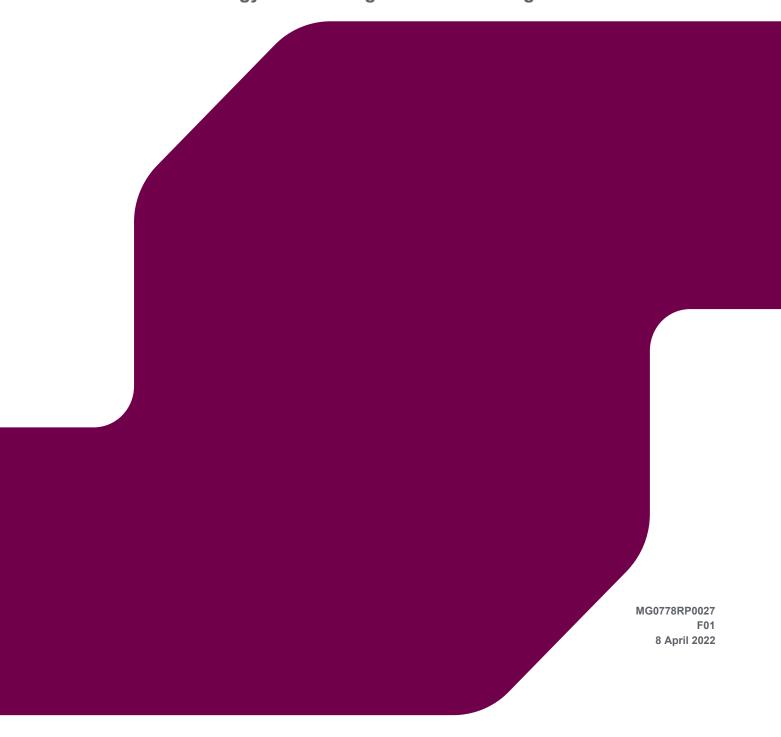


SCREENING FOR APPROPRIATE ASSESSMENT

FS006859 DP Energy Site Investigations at Inis Ealga



Docume	Document status						
Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date		
D01	Draft for Client review				22/12/2021		
F01	Final				08/04/2022		

Approval for issue

GMcE 8 April 2022

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1 INTRODUCTION

1.1 Project Overview

The Inis Ealga Marine Energy Park (IEMEP) Ltd, a wholly owned subsidiary of DP Energy Ireland (DPEI; hereinafter referred to as "the applicant), has submitted a foreshore licence application (FS006859) to carry out site investigation works off the south coast of Ireland.

The applicant is currently investigating the feasibility of developing the IEMEP, an offshore floating wind energy prospect off the coasts of Co. Cork and Co. Waterford. The site investigations are necessary to establish the optimum windfarm layout, design and location of the export cable(s) between the array site and the landfall, as well as to determine an appropriate landfall location and to provide baseline data for environmental impact assessments.

The proposed IEMEP comprises two development areas (displayed in Figure 1.1 in Natura Impact Statement); one area is within the 12 nautical mile (nm) limit (within State-owned foreshore) and the other is beyond the 12nm limit (not within State-owned foreshore). The intention for the project is that the developments will be linked by cables, with one export cable to shore. This foreshore licence application covers the area within the 12nm limit and three potential export cable routes, hereafter referred to as the application area.

The proposed site investigation activities will further assess the proposed site and will feed into selection of optimal cable route(s), landfall option(s), windfarm layout and provide baseline data for environmental impact assessments for the development consent application. Site investigation activities will include geophysical, geotechnical, ecological, metocean and wind-resource, ornithological, marine mammal and archaeological survey, although not all of these surveys require a foreshore licence.

The applicant intends to undertake site investigations within the five years following grant of foreshore licence.

1.2 Application Documents

The following application documents were reviewed as part of this assessment:

- Investigative Foreshore Licence Application
- Natura Impact Statement
- Schedule of Survey Works
- Foreshore Licence Map
- 13 Figures:
 - Figure 1 Inis Ealga
 - Figure 2 Geographic Co-ordinates
 - Figure 3 Admiralty Chart
 - Figure 4 Other Developments
 - Figure 5 Aquaculture
 - Figure 6 Spawning and Nursery
 - Figure 7 Designated Shellfish Waters
 - Figure 8 Shipwrecks
 - Figure 9 Protected Areas
 - Figure 10 Shipping
 - Figure 11 Fishing Activity
 - Figure 12 Benthic Habitats

- Figure 13 Indicative Sampling Locations
- Public Submissions
- Response to Public Submissions
- Prescribed Bodies Observations
- Response to Prescribed Bodies Observations

1.3 Relevant Legislation

Under Article 6(3) of the EU Habitats Directive (92/43/EEC) and the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), project proponents are required to provide sufficient information to enable a designated public authority to undertake a Screening for Appropriate Assessment (AA) to determine whether or not the proposed works (either alone or in-combination with other projects) is likely to have significant effects on the conservation objectives of designated Natura 2000 (or European) sites¹. Where significant effects of the project cannot be screened out, the public authority can request the project proponent to submit a Natura Impact Statement (NIS) to inform the AA for the project.

The European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), outlines the requirements for Screening for AA under Regulation 42(1) and 42(2), as follows:

- 42. (1) A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.
- 42. (2) A public authority shall carry out a screening for Appropriate Assessment under paragraph (1) before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken

As defined in the government's guidance:

"Screening for appropriate assessment is intended to be an initial examination which must be carried out by the planning authority or An Bord Pleanála as the competent authority. If significant effects cannot be excluded based on objective information, without extensive investigation or the application of mitigation, a project should be considered to have a likely significant effect and appropriate assessment should be carried out. This is a relatively light trigger and must be based on the precautionary principle."²

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¹ In Ireland, designated European sites include Special Areas of Conservation (SACs), designated due to their significant ecological importance for species and habitats protected under Annexes I and II respectively of the Habitats Directive, and Special Protected Areas (SPAs), designated for the protection of bird species protected under Annex I of the EU Birds Directive (Council Directive 2009/409/EEC).

² Office of the Planning Regulator (2021) Appropriate Assessment Screening for Development Management

2 TECHNICAL REVIEW METHODOLOGY

As described in **Section 1.3**, the relevant legislation requires that project proponents provide sufficient information to enable a designated public authority to undertake a Screening for Appropriate Assessment (AA) to determine whether or not the proposed works (either alone or in-combination with other projects) is likely to have significant effects on the conservation objectives of designated European site.

