on a Natura 2000 site fall outside the scope of Article 6(3).

2.4.2 CONSERVATION OBJECTIVES

Under the Habitats Directive, the Conservation Objectives of a European site aim to ensure that the Annex I habitats and/or Annex II species for which the site is designated are maintained or restored to favourable conservation condition.

For SAC habitats, this condition is considered favourable when:

- The natural range and area covered are stable or increasing;
- The structure and ecological functions required for long-term maintenance are present and likely to persist;
- The conservation status of typical species associated with the habitat is favourable.

For SAC species, favourable conservation condition is achieved when:

- The species maintains itself on a long-term basis as a viable component of its natural habitats;
- Its natural range is stable or increasing;
- Sufficient habitat exists, and is likely to continue to exist, to support the population in the long term.

For SPA species, favourable conservation condition is achieved when:

- The long-term population trend is stable or increasing
- There is no significant decrease in the range, timing and intensity of use of areas
- There is no significant decline in the passage of population individuals, distribution of roosting areas, or availability of prey biomass.
- No significant increase in barriers to connectivity
- Disturbance at roosting sites from human activity don not adversely affect number or post-breeding aggregations.

Detailed SSCOs have been published by NPWS for many European sites since 2011. These provide measurable targets for individual habitats and species, facilitating more precise assessments. The SSCOs for the European sites within Cork Harbour considered in this assessment are outlined below. While SSCOs may be periodically updated, assessments remain valid provided the most recent available version at the time of assessment is used, and the version and publication date are clearly cited.

In accordance with guidance from the European Commission (EC, 2019), it is essential that Appropriate Assessment considers not only the potential for effects arising within a European site, but also those resulting from external activities - that is, pressures from plans or projects located outside the site boundary that may nonetheless affect its conservation objectives. This appraisal has therefore

taken into account the potential for such effects on habitats and species both within and outside the site boundaries, where those effects could influence the achievement of SSCOs.

2.4.3 ASSESSMENT OF CONNECTIVITY

In determining the connectivity of the impacts of the proposed activities to relevant features and sites, guidance issued by the Office of the Planning Regulator (OPR, 2021) was used to inform application of the Source-Pathway-Receptor (S-P-R) model.

“A European site will only be at risk from likely significant effects where the Source-Pathway-Receptor link exists between the proposed development and the European site” (OPR, 2021).

For an effect to be established, all three elements of Source-Pathway-Receptor model must be in place. The absence or removal of one of the elements of the mechanism is sufficient to conclude that a potential effect is not of any relevance or significance.

- Source(s) – Identifies the activities associated with the Proposed Development and types of impacts e.g., noise generated by dredging activities.
- Pathway(s) – Route that a hazard/impact takes to reach the receptor e.g., water as a pathway for underwater noise propagation; and,
- Receptor(s) – A Qualifying Interest (QI), Special Conservation Interest (SCI) or ecological feature utilised by the QIs or SCIs of a European site, e.g., qualifying habitats and species of European sites.

This includes consideration of the Conservation Objectives specified to maintain or restore favourable conservation status of SACs and SPAs, which are intrinsically linked to the QIs and SCIs for which these sites are designated.

2.4.4 IN-COMBINATION EFFECTS

Article 6(3) of the Habitats Directive requires that potential **in-combination effects** with other plans or projects be assessed as part of the Appropriate Assessment process. According to EC (2019), the significance of cumulative effects is influenced by factors such as the nature, scale, duration, intensity, and timing of potential impacts, as well as the sensitivity of the receptors involved. Although the Directive does not specify which other plans or projects must be included, the intention is to capture cumulative impacts that may not be apparent when considering the project in isolation.

In this regard, the in-combination assessment may include:

- Plans or projects that are completed, approved but not yet constructed, or formally proposed (i.e. where an application for consent has been submitted).

EC (2021) further notes that while in-combination assessments may be less detailed at the screening stage than at full Appropriate Assessment, there remains a requirement to identify other relevant plans or projects that could give rise to cumulative impacts. Where clear conclusions cannot be drawn at the screening stage, such projects should be flagged for further analysis during the Appropriate Assessment.