It is noted that the project proponent submitted a Stage One Screening for AA and a Natura Impact Statement (NIS) in respect of the proposed works. The applicant's Screening for AA is provided in Chapter 4 of the NIS and has been used to inform the current assessment. Information pertaining to Stage 2 Appropriate Assessment (Chapter 5 of the NIS) is outside of the scope of this Screening for AA and has not been considered in this technical review by RPS.

The documentation submitted by the applicant was reviewed to assess whether it includes the following:

- Robust scientific information and analysis including the reasoning and justifications for the conclusion.
- Compliance with the tests and standards of AA as presented in European and national guidance.
- The assessment is carried out on the entirety of information submitted as part of consent application.
- A robust scientific assessment on the likelihood of significant effects.

This technical review and Screening for AA has been undertaken with regard to the appropriate legislation, guidance, and departmental circulars.

3 SCREENING FOR APPROPRIATE ASSESSMENT

3.1 Management of European Sites

The proposed site investigation works are not directly connected with or necessary to the management of any European site.

3.2 Description of the proposed project and local site characteristics

Table 3-1 provides a summary description of the project, site characteristics and details of consultation with prescribed bodies. It is considered that adequate project detail has been provided by the applicant.

Table 3-1 Description of the project/proposal and local site characteristics

•	of the project/proposal and local site characteristics ect/proposal and local site characteristics:
File Reference No:	
Brief description of the project or plan:	The site investigations will comprise the following elements: Geophysical surveys including: multibeam echosounder (MBES), side-scan sonar (SSS), sub-bottom profiler (SPR) and magnetometer survey. It is assumed that geophysical surveys will be conducted across all of the application area.
	Geotechnical surveys including cone penetration testing (CPT; up to 200 at representative locations), vibrocoring (up to 200 at representative locations) and landfall boreholes (two boreholes at chosen landfall, drilled from jack up barge using a percussion and a rotary corer). Exact locations of geotechnical sampling will not be known until the results of the geophysical survey are interpreted. The exact location of boreholes will not be known until the preferred export cable route and landfall location have been chosen.
	Ecological surveys including benthic surveys (drop-down video (DDV) and grab sampling at up to 80 stations, with three grab samples at each station) and intertidal surveys (transects, quadrats and core sampling) to study habitats and species at landfall. The exact location of the intertidal survey will not be known until the preferred export cable route and landfall location have been chosen.
	 Wind resources and metocean surveys, includes the deployment of LiDAR buoy and Waverider buoys (three seawatch wind Lidar buoys will be deployed at three locations, and three marker buoys will be deployed next to the Lidar buoy), and an acoustic doppler current profiler (ADCP) will be used to assess tidal currents in the area (three ADCPs will be deployed). The above metocean equipment will be moored to the seabed. Static acoustic monitoring of marine mammals will also be carried out using C-PODs, which are moored to the seabed.
	Also included in the proposed site investigation programme are boat-based bird and marine mammal surveys, however, these do not require a foreshore licence and are therefore not considered within this Screening for AA Technical Review. A desktop archaeological study will be undertaken following geophysical surveys, to identify and assess the archaeological significance of identified targets. It should be noted that no standalone archaeological survey is to be carried out as part of this foreshore licence application.
	The survey works are likely to be carried out between April and October within five years following award of the foreshore licence and subject to weather. Indicative timings provided by the applicant are as follows:
	 Geophysical survey (including benthic sampling): a 3-month window mid-April to mid-July 2020. Geotechnical: option for preliminary survey in summer 2022 (2-month window August to
	 September), and the main survey in spring/summer 2023 (4-month window). Wind resource monitoring: current resource monitoring to start in summer 2020 for a 3-month period.
	Intertidal: spring 2021Birds and marine mammals: spring 2020 (2 years duration seasonal).

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Description of the project/proposal and local site characteristics:

It is assumed for the purposes of this Screening for AA that, while these timings are now out-of-date, the seasonality remains relevant, i.e. no survey works outside of April – October (inclusive), with the exception of static monitoring methods such as C-PODs and metocean buoys.

c. Brief description of site characteristics:

The IEMEP application area is an irregular polygon, covering an area of 92,468 ha. The application area for these site investigations includes part of the array development area and three potential export cable route corridors, and as such extends from the high water mark out to the 12nm limit (approximately 22km offshore).

According to EMODnet (2019), seabed sediments within the array development area are predicted to be relatively homogeneous and largely comprise deep circalittoral mud (A5.37). These sediments are likely to be characterised by polychaetes, bivalves and echinoderms. Moving inshore, sediments appear to comprise a band of offshore circalittoral sand (A4.27), followed by a band of high energy circalittoral rock runs parallel to shore, likely to be dominated by sponges, hydroids and barnacles. The eastern export cable route corridor largely consists of circalittoral mud (A5.35).

The application area is within the spawning grounds for seven commercially important fish species (cod, hake, herring, mackerel, whiting, haddock, horse mackerel) and within the nursery grounds of monkfish (*Lophius* sp.) and megrim. Migratory fish species (lamprey species, twaite shad and salmon) may be found within the application area at certain times of the year. The area is also important for lobster, *Nephrops*, crab, scallops, razor clam and whelk fisheries, however, the application area does not overlap with any designated shellfish areas, as outlined in Figure 7 accompanying the application. There are no licensed aquaculture sites within the application area. Fishing activity is displayed in Figure 11 accompanying the application, and comprises net, pot and dredge fishing.

The applicant does not provide a baseline assessment of marine traffic or vessel activity in the area, although they do state in the application form that areas of relatively high shipping activity in the area are the approaches to Cork and east-west traffic passing parallel to the southern Irish coastline. An overview of shipping activity is provided in Figure 10 accompanying the application.

Forty-seven shipwrecks are located within the applications and are displayed in Figure 8 accompanying the application.

The application area overlaps with the following European sites: Ardmore Head SAC, Ballycotton Bay SPA Cork Harbour SPA, Dungarvan Harbour SPA and Helvick Head to Ballyquin SPA.

d. Relevant prescribed bodies consulted: e.g. DHLGH (NPWS), EPA, OPW

- Marine Survey Office (MSO)
- Inland Fisheries Ireland (IFI)
- Marine Institute (MI)
- Department of Agriculture Food and Marine (DAFM)
- Underwater Archaeology Unit (UAU)
- Development Applications Unit (DAU)
- · Sea Fisheries Protection Authority (SFPA)
- National Parks and Wildlife Services (NPWS)

e. Consultation submissions – prescribed bodies

The Marine Institute, Sea Fisheries Protection Authority (SFPA), Department of Agriculture, Food and Marine (DAFM), the Underwater Archaeology Unit and the Marine Survey Office submitted consultation responses on the application, however, these are not considered relevant to this Screening for AA and are considered in full, along with recommended licence conditions in RPS's Screening for EIA Technical Review. The following prescribed bodies submissions are considered relevant for this Screening for AA.

Inland Fisheries Ireland (IFI)

IFI raised a number of concerns in relation to the potential underwater noise changes that may take place due to the proposed site investigation works. These noise disturbances could disrupt fish species such as twaite shad, salmon, sea and river lamprey. Disruption to the migration of Annex II species should be considered during the schedule of works and final location of the windfarm. In addition, the IFI raised concerns about the cumulative impact and

Description of the project/proposal and local site characteristics:

prolonged noise-generating works in the application area if coordination of efforts are not undertaken. The location of the cable route connection should also consider the presence of cartilaginous fish and eel migration pathways as they can be affected by electromagnetic fields.

The IFI stated the following recommendations: mitigation measures in regard to the reduction in the number of sound tests, use of soft-start and ramp up procedures, noise generating surveys to be reduced to minimum, agreed timing of works, short sampling windows, and the extent of the nursery and feeding areas for faunal surveys needs to be considered. Mitigation measures are not considered in this Screening for AA Technical Review, and if appropriate will be considered in RPS's AA Technical Review.

The IFI raised some further concerns regarding impacts on commercial and recreational fishing, however these are not considered relevant to this Screening for AA and are considered in full in RPS's Screening for EIA Technical Review.

National Park and Wildlife Services (NPWS)-Development Applications Unit (DAU)

NPWS requested the utilisation of the guidance document "Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters" to help with potential interaction with marine mammals and it should be added as a condition of consent.

f. Consultation submission – public submissions 124 public submissions were made, which included members of the public, fishermen and skippers, Knollway Limited, Ballycotton Fishermen, Wild Ireland Defence CLG, Dungarvan Shellfish Ltd, Waterford Offshore Wind Awareness, Port of Cork and the National Inshore Fishermen's Association / National Inshore Fishermen's Organisation (NIFA/NIFO). Public submissions are summarised in more detail in RPS's Screening for EIA Technical Review report.

Summary of key concerns from public submissions

The impacts on marine mammals (geophysical survey disturbance), birds (disturbance to EU sites adjacent to the works in particular breeding and wintering birds and collision risk of birds with a wind turbine) and fishing (damage to fish stocks/population impacting on spawning and nursery grounds due to acoustic disturbance, increased sedimentation and electromagnetic fields) were the main issues raised. It is noted that several concerns raised in the public submissions concern impacts associated with the construction or operation of an offshore windfarm, therefore are not considered relevant to this foreshore licence application, which is for site investigation surveys.

3.3 Identification of relevant European sites

In Chapter 4 (Stage 1 – Appropriate Assessment Screening), the applicant notes that the consideration of all European sites within a 15km radius, as has become common practise in screening projects for AA in Ireland, does not take into account the mobility of receptors and the zone of influence of activities. The applicant identifies the following receptor-specific search areas to identify relevant European sites for consideration in the Screening for AA:

Habitats: only those which directly overlap with the application area (i.e. benthic habitats)

Fish: 40kmBirds: 15km

Cetaceans: relevant Management Units (MU)

Pinnipeds: 100km for grey seal and 50km for harbour seal.

While certain species of seabird can forage considerable distances from their colonies, given the limited size, scale and duration of the proposed site investigations, it is considered unlikely that there is a reasonable impact pathway to species from SPAs beyond 15km. Given the temporary nature and scale of the project, RPS considers that the level of precaution applied in identifying sites is appropriate.

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All sites identified by the applicant using the search areas described above are provided in **Table 3-2** below. A weblink to a site's conservation objectives is provided for each site. The assessment of connectivity in **Table 3-2** has been carried out by RPS, and in certain instances, is more precautionary than the applicant's connectivity assessment.

Table 3-2: Identification of relevant European sites using Source-Pathway-Receptor model and compilation of information on Qualifying Interests (QI) and Special Conservation Interests (SCI) and conservation objectives

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
IE002123 Ardmore Head SAC	Vegetated sea cliffs of the Atlantic and Baltic coasts European dry heaths Ardmore Head SAC Conservation Objectives	N/A	0/Within	Although the survey area overlaps with the Ardmore Head SAC boundary, survey works will not overlap with the QI habitats of the SAC, and no hydrological or other pathway linking the survey activities to the QI habitats has been identified.	N
IE004192 Helvick Head to Ballyquin SPA	Cormorant (<i>Phalacrocorax carbo</i>) Herring gull (<i>Larus argentatus</i>) Kittiwake (<i>Rissa tridactyla</i>) Peregrine (<i>Falco peregrinus</i>) Chough (<i>Pyrrhocorax pyrrhocorax</i>) Helvick Head to Ballyquin SPA Conservation Objectives	Breeding Breeding Breeding Resident/permanent Resident/permanent	0/Within	Yes. Survey area overlaps with SPA. Breeding and resident birds will potentially forage within and transit through the survey area.	Y
IE004030 Cork Harbour SPA	Little grebe (Tachybaptus ruficollis) Great crested grebe (Podiceps cristatus) Cormorant (Phalacrocorax carbo) Grey heron (Ardea cinerea) Shelduck (Tadorna tadorna) Wigeon (Anas penelope) Teal (Anas crecca) Pintail (Anas acuta) Shoveler (Anas clypeata) Red-breasted merganser (Mergus serrator) Oystercatcher (Haematopus ostralegus)	Wintering	0/Within	Yes. The majority of bird species are wintering, and as surveys are to be carried out during spring and summer, there will be no temporal overlap with these SCI birds. However, common tern (<i>S. hirundo</i>) uses the SPA for breeding, therefore survey activities have the potential to disturb breeding and nesting birds.	Y