2.4.5 PRECAUTIONARY PRINCIPLE

The precautionary principle is derived from the EU Treaty and developed in case law (European Commission, 2000). It applies at appropriate assessment stage and means that where the most reliable information available leaves obvious doubt as to the absence of significant effects (OPR, 2021). The assessment must be robust and based on the best up-to-date scientific knowledge and

able to rule out all reasonable scientific doubt that the proposal would not have an adverse effect on the integrity of the site (Department of Environment, Heritage and Local Government, 2010 revision).

The examination, analysis and evaluation of the relevant information that supported the AA process conducted and documented in this report has followed the precautionary principle throughout.

2.5 ENVIRONMENTAL SETTING

The proposed SI activities are located within a heavily modified harbour environment characterised by ongoing commercial, industrial and recreational maritime activity. Cork Harbour supports regular vessel traffic, including commercial shipping, ferries, naval operations, service vessels and recreational craft, and is subject to routine anthropogenic disturbance, including underwater and airborne noise associated with port operations.

Underwater ambient noise levels within the harbour are influenced by vessel movements, tidal processes and routine port activities. Airborne noise levels are similarly influenced by industrial operations, traffic and shipping activity. As such, the receiving environment is not acoustically pristine and is subject to regular anthropogenic disturbance.

The harbour and its immediate environs comprise predominantly shallow, sheltered waters with largely modified shorelines and intertidal and subtidal habitats typical of estuarine and harbour settings. These habitats support ecological communities adapted to naturally variable conditions and ongoing disturbance.

The Environmental Setting provides context for the screening assessment, particularly in relation to the plausibility of ecological impact pathways linking the proposed SI activities to the qualifying interests and conservation objectives of nearby European sites. The relevance of this context is considered further through the application of a S-P-R approach in the Stage 1 screening appraisal.

2.6 NATURA 2000 SITES

The identification and evaluation of relevant European sites is an important step in defining the appropriate study area for the SISAA. The proposed SI activities are located within Cork Harbour, a busy and anthropogenically modified environment characterised by routine commercial, industrial and recreational maritime activity. This context reduces the likelihood that the project area plays a significant functional role in supporting the QIs or SCIs of nearby Natura 2000 sites, which are typically associated with less disturbed coastal and marine environments.

When considering the potential for effects on Natura 2000 sites, including possible ex situ effects, a S–P–R approach has been applied to determine whether any pressure arising from the proposed SI activities could be meaningfully linked to a sensitive ecological feature of a European site. A likely significant effect on a QI or SCI, and its associated conservation objectives, can only arise where a plausible and uninterrupted S–P–R linkage exists.

Two European sites are located within the vicinity of the proposed SI activities and overlap with the wider harbour environment: Cork Harbour SPA and Great Island Channel SAC. The locations of these European sites in relation to the proposed MUL Area are illustrated in Figure 2-1 below. The QIs of the Great Island Channel SAC and the SCIs of Cork Harbour SPA are summarised in Table 4-1.

In addition to the two European sites located within the wider harbour environment, consideration was also given to the potential for mobile marine mammal QIs of more distant SACs to utilise waters within or adjacent to Cork Harbour as part of wider foraging or ranging movements. The nearest SAC designated for marine mammals as QIs include Hook Head SAC, located approximately 100 km to the east, which supports *Tursiops truncatus* (bottlenose dolphin) and *Phocoena phocoena* (harbour

porpoise), and Roaringwater Bay and Island SAC (00101), approximately 100km to the west, which supports Harbour Porpoise*, Lutra lutra* (Otter) and *Halichoerus grypus* (Grey Seal).