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	Golden plover (<i>Pluvialis apricaria</i>)	Wintering			
	Grey plover (Pluvialis squatarola)	Wintering			
	Lapwing (Vanellus vanellus)	Wintering			
	Dunlin (Calidris alpina)	Wintering			
	Black-tailed godwit (Limosa limosa)	Wintering			
	Bar-tailed godwit (Limosa lapponica)	Wintering			
	Curlew (Numenius arquata)	Wintering			
	Redshank (<i>Tringa totanus</i>)	Wintering			
	Black-headed gull (Chroicocephalus ridibundus)	Wintering			
	Common gull (Larus canus)	Wintering			
	Lesser black-backed gull (Larus fuscus)	Wintering			
	Common tern (Sterna hirundo)	Breeding			
	Wetlands				
	Cork Harbour SPA Conservation Objectives				
IE004022 Ballycotton	Ringed plover (Charadrius hiaticula)	Wintering	0.01	No. Bird species are overwintering and as surveys	N
Bay SPA	Golden plover (Pluvialis apricaria)	Wintering		will be carried out during spring and summer, there will be no temporal overlap with these SCI birds.	
	Grey plover (Pluvialis squatarola)	Wintering			
	Lapwing (Vanellus vanellus)	Wintering			
	Black-tailed godwit (Limosa limosa)	Wintering			
	Bar-tailed godwit (Limosa lapponica)	Wintering			
	Curlew (Numenius arquata)	Wintering			

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	Turnstone (Arenaria interpres)	Wintering			
	Common gull (Larus canus)	Wintering			
	Lesser black-backed gull (Larus fuscus)	Wintering			
	Teal (Anas crecca)	Wintering			
	Wetlands				
	Ballycotten Bay SPA Conservation Objectives				
IE004032 Dungarvan	Great crested grebe (Podiceps cristatus)	Wintering	0.01	No. Bird species are overwintering and as surveys	N
Harbour SPA	Light-bellied brent goose (<i>Branta bernicla hrota</i>)	Wintering		will be carried out during spring and summer, there will be no temporal overlap with these SCI birds.	
	Shelduck (Tadorna tadorna)	Wintering			
	Red-breasted merganser (Mergus serrator)	Wintering			
	Oystercatcher (Haematopus ostralegus)	Wintering			
	Golden plover (Pluvialis apricaria)	Wintering			
	Grey plover (Pluvialis squatarola)	Wintering			
	Lapwing (Vanellus vanellus)	Wintering			
	Knot (Calidris canutus)	Wintering			
	Black-tailed godwit (Limosa limosa)	Wintering			
	Bar-tailed godwit (Limosa lapponica)	Wintering			
	Curlew (Numenius arquata)	Wintering			
	Turnstone (Arenaria interpres)	Wintering			
	Dunlin (Calidris alpina)	Wintering			
	Redshank (<i>Tringa totanus</i>)	Wintering			

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	Wetlands				
	<u>Dungarvan Harbour SPA Conservation</u> <u>Objectives</u>				
IE004193 Mid-	Cormorant (Phalacrocorax carbo)	Breeding	0.3	Yes. Connectivity to the project as survey activities	Υ
Waterford Coast SPA	Herring gull (Larus argentatus)	Breeding Resident/permanent Resident/permanent		have the potential to disturb breeding and nesting birds and birds have the potential to forage or transit through the survey area.	
	Peregrine (Falco peregrinus)				
	Chough (Pyrrhocorax pyrrhocorax)				
	Mid-Waterford Coast SPA Conservation Objectives				
IE002170 Blackwater	Estuaries	N/A	2.0	Yes. Potential connectivity to project due to the anadromous nature of twaite shad, salmon, sea lamprey and river lamprey. These migratory fish species may occur within the survey area. Potential for disturbance to otter within landfall survey area. These species will be considered further in this Screening for AA.	Υ
River SAC	Mudflats and sandflats not covered by seawater at low tide				
	Perennial vegetation of stony bank				
	Salicornia and other annuals colonizing mud and sand				
	Atlantic salt meadows (Glauco Puccinellietalia maritimae)			No potential for connectivity with the remaining QIs of this SAC and as such, these will not be investigated further.	
	Mediterranean salt meadows (<i>Juncetalia</i> maritimi)				
	Freshwater pearl mussel (<i>Margaritifera</i> margaritifera)				
	White-clawed crayfish (Austropotamobius pallipes)				
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho- Batrachion vegetation				
	Old sessile oak woods with Ilex and Blechnum in the British Isles,				
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior Alno-Padion*</i> priority habitats				

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European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	Twaite shad (Alosa fallax fallax)				
	Atlantic salmon (<i>Salmo salar</i>) (only in fresh water) Sea lamprey (<i>Petromyzon marinus</i>)				
	River Lamprey (Lampetra fluviatilis)				
	Otter (Lutra lutra)				
	Brook lamprey (<i>Lampetra planeri</i>)				
	Killarney fern (<i>Trichomanes speciosum</i>)				
	Taxus baccata woods of the British Isles*priority habitats				
	Blackwater River SAC Conservation Objectives				
IE004028 Blackwater	Golden plover (<i>Pluvialis apricaria</i>)	Wintering	2.7	No. Bird species are overwintering and as surveys	N
Estuary SPA	Lapwing (Vanellus vanellus)	Wintering		will be carried out during spring and summer, the will be no temporal overlap with these SCI birds.	
	Black-tailed godwit (Limosa limosa)	Wintering		will be no temporal overlap with these ool birds.	
	Bar-tailed godwit (Limosa lapponica)	Wintering			
	Curlew (Numenius arquata)	Wintering			
	Dunlin (Calidris alpina)	Wintering			
	Redshank (Tringa totanus)	Wintering			
	Wigeon (Anas penelope)	Wintering			
	Blackwater Estuary SPA Conservation Objectives				
IE004023	Teal (Anas crecca)	Wintering	6.3	No. Bird species are overwintering and as surveys	
Ballymacoda Bay SPA	Ringed plover (Charadrius hiaticula)	Wintering		will be carried out during spring and summer, there will be no temporal overlap with these SCI birds.	
	Golden plover (<i>Pluvialis apricaria</i>)	Wintering		22 Ishiperal evenap mar arese sor birde.	
	Grey plover (<i>Pluvialis squatarola</i>)	Wintering			

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	Lapwing (<i>Vanellus vanellus</i>)	Wintering			
	Sanderling (Calidris alba)	Wintering			
	Black-tailed godwit (Limosa limosa)	Wintering			
	Bar-tailed godwit (Limosa lapponica)	Wintering			
	Curlew (Numenius arquata)	Wintering			
	Turnstone (Arenaria interpres)	Wintering			
	Black-headed gull (Chroicocephalus ridibundus)	Wintering			
	Common gull (Larus canus)	Wintering			
	Lesser black-backed gull (Larus fuscus)	Wintering			
	Wigeon (Anas penelope)	Wintering			
	Redshank (<i>Tringa totanus</i>)	Wintering			
	Wetlands				
	Ballymacoda Bay SPA Conservation Objectives				
IE004124 Sovereign Islands SPA	Cormorant (Phalacrocorax carbo)	Breeding	12	Yes. Potential connectivity to the project as cormorants have the potential to forage or transit	Y
	Sovereign Islands SPA Conservation Objectives			through the survey area.	
IE002162 River Barrow and River Nore	Desmoulin's whorl snail (Vertigo moulinsiana)	N/A	37	Yes. Potential connectivity to project due to the anadromous nature of twaite shad, salmon, sea	Υ
SAC	Freshwater pearl mussel (Margaritifera margaritifera)			lamprey and river lamprey. These migratory fish species may occur within the survey area. These	
	White-clawed crayfish (Austropotamobius pallipes)			species will be considered further in this Screening for AA.	
	Sea lamprey (Petromyzon marinus)			No potential for connectivity with the remaining QIs of this SAC and as such, these will not be	
	Brook lamprey (<i>Lampetra planeri</i>) River lamprey (<i>Lampetra fluviatilis</i>)			investigated further. The survey activities will take place 37km away from the SAC, and it is highly	

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	Twaite shad (<i>Alosa fallax</i>) Atlantic salmon (<i>Salmo salar</i>) (only in fresh water) Estuaries			unlikely that otters from this site would commute this distance to forage.	
	Mudflats and sandflats not covered by seawater at low tide				
	Salicornia and other annuals colonizing mud and sand				
	Atlantic salt meadows (Glauco Puccinellietalia maritimae)				
	Otter (Lutra lutra)				
	Mediterranean salt meadows (Juncetalia maritimi)				
	Killarney fern (Trichomanes speciosum)				
	Nore freshwater pearl mussel (Margaritifera durrovensis)				
	Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation				
	European dry heaths				
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels				
	Petrifying springs with tufa formation (<i>Cratoneurion</i>)* priority habitat				
	Old sessile oak woods with Ilex and Blechnum in the British Isles				
	Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno Padion, Alnion incanae, Salicion albae)*priority habitat				

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
	River Barrow and River Nore SAC Conservation Objectives				
IE003000 Saltee Islands SAC	Mudflats and sandflats not covered by seawater at low tide	N/A	51	Yes. Grey seals are mobile species with potential to travel to and forage within the survey area.	Υ
	Large shallow inlets and bays				
	Reefs			No potential for connectivity with the remaining QIs of this SAC and as such, these will not be investigated further.	
	Vegetated sea cliffs of the Atlantic and Baltic coasts			in oodgated tarator.	
	Grey seal (Halichoerus grypus)				
	Submerged or partially submerged sea caves				
	Saltee Islands SAC Conservation Objectives				
IE000101	Large shallow inlets and bays	N/A	98	Yes. Harbour porpoise and grey seal are mobile	Y
Roaringwater Bay and Islands SAC	Reefs Vegetated sea cliffs of the Atlantic and Baltic coasts			species with potential to travel to and forage withithe survey area.	
	Harbour porpoise (Phocoena phocoena)			No potential for connectivity with the remaining QIs	
	Otter (Lutra lutra)			of this SAC and as such, these will not be investigated further.	
	Grey seal (Halichoerus grypus)			invooligated father.	
	European dry heaths				
	Submerged or partly submerged sea caves				
	Roaringwater Bay and Islands SAC Conservation Objectives				
UK0030397 West Wales Marine/ West	Harbour porpoise (<i>Phocoena phocoena</i>)	N/A	129	Yes. Harbour porpoise are mobile species with potential to travel to/forage within the survey area	Υ