These species are highly mobile and may range widely through coastal waters; however, given the very small spatial footprint, short duration, and highly localised zone of underwater noise influence associated with the proposed SI activities, no plausible mechanism exists by which the works could affect the conservation objectives of these SACs at a population or site level, including through effects on foraging range or ecological connectivity. These mobile marine mammal QIs have therefore been considered on a precautionary basis and screened out from further assessment. This SISAA focuses on SACs and SPAs in the vicinity of the proposed MUL Area, having regard to the short duration, small spatial scale, and confined nature of the proposed SI activities, all of which will be undertaken entirely within Cork Harbour. In addition, the shallow, sheltered and enclosed harbour setting limits the spatial extent of potential effect pathways, including underwater noise, such that any effects would remain highly localised to the immediate works area and would not extend to a scale relevant to more distant European sites. The relevance of these European sites is considered further in the Stage 1 Screening Appraisal, where potential pressures are assessed against SSCOs.

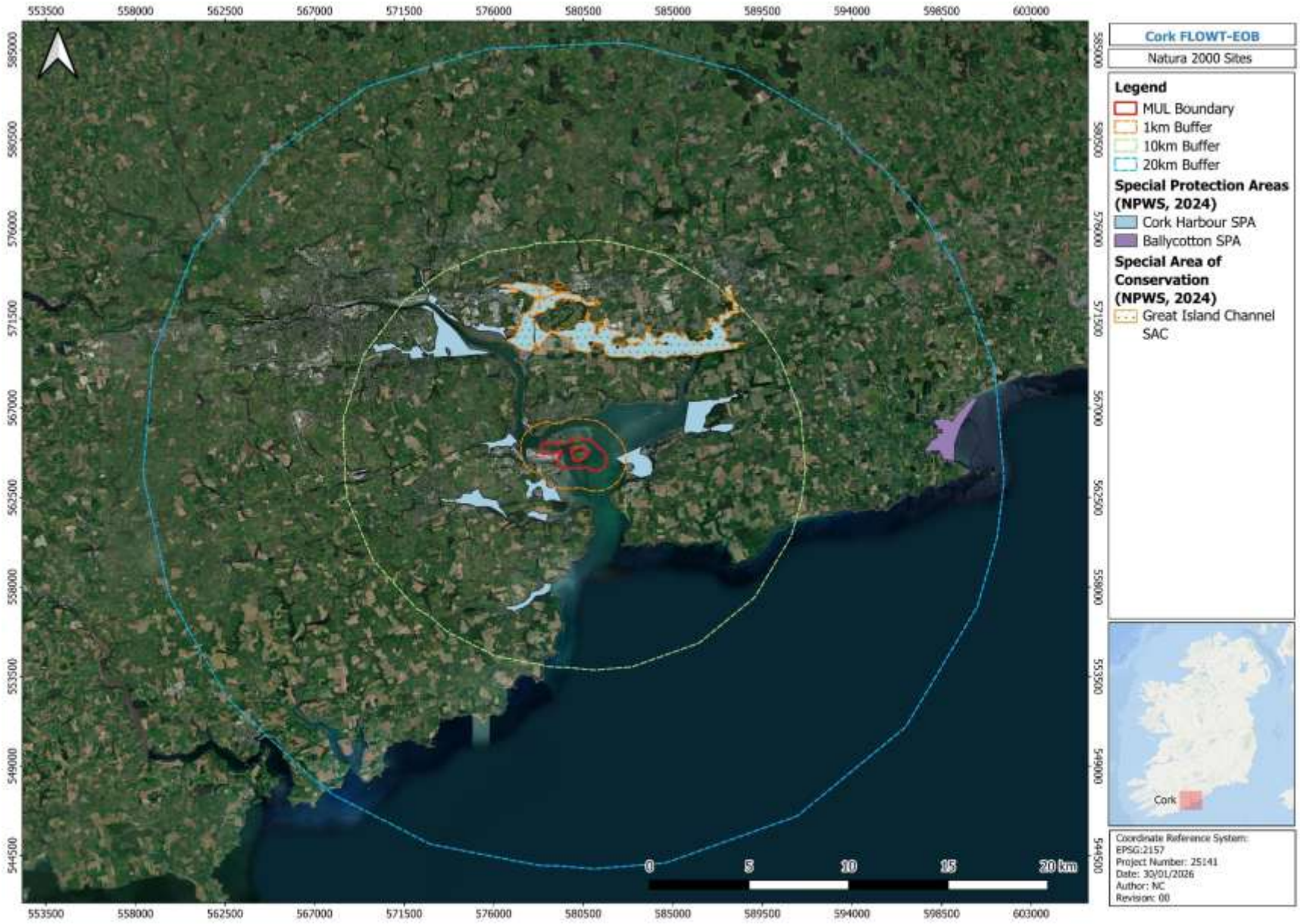


Figure 2-1: SPA & SAC Locations in vicinity of proposed MUL Boundary

Table 4-1 SACs and SPAs and their QIs/SCIs in vicinity of the MUL

SAC Site Name and Code	Qualifying Interest (QI)	
	Annex I Habitats	Annex II Species
Great Island Channel SAC (001058) Distance to the MUL area - 7.8km by sea at the closest point	Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	None
SPA Site Name and Code	**Special Conservation Interest (SCI)**	
Cork Harbour SPA (004030) Distance to the MUL area – 1.4km by sea at the closest point (Whitegate Bay and Lough Bay)	Little Grebe (*Tachybaptus ruficollis*) [A004] Great Crested Grebe (*Podiceps cristatus*) [A005] Cormorant (*Phalacrocorax carbo*) [A017] Grey Heron (*Ardea cinerea*) [A028] Shelduck (*Tadorna tadorna*) [A048] Teal (*Anas crecca*) [A052] Pintail (*Anas acuta*) [A054] Red-breasted Merganser (*Mergus serrator*) [A069] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183] Common Tern (*Sterna hirundo*) [A193] Wigeon (*Mareca penelope*) [A855] Shoveler (*Spatula clypeata*) [A857] Wetland and Waterbirds [A999]	

2.6.1 CORK HARBOUR SPA (4030)