West Wales marine/Gorllewin Cymru Forol SAC Conservation Objectives Harbour porpoise (<i>Phocoena phocoena</i>) North Anglesey marine/Gogledd Mon Forol SAC Conservation Objectives	N/A	137	Yes. Harbour porpoise are mobile species with the	
North Anglesey marine/Gogledd Mon Forol	N/A	137	Yes. Harbour porpoise are mobile species with the	
			potential to travel to/forage within the survey area	Y
Harbour porpoise (<i>Phocoena phocoena</i>) Bristol Channel Approaches/ Dynesfeydd Mor Hafren SAC Conservation Objectives	N/A	168	Yes. Harbour porpoise are mobile species with the potential to travel to/forage within the survey area	Y
Sandbanks which are lightly covered by sea water all the time Reefs Submerged or partially submerged sea caves Bottlenose dolphin (<i>Tursiops truncates</i>) Sea lamprey (<i>Petromyzon marinus</i>) River lamprey (<i>Lampetra fluviatilis</i>) Grey seal (<i>Halichoerus grypus</i>) Cardigan Bay/ Bae Ceredigion SAC Conservation Objectives	N/A	173	Yes. Harbour porpoise, bottlenose dolphin and grey seal are mobile species with the potential to travel to/forage within the survey area. No potential for connectivity with the remaining Qls of this SAC and as such, these will not be investigated further.	Y
Reefs Harbour porpoise (<i>Phocoena phocoena</i>) Rockabill to Dalkey Island SAC Conservation	N/A	203	Yes. Harbour porpoise are mobile species with the potential to travel to/forage within the survey area. No potential for connectivity with the remaining QIs of this SAC and as such those will not be	Yes
	Bristol Channel Approaches/ Dynesfeydd Mor Hafren SAC Conservation Objectives Sandbanks which are lightly covered by sea water all the time Reefs Submerged or partially submerged sea caves Bottlenose dolphin (Tursiops truncates) Sea lamprey (Petromyzon marinus) River lamprey (Lampetra fluviatilis) Grey seal (Halichoerus grypus) Cardigan Bay/ Bae Ceredigion SAC Conservation Objectives Reefs Harbour porpoise (Phocoena phocoena)	Bristol Channel Approaches/ Dynesfeydd Mor Hafren SAC Conservation Objectives Sandbanks which are lightly covered by sea N/A water all the time Reefs Submerged or partially submerged sea caves Bottlenose dolphin (Tursiops truncates) Sea lamprey (Petromyzon marinus) River lamprey (Lampetra fluviatilis) Grey seal (Halichoerus grypus) Cardigan Bay/ Bae Ceredigion SAC Conservation Objectives Reefs N/A Harbour porpoise (Phocoena phocoena)	Bristol Channel Approaches/ Dynesfeydd Mor Hafren SAC Conservation Objectives Sandbanks which are lightly covered by sea N/A 173 water all the time Reefs Submerged or partially submerged sea caves Bottlenose dolphin (<i>Tursiops truncates</i>) Sea lamprey (<i>Petromyzon marinus</i>) River lamprey (<i>Lampetra fluviatilis</i>) Grey seal (<i>Halichoerus grypus</i>) Cardigan Bay/ Bae Ceredigion SAC Conservation Objectives Reefs N/A 203 Harbour porpoise (<i>Phocoena phocoena</i>)	Bristol Channel Approaches/ Dynesfeydd Mor Hafren SAC Conservation Objectives Sandbanks which are lightly covered by sea water all the time Reefs Submerged or partially submerged sea caves Bottlenose dolphin (Tursiops truncates) Sea lamprey (Petromyzon marinus) River lamprey (Lampetra fluviatilis) Grey seal (Halichoerus grypus) Cardigan Bay/ Bae Ceredigion SAC Conservation Objectives Reefs N/A 203 Yes. Harbour porpoise, bottlenose dolphin and grey seal are mobile species with the potential to travel to/forage within the survey area. No potential for connectivity with the remaining Qls of this SAC and as such, these will not be investigated further. Yes. Harbour porpoise, bottlenose dolphin and grey seal are mobile species with the potential to travel to/forage within the survey area. No potential for connectivity with the remaining Qls of this SAC and as such these will not be potential to travel to/forage within the survey area. No potential for connectivity with the remaining Qls of this SAC and as such these will not be

European Site (code)	List of Qualifying Interest / Special Conservation Interest	Seasonality (for birds only)	Distance from proposed development (km)	Connections (Source-Pathway-Receptor)	Considered further in screening Y/N
UK0030399 North Channel SAC	Harbour porpoise (<i>Phocoena phocoena</i>)	N/A	310	Yes. Harbour porpoise are mobile species with the potential to travel to/forage within the survey area.	Yes
	North Channel SAC Conservation Objectives				

In summary, the following 14 European sites are taken forward for assessment of likely significant effects:

- Helvick Head to Ballyquin SPA
- Cork Harbour SPA
- Mid-Waterford Coast SPA
- Blackwater River SAC
- Sovereign Islands SPA
- River Barrow and River Nore SAC
- Saltee Islands SAC
- Roaringwater Bay and Islands SAC
- West Wales Marine / West Gorllewin Crymru Forol SAC
- North Anglesey Marine / Gobledd Mon Forol SAC
- Bristol Channel Approaches / Dynesfeydd Mor Hafren SAC

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- Cardigan Bay / Bae Ceredigion SAC
- Rockabill to Dalkey Island SAC
- North Channel SAC

Table 3.3: Assessment of Likely Significant Effects

Assessment of Likely Significant Effects

(a) Identify all potential direct and indirect impacts that may have an effect on the conservation objectives of a European site, taking into account the size and scale of the project under the following headings:

Impacts	Possible Significance of Impacts: (duration/magnitude etc.)
Construction phase e.g. Vegetation clearance Demolition	Not applicable as no construction phase involved in the proposed site investigation surveys.
 Surface water runoff from soil excavation/infill/landscaping (including borrow pits) 	
 Dust, noise, vibration 	
 Lighting disturbance 	
 Impact on groundwater/dewatering 	
 Storage of excavated/construction materials 	
Access to site	
• Pests	

Operational phase e.g.

- · Direct emission to air and water
- Surface water runoff containing contaminant or sediment
- Lighting disturbance
- Noise/vibration
- Changes to water/groundwater due to drainage or abstraction
- Presence of people, vehicles and activities
- Physical presence of structures (e.g. collision risks)
- Potential for accidents or incidents

Chapter 4 of the NIS document outlines the following potential operational impacts of the project, and these have been further assessed here:

Habitat loss/physical disturbance to sediments and benthic communities

Geotechnical and ecological investigations (boreholes and the associated 20.32m² footprint from jack-up barge legs, vibrocores, benthic grab sampling, CPTs, intertidal sampling and mooring of CPODs) are intrusive and will physically disturb benthic communities (displacement, increased suspended sediments, disturbance to foraging and predator avoidance behaviours). Footprints of these intrusive sampling methods are provided in Section 2 of the NIS. Given the size of the application area, very small areas of the seabed will be disturbed and sampled during these activities. Although the proposed sampling footprint is relatively small, the sampling locations are indicative and final locations have yet to be determined. Therefore, the zone of influence has been assumed to be the entire application area. This impact is carried forward to part b of this table in order to assess likely changes to European sites within the application area.

Changes to underwater noise and vibration levels

Sound generated by geophysical and geotechnical equipment have the potential to disturb marine mammals and some fish species. Noise and vibration levels will depend on the type of equipment used and depth at which it operates. This impact is carried forward to part b of this table in order to assess likely effects on protected marine mammals.

Visual disturbance:

It is envisaged the project will require a variety of vessels for the geotechnical, geophysical, ecological and metocean stages of the survey. The physical presence of additional vessels has the potential to result in temporary visual disturbance to birds present in the application area, including displacement from feeding and resting areas. This impact is carried forward to part b of this table in order to assess likely effects on protected bird species.

Overwater noise:

Survey activities at landfall areas (boreholes at the chosen landfall - geotechnical drilling rig will be mobilised onboard a jack-up barge) have the

potential to result in disturbance to birds. This impact is carried forward to part b of this table in order to assess likely effects on protected bird species.

Risk of collision:

The physical presence of additional survey vessels has the potential to increase the risk of collision with marine mammals. The applicant has not identified this potential impact in the NIS however, on a precautionary basis, this impact is carried forward to part b of this table in order to assess likely effects on protected marine mammals.

Potential for pollution incident:

The temporary increase in vessel activity in the application area increases the risk of pollution incidents. The Schedule of Works states that the proposed site investigations will comply with international conventions and national legislation as appropriate, and thus a pollution incident is not considered a likely impact of this project. This impact is not carried forward to part b of this table.

In-combination/Other

A number of foreshore licence applications were submitted to the DHLGH, which were reviewed by the applicant and are listed in Section 4.3.3 of the NIS document. Several applications were found overlapping or in close proximity to the IEMEP application area, namely:

- Two subsea cable installations; PiPiper infrastructure fibre optic data cable and Greenlink Interconnector.
- Two offshore windfarm site investigation applications: Energia Helvick Head (now known as North Celtic Sea) and SSE Renewables Celtic Sea Array.

There is potential for all four of these projects to overlap spatially and temporally with the proposed survey works.

Since the submission of the application documents for the proposed IEMEP site investigations, the following foreshore licence applications have been submitted, which may overlap spatially and/or temporally with the current project.

- Simply Blue Energy Emerald site investigations (submitted May 2020)
- Celtic Interconnector electricity cable (submitted July 2021)
- DP Energy Inis Ealga additional export cable site investigations (submitted October 2021)

The applicant assessed the in-combination effects arising from the proposed works in combination with the abovementioned projects within the AA Screening Chapter 5. They concluded that there is potential of likely significant effects from the survey alone and or in combination with the other projects as there is potential for both spatial and temporal overlap. At this stage in the assessment, however, detailed project information as well as the timing of works for the abovementioned projects is not known. Incombination effects may occur as a result of spatial and/or temporal overlap between a range of projects and project activities and the proposed works. It is therefore not possible to rule out in-combination effects at this stage in the assessment process.

(b) Describe any likely changes to the European site:

Examples of the type of changes to give consideration to include:

- Reduction or fragmentation of habitat area
- · Disturbance to QI species
- · Habitat or species fragmentation

Table 5-2 in the applicant's AA Screening (Chapter 5) considers whether there are relevant source-pathway-receptor links between the proposed works and each European site, and these links have also been assessed here in **Table 3-2** (above).

Changes to sediments and benthic communities

Removal of sediment samples (boreholes, vibrocores and grab samples) have the potential to affect benthic communities through habitat loss and

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- Reduction or fragmentation in species density
- Changes in key indicators of conservation status value (water or air quality etc.)
- Changes to areas of sensitivity or threats to QI
- Interference with the key relationships that define the structure or ecological function of the site

physical disturbance, as outlined in Part (a). Only SACs designated for Annex I habitats which are directly within the survey footprint have the potential to be affected, as impacts at each sampling location will be localised and relatively small-scale. Sediment disturbed is likely to be quickly dispersed by prevailing tides. The only SAC within the application area is Ardmore Head SAC (IE002123), which is designated for vegetated sea cliffs and European dry heaths. As the proposed surveys will not overlap with these habitats, no pathways for effect have been identified. Likely significant effects due to benthic habitat loss/disturbance can be excluded at all relevant European sites.

Changes to SPAs and birds (visual and over-water noise disturbance)

The physical presence of survey vessels, and noise associated with the operation of survey equipment could result in disturbance to birds in the vicinity of the survey activities. Birds present on surface waters near the survey vessels could be temporarily displaced from their chosen feeding/resting location. Given the short duration of the operations with the vessel moving steadily forward along survey lines or remaining stationary at sample locations for short durations, any disturbance at a given location is likely to be minimal. Based on the survey schedule provided by the applicant, it is unlikely that more than one survey vessel will operate at any time. Given existing shipping and fishing activity in the region, the introduction of one survey vessel is not considered significant. Disturbance of foraging seabirds is likely to be temporary and there will be no barrier to movement to nearby foraging habitat. Therefore, it is concluded that there are no likely significant effects due to displacement of foraging seabirds from the proposed site investigations. As a result, the following site can be screened out:

Sovereign Islands SPA

The operation of survey equipment in the nearshore sections of the application area and subsequent noise has the potential to disturb breeding birds. The survey operations are planned between April and September (inclusive); therefore, it is possible that breeding and nesting birds may be present and disturbed by the presence of the jack-up barge and survey vessels close to the coast. Noise disturbance can lead to altered behaviour and impaired communication which may affect breeding success. Although likely to be small in scale, there is also potential for disturbance to breeding birds from the presence of humans during intertidal ecology surveys. The survey works overlap, or are within close proximity of three SPAs designated for breeding birds:

- Cork Harbour SPA (common tern only breeding species at this site),
- Mid-Waterford Coast SPA, and
- Helvick Head to Ballyquin SPA.

The applicant assessed these sites in more detail during their AA Screening, making use of habitat specialisation and susceptibility to disturbance scores outlined in the advice note on seabird displacement from offshore windfarm developments published by the UK's statutory nature conservation bodies (JNCC, 2017³). Given the level of detail required to understand these disturbance effects, it is considered more appropriate to assess the above sites at Stage 2 AA.

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³ JNCC (2017). Joint SNCB Interim Displacement Advice Note. Available at: https://hub.jncc.gov.uk/assets/9aecb87c-80c5-4cfb-9102-39f0228dcc9a Accessed on 06December 2021.

Changes to SACs designated for marine mammal species

Although the proposed survey works do not overlap with designated sites for marine mammals, the applicant recognises that the site may be used by marine mammals designated as QIs at other SACs, as detailed in **Table 3-2**, namely:

- Harbour porpoise (Phocoena phocoena)
- Grey seal (Halichoerus grypus)
- Harbour seal (Phoca vitulina)

The likelihood of significant effects on these species is addressed below based on the impacts identified in part (a) of this table.

Disturbance from underwater noise and vibration: Changes to
underwater noise and vibration as a result of geophysical and
geotechnical noise emissions have the potential to injure or disturb these
species. It is noted that the applicant makes use of the underwater noise
assessment to assess marine mammal sites in more detail during their
AA Screening and ultimately screened them out for underwater noise
assessment, however, given the level of detail required to understand
this effect, it is considered more appropriate to assess them at Stage 2
AA.