Cork Harbour SPA (site code 4030) is designated for a wide assemblage of waterbird species and associated wetland habitats that support them. The SPA is of international importance for its populations of wintering waterbirds and regularly supports in excess of 20,000 individuals, including large numbers of dabbling ducks, waders, gulls and other coastal species. The majority of SCIs are therefore associated with wintering and passage use, although the site also supports breeding Common Tern (*Sterna hirundo*), which nests primarily on artificial structures within the wider harbour.

The Conservation Objectives for Cork Harbour SPA are set out by NPWS and seek to maintain the favourable conservation condition of each SCI species and the wetland habitat resource on which they depend. In broad terms, this requires:

- maintaining stable or increasing long-term population trends;
- avoiding any significant reduction in the range, timing or intensity of site use by SCI species; and
- ensuring that supporting habitats, prey resources, and ecological connectivity are not adversely affected.

For Common Tern, additional objectives relate to maintaining breeding population size, productivity, prey availability and the absence of disturbance at breeding sites. For the wetland habitat SCI, the objective is to maintain the extent and ecological functionality of intertidal and associated habitats used by the SPA's waterbird assemblage.

The assessment of potential effects on Cork Harbour SPA in this SISAA has been undertaken with reference to the most recent published SSCOs (NPWS, 2014).

2.6.2 GREAT ISLAND CHANNEL SAC (1058)

Great Island Channel SAC (site code 001058) is designated for two Annex I habitats: Mudflats and sandflats not covered by seawater at low tide [1140] and Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]. These habitats occur in sheltered intertidal areas of the inner harbour and are associated with estuarine sedimentary environments.

The Conservation Objectives for the SAC are focused on maintaining or restoring the favourable conservation condition of these intertidal habitats, including their extent, distribution, physical structure, sedimentary processes and characteristic species assemblages (NPWS, 2014). The SAC partially overlaps with Cork Harbour SPA, and the Conservation Objectives of both sites are intended to operate in a complementary manner.

The proposed SI activities are located entirely outside the boundaries of Great Island Channel SAC and are confined to subtidal harbour waters. The Annex I habitats for which the SAC is designated are spatially discrete, intertidal in nature, and occur at locations that are well removed from the proposed MUL area, with no functional or ecological connectivity to the works area. Accordingly, achievement of the Conservation Objectives of Great Island Channel SAC is not considered sensitive to the type, scale or location of the proposed SI activities.

2.6.3 POTENTIAL PRESSURES

The following potential pressures which could lead to effects on Natura 2000 sites were considered as part of the screening process:

- Localised habitat disturbance or loss
- Increased suspended sediment concentrations
- Temporary reduction in water quality
- Temporary disturbance or displacement of species from underwater noise
- Temporary disturbance from airborne noise and visual disturbance

Each of these potential pressures has been considered with respect to their spatial and temporal scale and their potential to result in a likely significant effect (LSE) on Qualifying Interest (QI) and Special Conservation Interest (SCI) features of nearby Natura 2000 sites.

2.7 STAGE 1 SCREENING APPRAISAL FOR AA

2.7.1 DIRECTLY CONNECTED WITH OR NECESSARY TO THE MANAGEMENT OF THE SITE

The proposed SI activities are not directly connected with, nor necessary to, the management of any European site.

2.7.2 ESTABLISHING AN IMPACT PATHWAY

This section identifies and assesses potential impact pathways between the proposed SI activities and relevant Natura 2000 sites, having regard to the nature, location, timing, and duration of the works and the sensitivities of designated features.

As set above, Great Island Channel SAC has been screened out of further consideration due to the absence of spatial, functional or ecological connectivity between the proposed SI activities and the Annex I habitats for which the SAC is designated.

Accordingly, the screening appraisal below focuses primarily on Cork Harbour SPA, as the only European site for which a theoretical pathway of effect (e.g. temporary disturbance to bird species) could be considered, notwithstanding the confined scale and low-impact nature of the proposed works.

Note given the existing high levels of marine traffic within this active and commercially used harbour, the addition of one or two survey vessels is not anticipated to result in a measurable increase in airborne or underwater noise. Similarly, the physical presence of one additional vessel is not expected to give rise to any notable disturbance or displacement of QIs or SCI bird species beyond what already occurs under baseline conditions with routine port activity. Therefore, vessel-related impacts – including both airborne noise, underwater noise (vessel) and physical presence - are considered negligible. This potential pressure has therefore been scoped out from further assessment.

Localised Habitat Disturbance or Loss

Localised seabed disturbance associated with grab sampling and vibrocore sampling will be minor, highly localised and temporary, affecting only small areas of benthic habitat within the MUL area.

The proposed SI activities are located entirely outside the boundaries of any European site and will not result in direct habitat loss or disturbance within any designated site. In particular, no works are proposed within Cork Harbour SPA or Great Island Channel SAC, and no habitats supporting the QIs or SCIs of these sites will be affected. No functional linkage exists between the disturbed habitats within the MUL area and the QIs or SCIs of any European site.

Accordingly, LSEs arising from habitat disturbance or loss are **excluded at the screening stage**.

Increased Suspended Sediment Concentrations

Suspended sediments generated during grab and borehole & vibrocore sampling will be confined to the immediate area of disturbance and will settle rapidly within the sheltered harbour environment. Any increases in suspended sediment concentrations will be minor, localised and temporary. There is no hydrological or ecological pathway by which suspended sediments generated within the MUL area

could reach or affect the qualifying habitats or species of Cork Harbour SPA or Great Island Channel SAC.

LSEs arising from increased suspended sediment concentrations are therefore **excluded at the screening stage.**

Temporary Reduction in Water Quality

The proposed SI activities are not expected to result in any measurable reduction in water quality. No routine discharges are proposed, and the scale and duration of the works are limited. While there is a low-level risk of accidental pollution associated with vessel operations, this does not represent a credible pathway for effects on European sites, given the small scale of the activities, the confined nature of the receiving environment, and the requirement for all vessels to operate in compliance with existing maritime pollution prevention legislation and standard international conventions (e.g. MARPOL). Any such effects would be localised and would not influence the conservation objectives of Cork Harbour SPA or Great Island Channel SAC.