Additionally, although the applicant states that as part of the survey scope that the survey contractor will be required to follow the DAHG 2014⁴ marine mammal guidance, as a precautionary measure this should be considered as a mitigation measure, and as such should be considered only during Stage 2 AA.

- Risk of collision: The applicant does not consider collision risk, however, the potential for injury due to collision from survey vessels (most likely when in transit) and potentially from sampling equipment has been considered as a precautionary measure. The main drivers influencing collision risk are vessel type, speed and ambient noise levels (Wilson et al., 2007). The applicant states that the vessels undertaking the site investigations are likely to be either stationary or travelling slowly, between 3.6km/h to 5km/h. While marine mammals have the potential to collide with vessels, there is a high likelihood that an animal will display avoidance behaviour in response to vessel noise and presence. It is also highly likely that marine mammals in the area will be used to the presence of vessels. The risk of vessel and equipment collision with marine mammals is considered to be low and is therefore likely significant effects due to collision risk can be screened out.
- Disturbance from overwater noise: overwater noise could disturb grey
 and harbour seals at breeding, moulting and resting sites. The nearest
 sites are located at Saltee Islands SAC, approximately 51km from the
 proposed works. Given the intervening distance, likely significant effects
 to grey and harbour seal as a result of over-water noise can be excluded.

In summary, the following marine mammal SACs are screened in for further consideration of underwater noise effects at Stage 2 Appropriate Assessment:

- Saltee Islands SAC
- Roaringwater Bay and Islands SAC
- West Wales Marine/ West Gorllewin Crymru Forol SAC
- North Anglesey Marine/Gobledd Mon Forol SAC

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⁴ DAHG (2014). Guidance to manage the risk to marine mammals from man-made sound sources in Irish waters. Department of Arts, Heritage and the Gaeltacht. Available online:

https://www.npws.ie/sites/default/files/general/Underwater%20sound%20guidance_Jan%202014.pdf Accessed 22 December 2021.

- Bristol Channel Approaches/ Dynesfeydd Mor Hafren SAC
- · Cardigan Bay/ Bae Ceredigion SAC
- · Rockabill to Dalkey Island SAC
- North Channel SAC

Changes to SAC designated for migratory fish species

The Blackwater River SAC is located 2km and the River Barrow to River Nore is 37km from proposed application area. The following migratory fish species are QIs for both SACs:

- Salmon
- Twaite shad
- Sea lamprey
- River lamprey.

The applicant has noted that there is potential for disturbance to twaite shad from underwater noise from the geophysical survey work. No assessment appears to have been completed for underwater noise emitted as a result of geotechnical surveys (i.e. drilling and vibrocoring).

The applicant noted in their screening assessment that salmon, sea and river lamprey are not sensitive to underwater sound changes and that no significant effects are anticipated to these species. There is a paucity of species-specific knowledge with regard to the effects of anthropogenic noise on fish, however, it is known that fish, including salmon, are sensitive to particle motion which is integral to hearing in all fish⁵. Survey activities which emit underwater noise may result in changes to sound pressure and particle motion waves that propagate through water. Effects can include masking of biologically important sounds, hearing impairment, stress responses and behavioural changes⁶.

In view of the observations of the IFI (see **Table 3-1**) and due to the complexity of assessing underwater noise impacts, as a precautionary measure, likely significant effects to all migratory fish species at Blackwater River SAC and River Barrow and River Nore SAC cannot be excluded at this stage and will be considered in more detail during the Stage 2 Appropriate Assessment.

(c) Are 'mitigation' measures necessary to reach a conclusion that likely significant effects can be ruled out at screening?

Yes / No

For European sites where likely significant effects have been ruled out at Stage 1 Screening (Sovereign Islands SPA), no mitigation measures were replied upon to reach this conclusion.

For all remaining sites, further assessment is required and mitigation measures may be required to rule out likely significant effects. An NIS has been prepared by the applicant.

⁵ Hawkins and Popper (2017) A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates. *ICES Journal of Marine Science* 74 (3) p. 635-651.

⁶ Popper and Hawkins (2019) An overview of fish bioacoustics and the impacts of anthropogenic sounds on fishes. *Journal of Fish Biology* 94 (5) p. 692-713

3.5 Screening Determination

Screening Determination Statement

The assessment of significance of effects:

Describe how the proposed development (alone or in-combination) is/is **not likely** to have **significant** effects on European site(s) in view of its conservation objectives.

On the basis of the information supplied by the applicant, and information publicly available on the NPWS website, and having regard to:

- The nature and scale of the proposed project, and
- The direct connections with regard to the Source-Pathway-Receptor model, and
- The potential for, and absence of detail allowing an assessment of in-combination effects,

It is concluded that the proposed development, individually or in-combination with other plans or projects, is likely to have a significant effect on the following European site, in view of the sites' conservation objectives:

- Helvick Head to Ballyquin SPA
- Cork Harbour SPA
- Mid-Waterford Coast SPA
- Blackwater River SAC
- River Barrow and River Nore SAC
- Saltee Islands SAC
- Roaringwater Bay and Islands SAC
- West Wales Marine/ West Gorllewin Crymru Forol SAC
- North Anglesey Marine/Gobledd Mon Forol SAC
- Bristol Channel Approaches/ Dynesfeydd Mor Hafren SAC
- · Cardigan Bay/ Bae Ceredigion SAC
- Rockabill to Dalkey Island SAC
- North Channel SAC

An appropriate assessment is, therefore, required to determine if adverse effects on site integrity can be excluded in view of the conservation objectives of the sites mentioned in this appraisal (**Table 3-2**).

An NIS has been provided by the applicant and will be reviewed in the NIS Technical Review and AA Report.

Conclusion:						
	Tick as appropriate:	Recommendation:				
(i) It is clear that there is no likelihood of significant effects on a European site.		The proposal can be screened out: Appropriate assessment not required.				
(ii) It is uncertain whether the proposal will have a significant effect on a European site.		 □ Request further information to complete screening □ Request NIS □ Refuse planning permission 				
(iii) Significant effects are likely.		☑ Request NIS (Note that an NIS has been provided) ☐ Refuse planning permission				

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