Accordingly, LSEs on European sites arising from water quality effects are **excluded at the screening stage.**

Temporary Disturbance or Displacement from Underwater Noise

The accompanying underwater noise risk assessment (RAAIVS) confirms that certain items of survey equipment associated with the proposed SI activities produce underwater sound that is audible to marine mammals at close range. However, predicted sound levels are confined to very short distances from the sound sources, with zones of audibility and behavioural response limited to the immediate vicinity of the equipment.

The RAAIVS demonstrates that underwater noise levels are below thresholds associated with permanent or temporary auditory injury and that any behavioural responses would be localised, transient and restricted to a small spatial area around the operating equipment. Such short-range and temporary responses would not result in displacement at a scale relevant to the Conservation Objectives or integrity of Cork Harbour SPA, including those relating to wintering, passage or breeding bird species.

With regard to diving bird SCIs, including species such as divers, cormorants and auks, underwater noise associated with the proposed SI activities is not considered to represent a meaningful disturbance pathway. While these species forage underwater and may utilise areas within Cork Harbour, any exposure to underwater sound would be brief, intermittent and spatially restricted, given the highly localised nature of the survey equipment and the small footprint of the works. The potential for interaction has been considered on a precautionary basis using indicative seabird foraging ranges derived from published tracking studies (e.g. Woodward et al., 2019). These foraging ranges are based primarily on breeding season movements, when birds are constrained by central-place foraging around colonies, and therefore represent a conservative basis for assessing potential spatial overlap. Their application to non-breeding or wintering birds is inherently precautionary, as movements during these periods are typically more flexible and less spatially constrained. While such foraging ranges can extend over large distances, seabird distribution within these ranges is highly non-uniform and influenced by habitat preferences, prey availability, oceanographic conditions and coastal morphology. As such, the presence of a species within its theoretical foraging range does not imply regular or ecologically meaningful use of all areas within that range, particularly in heavily modified environments such as Cork Harbour where baseline disturbance levels are already high. Given the very limited zone of underwater noise influence associated with the proposed SI activities, any disturbance effects would be confined to a small area within the harbour and would not result in

displacement from foraging habitat, disruption to prey acquisition, or any measurable change in distribution or behaviour at a scale relevant to the conservation objectives of Cork Harbour SPA.

While it is acknowledged that mobile marine mammal (QIs), including harbour porpoise and bottlenose dolphin, may range widely through Irish coastal waters and could theoretically occur within the wider Cork Harbour area as part of their foraging range, the SACs for which these species are designated - namely Hook Head SAC and Roaringwater Bay and Islands SAC - represent areas of particular ecological importance, supporting key habitats and conditions that contribute to the favourable conservation condition of these species. The conservation objectives of these SACs are focused on maintaining population dynamics, distribution, habitat use, and foraging function within the sites. However, the proposed SI activities are small-scale, short-term, and highly localised, with underwater noise effects limited to the immediate vicinity of the survey equipment and not extending beyond the harbour environment. As such, even if individuals associated with these SAC populations were to be present within the wider area, any behavioural response would be temporary and spatially restricted, and would not result in any measurable change to habitat use, foraging behaviour, or distribution at a scale relevant to the conservation objectives of these SACs. Accordingly, there is no plausible S–P–R linkage by which underwater noise associated with the proposed SI activities could give rise to LSEs on any European sites, and LSEs arising from underwater noise or disturbance **are excluded at the screening stage**.

Temporary Disturbance from airborne noise and visual disturbance

There is the potential for disturbance to roosting birds from Cork Harbour SPA if they visit the area arising from airborne noise and visual disturbance from SI activitivies. However, the environs surrounding the MUL area present numerous alternative roosting locations for birds during the works, and given the temporary nature and small scale of the works and the existing busy harbour environment it is considered that the local birdlife will be used to regular noise, lights and vessel activity associated with a busy port as well as fishing and leisure activities.

Accordingly, LSEs on European sites arising from water quality effects are **excluded at the screening stage.**

Screening Conclusion

Application of the S–P–R model has demonstrated that no viable impact pathways exist by which the proposed SI activities could affect the Conservation Objectives of any European site. All potential pressures are localised, temporary and minor in nature, and are confined to the proposed MUL area within the harbour environment, with no viable impact pathways identified.

Based on the Stage 1 Screening for Appropriate Assessment, and informed by the accompanying RAAIVS, it is concluded that the proposed SI activities are not likely to have significant effects, either alone or in combination with other plans or projects, on any European site in view of their Conservation Objectives.

Accordingly, the proposed works can be screened out at Stage 1, and progression to Stage 2 Appropriate Assessment (Natura Impact Statement - NIS) is not required.

2.7.3 IN-COMBINATION EFFECTS ASSESSMENT

In accordance with Article 6(3) of the Habitats Directive and Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), the potential for likely significant effects arising from the proposed SI activities in combination with other plans or projects has been considered.

The in-combination assessment has focused on identifying other plans or projects that could plausibly interact with the proposed SI activities to give rise to cumulative effects on European sites, having regard to the nature, scale, location and duration of the works and the potential impact pathways identified in the Stage 1 screening appraisal.

Cork Harbour and its environs comprise an extremely busy and operational water body, with frequent commercial shipping movements and recreational leisure craft forming a constant feature of the receiving environment. The surrounding hinterland is also heavily utilised by industrial and port-related activities.

A review of publicly available planning and consent information, including the Cork County Council online planning portal and the Foreshore Unit applications register, was undertaken to identify any relevant plans or projects with the potential to interact cumulatively with the proposed works. The review identified a small number of existing, approved or proposed developments within the wider harbour area, including port-related infrastructure development at Ringaskiddy by Port of Cork, other marine works and utility projects.

While there is potential temporal overlap with the Port of Cork works at Ringaskiddy (An Coimisiún Pleanála case reference: OA04.321875), given the scale, duration and confined nature of the proposed SI activities and mitigations specified in the planning conditions in place for the works at Ringaskiddy, it is not considered likely that the SI activities acting in combination with the Port of Cork works at Ringaskiddy will give rise to plausible S–P–R linkages between the proposed SI works and the Conservation Objectives of Cork Harbour SPA or Great Island Channel SAC.

All QI habitats and SCI species are screened out for further assessment in relation to cumulative/in-combination impacts.

2.7.4 CONCLUSION OF THE SCREENING APPRAISAL

This screening appraisal has considered the nature, extent, duration, and intensity of the proposed SI activities within Cork Harbour, along with the environmental setting and proximity to European sites. The appraisal has also reviewed potential impact pathways to QIs and SCIs of nearby SACs and SPAs, using the S-P-R model.

Given the short duration, limited spatial footprint, and low-impact nature of the proposed SI activities - coupled with the highly modified, anthropogenically influenced setting of Cork Harbour - no potential for LSEs on the conservation objectives of any European site has been identified. All potential pressures (e.g. habitat disturbance, sedimentation, underwater noise, water quality, and vessel traffic) are confined to a very limited potential zone of impact within the harbour and have been assessed as not resulting in measurable change to QI or SCI features.

Accordingly, it is concluded that the proposed SI activities, either alone or in combination with other plans or projects, will not result in significant effects on any European site, and therefore, a **Stage 2 AA (NIS) is not required**.

REFERENCES

Woodward, I., Thaxter, C.B., Owen, E. & Cook, A.S.C.P. (2019) *Desk-based revision of seabird foraging ranges used for HRA screening*. JNCC Report No. 645. Joint Nature Conservation Committee, Peterborough.



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www.venterra-group.com
info@venterra-group.com